



Dear Year 5 and 6,



Thank you again for your continued hard work and thank you to those who have sent work in, I have absolutely loved reading through it all. I am thrilled with how hard you are all working. I am missing you all very much but hope you've all been enjoying your time at home.



This work pack is for the next three weeks and is still mainly focused around our end of year cultural topic 'Australia'!



Remember to go on IDL and mathletics as much as possible and try to read everyday.



Here are some other ideas of activities you might also like to try out:

- Joe Wicks is streaming live PE sessions Monday to Friday on his YOUTUBE channel.
- Try <https://family.gonoodle.com/> to keep active
- Why not have a go at scratch and do some creative computer programming: <http://scratch.mit.edu/explore/projects/games/>
- Get out into the garden and become a nature detective and get some ideas at <https://naturedetectives.woodlandtrust.org.uk/naturedetectives/>
- <https://www.bbc.co.uk/bitesize/levels/> has some amazing resources which might help!
- Cosmic kids for yoga and stretching activities
- Search 'peace out' for stories to help you sleep.



Please contact me at any point by email or by phone as I am always here to help. Enjoy and stay safe!



Mrs Stocks



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Cross curricular topic based on Australia



Activity 1:



Captain James Cook



- Captain James Cook first discovered Australia in April 1770. Use the internet to find out about who Captain Cook was and the voyage that led him to discover Australia. You might like to find out: What his ship was called, where did he land? Who did he have with him? What did he find there? Use a publishing package such as Word or Publisher to record the key points that you find. You might also like to import some images from Google.



- Draw a labelled diagram of Captain Cook's ship, write around it what life was like on board. Could you make a model out of cardboard? Why not adapt it to make it your own but with an 18th Century feel?



- Many of the first people who were brought to live in Australia were convicts! Find out what life was like for them on board the ship. Make a list of the positive and negative points of being sent to Australia from the UK.



- Write a diary entry from the point of view of a convict. How are you treated? How do you spend your days? What food do you eat? How are you feeling about the new life ahead of you?



- When Captain Cook and his men discovered Australia, there were already people living there. Who were they? How do you think they felt about the arrival of these strange new people?





Activity 2:



Aboriginal People



- Watch Aboriginal dance and music on YouTube.
https://www.youtube.com/watch?v=OhyKsEn6_So



- Traditional Aboriginal Food. Aborigines traditionally ate foods that may surprise you (and make your stomach turn!) Write a menu for an Aboriginal meal!



- Aboriginal art symbols. Aborigines used paintings, drawings and symbols on rocks and caves to tell others where food and water could be found and what animals were in the area. Have a go at creating some of these symbols and pictures yourself. If you can, send a picture to me to see if I can unlock your code!



- Aborigines used plants and some creatures from the bush to create medicine. Find out what they used to treat: a cold, burns, headaches, sores and wounds and teething babies!



- Some Aboriginal tribes built shelters out of sticks and rocks, have a go yourself!





Activity 3:



Aboriginal stories



- Storytelling is very important in Aboriginal culture! Listen to some traditional Aboriginal stories on YouTube. Try searching for: The Koala with the stumpy tail, The Rainbow Serpent, Tiddalick the frog, How the kangaroo got it's tail or, How the turtle got it's shell. What do all of the stories have in common?
- Try to write your own Aboriginal story- For Example: How the Kangaroo learnt to jump, or Why the spider has eight legs or perhaps, why the snake slithers.
- One of the ways that Aborigines tell stories is through the use of 'Dream Stones' and the stories told are called 'Dreaming Stories' These stories are told by drawing symbols and pictures onto rocks and then using these as prompts to tell the story. Choosing one of the stories you have watched on YouTube, collect some flat stones and make your own dream stones to tell one of the stories you have watched.



Activity 4:



Traditional Aboriginal Art



- Traditional Aboriginal art consists of: body art, rock engraving, dot painting, symbols in the sand and rock painting. Look on Google images for some examples and fill in a comparison chart looking at the materials and colours used and the purpose of each of the examples of art.



- Try recreating some of the Aboriginal art you have seen (send us pictures please!)



- Listen to the Digeridoo and traditional Australian songs on You Tube (e.g Waltzing Matilda, Kookaburra etc.) Learn one of the songs.



<https://www.youtube.com/watch?v=lsVNjV5x370>



- Make your own Digeridoo using cardboard tubes, decorate it with Aboriginal art!



Finally...if the weather is nice enjoy an 'Australian' barbecue in the garden!





Year 5



Grammar



WB 22.6.20 revision 3 page 42 and 43



WB 29.6.20 writing task 3



WB 6.7.20 final grammar test



Spelling



WB 22.6.20 words with the silent letter b, e.g. thumb, numb, crumb



WB 29.6.20 words containing the letter string ough, e.g. cough, tough, thorough.



WB 6.7.20 words ending in ible, e.g. terrible, possible, sensible.



Please see activity suggestions in guidance handed out in the first week.



Maths



Please find attached three mental arithmetic booklets, one for each week.



WB 22.6.20 line graphs and tables



Challenge - can you create your own data to make a line graph and table?



WB 29.6.20 measuring angles in degrees, measuring with a protractor and measuring straight line angles



WB 6.7.20 lengths and angles in shapes, polygons and 3D shapes



Fluent in Five

Daily Arithmetic Practice
Week 12

Year 5



THIRD SPACE LEARNING

Fluent in Five - Year 5
Week 12 - Day 1

Name.....

Date.....School.....

Class.....Score.....

1

$$1.45 + 3 =$$

1 mark

2

$$7,894 - \boxed{} = 3,858$$

1 mark

3

$$\frac{3}{4} \times 12 =$$

1 mark

Answer Sheet

Remember, (M) is written next to those questions you should have tried to solve mentally first. (W) means a written method is usually more efficient for this question.

1. $1.45 + 3 = \mathbf{4.45}$ (M)

2. $7,894 - \mathbf{4,036} = 3,858$ (W)

3. $\frac{3}{4} \times 12 = \mathbf{9}$ (M)

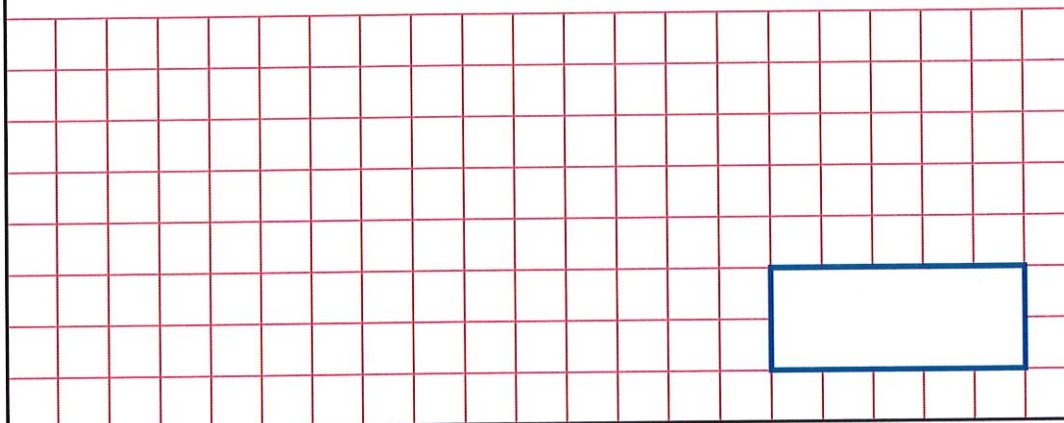
4. $65 \times 23 = \mathbf{1,495}$ (W)

5. $\frac{3}{5} - \frac{1}{10} = \frac{\mathbf{5}}{\mathbf{10}}$ or $\frac{\mathbf{1}}{\mathbf{2}}$ (M)

Fluent in Five - Year 5
Week 12 - Day 2

4

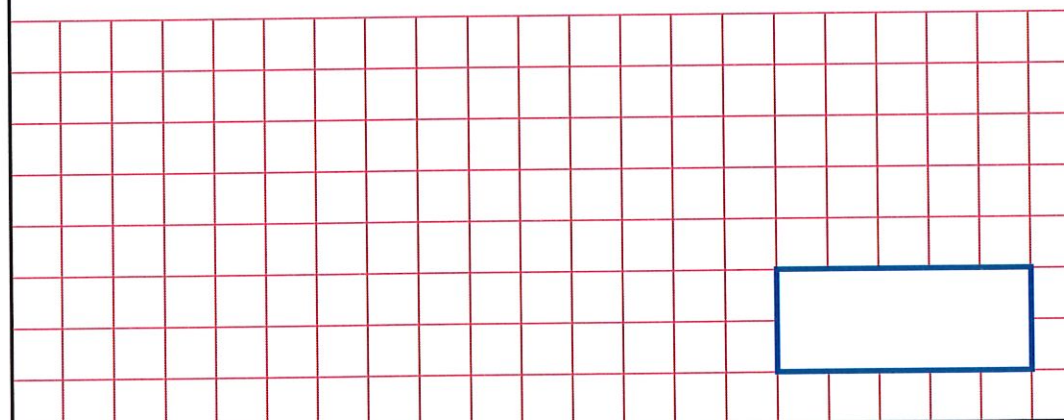
$$981 + 34,894 =$$



1 mark

5

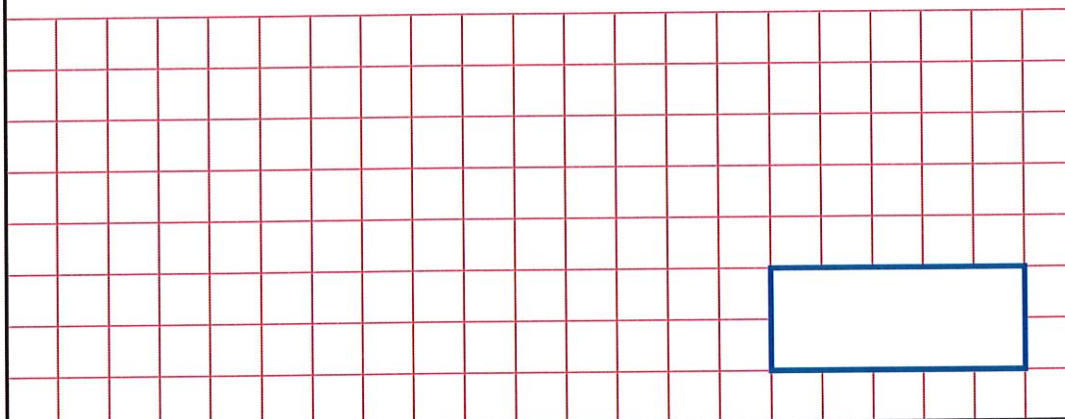
$$183 \times 100 =$$



1 mark

1

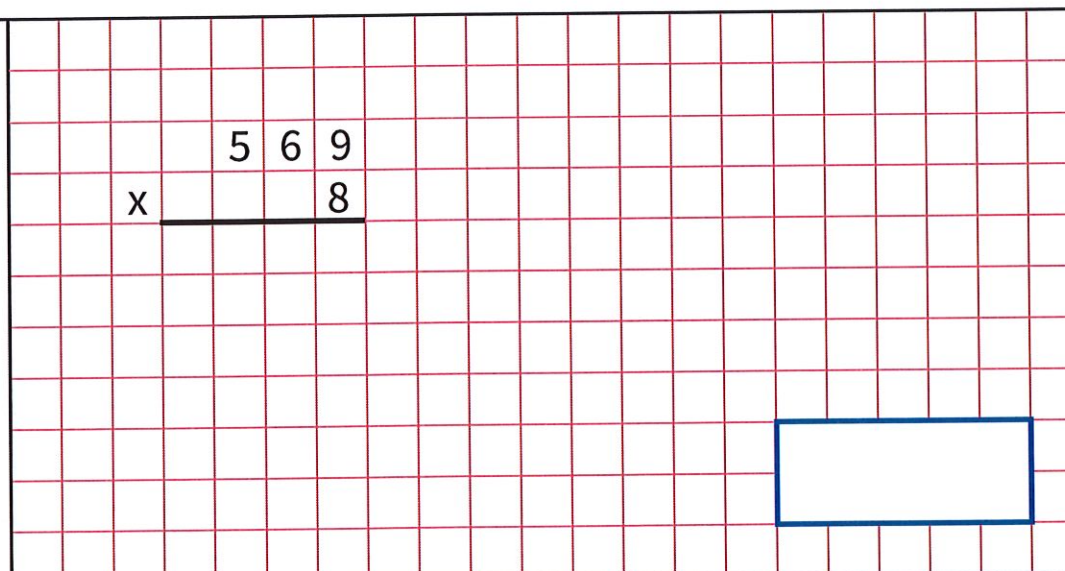
$$562 \div 8 =$$

☐

1 mark

2

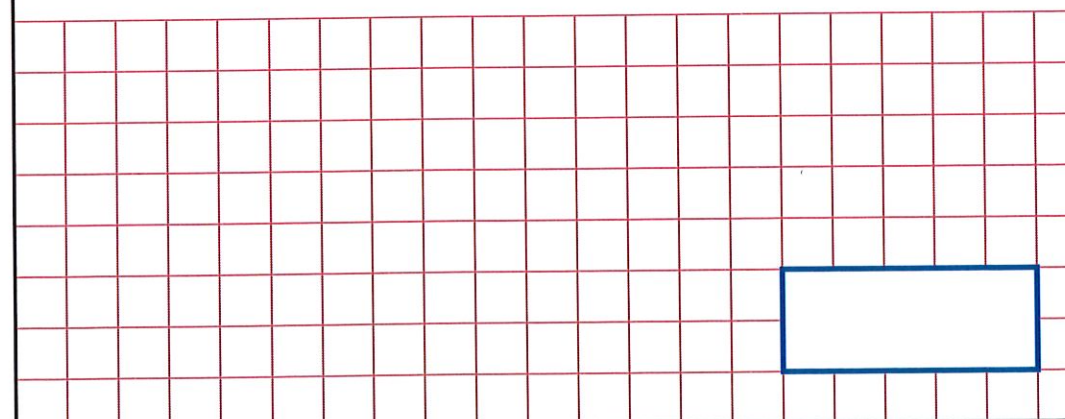
$$\begin{array}{r} 569 \\ \times 8 \\ \hline \end{array}$$

☐

1 mark

3

$$654 \div 100 =$$

☐

1 mark

Answer Sheet

Remember, (M) is written next to those questions you should have tried to solve mentally first. (W) means a written method is usually more efficient for this question.

1. $562 \div 8 = 70\frac{1}{4}$ or $70\frac{2}{8}$ or **70.25** (W)

2. $569 \times 8 = \mathbf{4,552}$ (W)

3. $654 \div 100 = \mathbf{6.54}$ (M)

4. $87 - 29 = \mathbf{58}$ (M)

5. $98 + 165 = \mathbf{263}$ (M)

Week 12 - Day 4

$$654 + 230 =$$


11

1 mark

$$560 \div 8 =$$

10

1 mark

1	<div data-bbox="268 347 437 398">$90 \times 80 =$</div> <div data-bbox="223 477 1300 891"></div>	<div data-bbox="1329 725 1406 801"></div> <div data-bbox="1329 801 1406 831">1 mark</div>
2	<div data-bbox="268 943 472 994">$6,549 \times 3 =$</div> <div data-bbox="223 1072 1300 1487"></div>	<div data-bbox="991 1328 1251 1435"></div> <div data-bbox="1329 1323 1406 1400"></div> <div data-bbox="1329 1400 1406 1429">1 mark</div>
3	<div data-bbox="268 1541 344 1592">$8^2 =$</div> <div data-bbox="223 1671 1300 2089"></div>	<div data-bbox="991 1926 1251 2033"></div> <div data-bbox="1329 1921 1406 1998"></div> <div data-bbox="1329 1998 1406 2027">1 mark</div>

Answer Sheet

Remember, (M) is written next to those questions you should have tried to solve mentally first. (W) means a written method is usually more efficient for this question.

1. $90 \times 80 = \mathbf{7,200}$ (M)
2. $6,549 \times 3 = \mathbf{19,647}$ (W)
3. $8^2 = \mathbf{64}$ (M)
4. $650 \times 4 = \mathbf{2,600}$ (M)
5. $56,789 - 1,294.76 = \mathbf{55,494.24}$ (W)

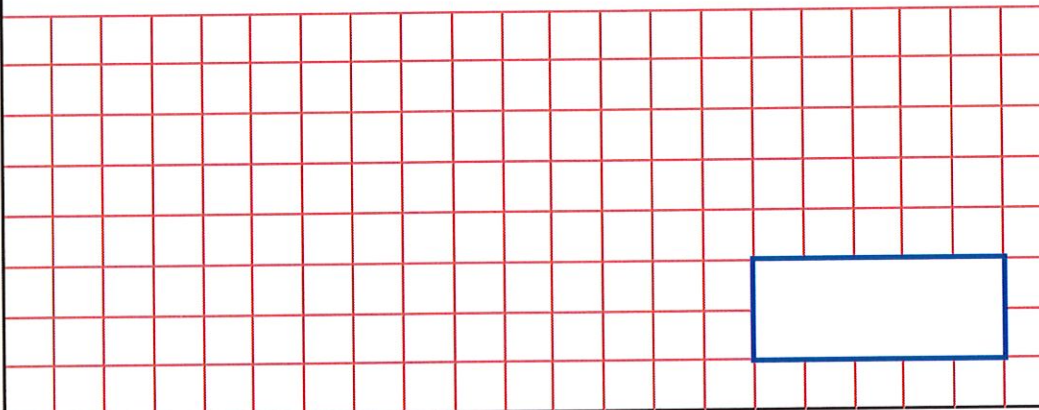
Fluent in Five

Daily Arithmetic Practice
Week 13

Year 5

1

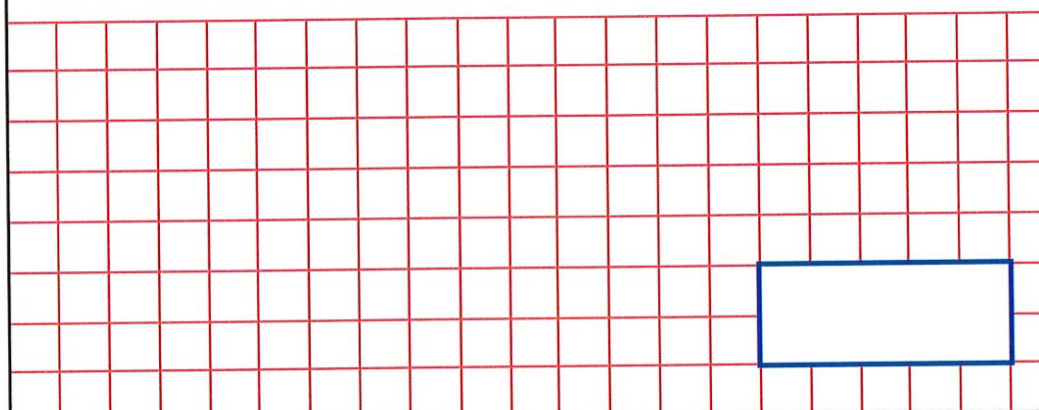
$$\frac{3}{7} \text{ of } 28 =$$

☐

1 mark

2

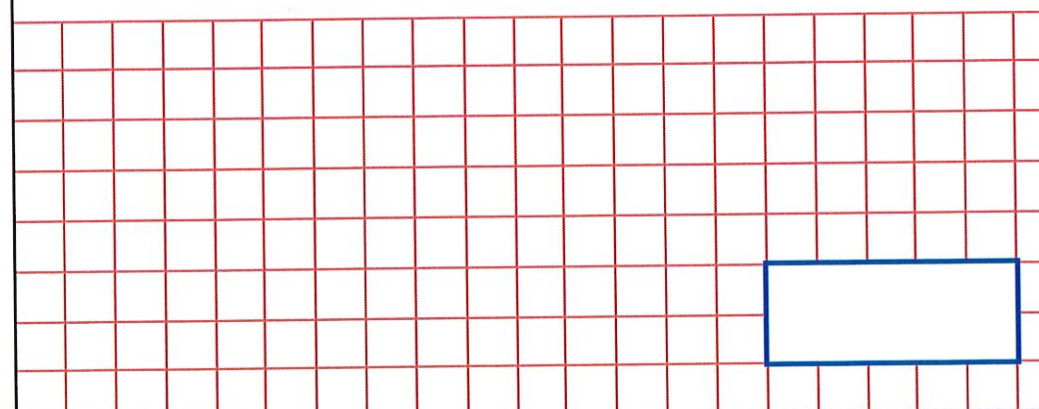
$$15,367 + 12,053 =$$

☐

1 mark

3

$$199 + 198 =$$

☐

1 mark

Answer Sheet

Remember, (M) is written next to those questions you should have tried to solve mentally first. (W) means a written method is usually more efficient for this question.

1. $\frac{3}{7}$ of 28 = **12** (M)
2. $15,367 + 12,053 = \mathbf{27,420}$ (W)
3. $199 + 198 = \mathbf{397}$ (M)
4. $3,587 \div 5 = \mathbf{717 \text{ r } 2}$ or $\mathbf{717 \frac{2}{5}}$ or $\mathbf{717.4}$ (W)
5. $80 \times 50 = \mathbf{4,000}$ (M)

4

$$67 - 34 =$$

1 mark

5

$$500 \div 20 =$$

1 mark

1

$60 \times 4 =$

1 mark

2

$$\begin{array}{r} 467 \\ \times \quad 6 \\ \hline \end{array}$$

1 mark

3

$113 \times 74 =$

2 marks

Answer Sheet

Remember, (M) is written next to those questions you should have tried to solve mentally first. (W) means a written method is usually more efficient for this question.

1. $60 \times 4 = \mathbf{240}$ (M)
2. $467 \times 6 = \mathbf{2,802}$ (W)
3. $113 \times 74 = \mathbf{8,362}$ (W)
4. $800 - 600 = \mathbf{200}$ (M)
5. $5 - \mathbf{7} = -2$ (M)

Fluent in Five - Year 5
Week 13 - Day 4

4

$$944 + 7 =$$

☐

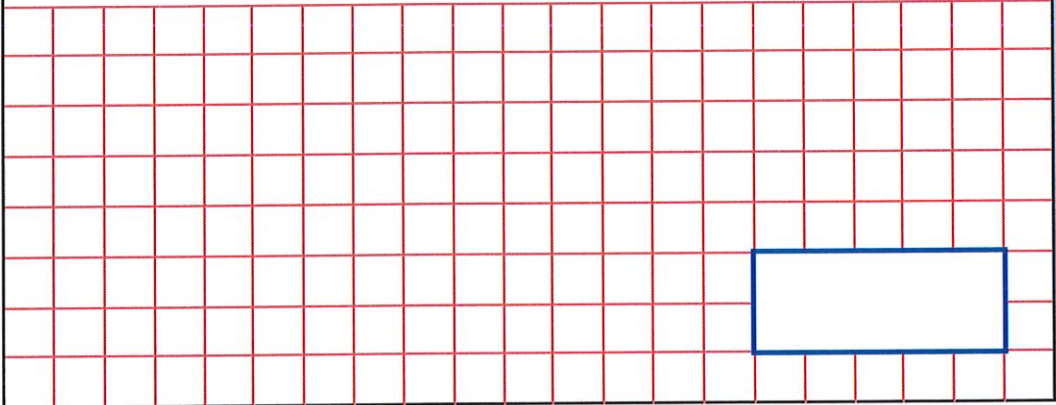
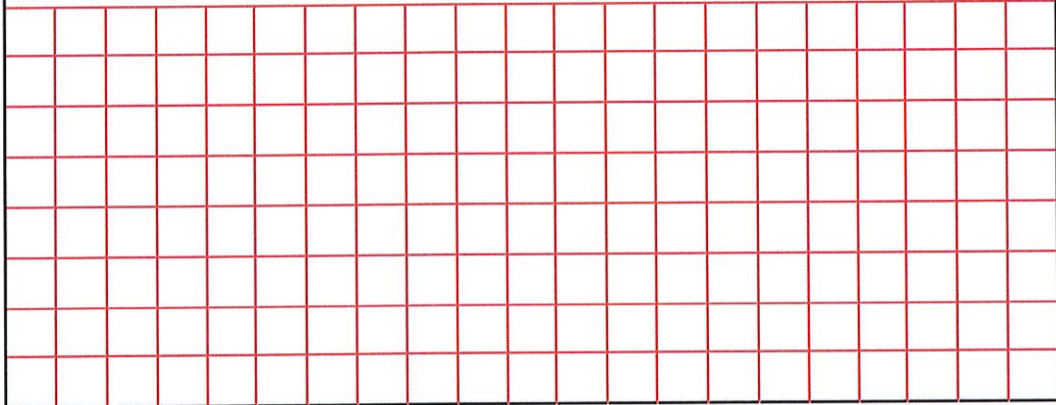
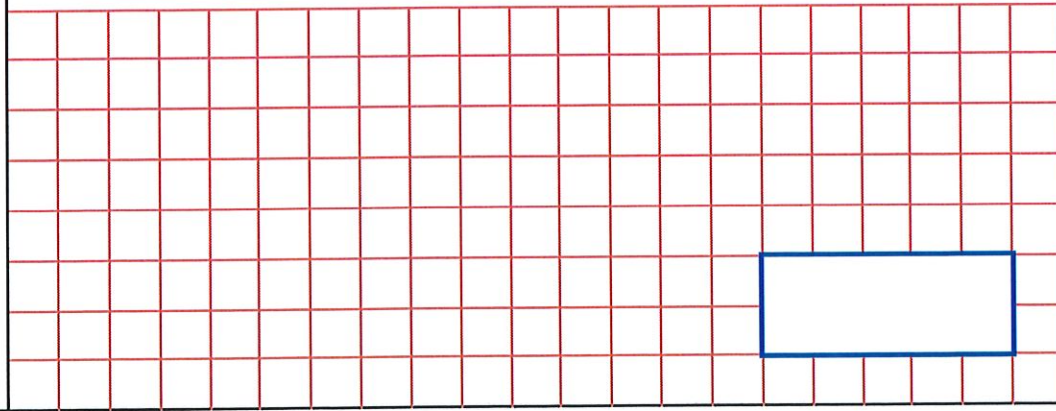
1 mark

5

$$589 \times 7 =$$

☐

1 mark

1	$474 \times 3 =$  <div data-bbox="1010 748 1267 853" style="border: 1px solid blue; width: 161px; height: 47px; position: absolute; bottom: 10px; right: 10px;"></div>	<div data-bbox="1347 748 1422 808" style="border: 1px solid black; width: 47px; height: 27px; position: absolute; bottom: 10px; right: 10px;"></div> <div data-bbox="1347 819 1422 842" style="position: absolute; bottom: 10px; right: 10px;">1 mark</div>
2	<div data-bbox="304 960 561 1066" style="border: 1px solid blue; width: 161px; height: 47px; position: absolute; top: 10px; left: 10px;"></div> $\quad^2 = 16$ 	<div data-bbox="1347 1326 1422 1386" style="border: 1px solid black; width: 47px; height: 27px; position: absolute; bottom: 10px; right: 10px;"></div> <div data-bbox="1347 1397 1422 1420" style="position: absolute; bottom: 10px; right: 10px;">1 mark</div>
3	$83 - 51 =$  <div data-bbox="1018 1912 1275 2018" style="border: 1px solid blue; width: 161px; height: 47px; position: absolute; bottom: 10px; right: 10px;"></div>	<div data-bbox="1355 1908 1430 1968" style="border: 1px solid black; width: 47px; height: 27px; position: absolute; bottom: 10px; right: 10px;"></div> <div data-bbox="1355 1980 1430 2002" style="position: absolute; bottom: 10px; right: 10px;">1 mark</div>

Answer Sheet

Remember, (M) is written next to those questions you should have tried to solve mentally first. (W) means a written method is usually more efficient for this question.

1. $474 \times 3 = \mathbf{1,422}$ (W)
2. $4^2 = 16$ (M)
3. $83 - 51 = \mathbf{32}$ (M)
4. $6,193 + 2,208 = \mathbf{8,401}$ (W)
5. $540 \div 60 = \mathbf{9}$ (M)

Fluent in Five

Daily Arithmetic Practice
Week 14

Year 5

$$\frac{3}{4} \text{ of } 60 =$$

--

11

2

4	5	8	6	5
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11

3

 $11 \times 6 =$ [illegible]

10

3

Answer Sheet

Remember, (M) is written next to those questions you should have tried to solve mentally first. (W) means a written method is usually more efficient for this question.

1. $\frac{3}{4}$ of 60 = **45** (M)
2. $5,865 \div 4 = \mathbf{1,466 \text{ r } 1}$ or $\mathbf{1,466 \frac{1}{4}}$ or $\mathbf{1,466.25}$ (W)
3. $11 \times 6 = \mathbf{66}$ (M)
4. $27,488 + 19,543 = \mathbf{47,031}$ (W)
5. $0 \times 12 = \mathbf{0}$ (M)

1 mark

1 mark

1

$10^3 =$

☐

1 mark

2

$600,300 - 359,224 =$

☐

1 mark

3

$\frac{3}{5} \text{ of } 55 =$

☐

1 mark

Answer Sheet

Remember, (M) is written next to those questions you should have tried to solve mentally first. (W) means a written method is usually more efficient for this question.

1. $10^3 = \mathbf{1,000}$ (M)
2. $600,300 - 359,224 = \mathbf{241,076}$ (W)
3. $\frac{3}{5}$ of 55 = **33** (M)
4. $68 \times 7 = \mathbf{476}$ (W)
5. $420 \times 2 = \mathbf{840}$ (M)

$108 \div 9 =$ [illegible]

11

5

$243 + 60 =$

A blank sheet of graph paper with a grid pattern. A blue rectangular box is drawn on the right side of the page.

1

1 mark

Fluent in Five - Year 5
Week 14 - Day 5

Name.....
Date.....School.....
Class.....Score.....

1	$592 \times 3 =$																			
																				<input type="text"/>
																				<input type="checkbox"/>
																				1 mark

2	$120 + 60 =$																			
																				<input type="text"/>
																				<input type="checkbox"/>
																				1 mark

3	$270 \div 30 =$																			
																				<input type="text"/>
																				<input type="checkbox"/>
																				1 mark

Answer Sheet

Remember, (M) is written next to those questions you should have tried to solve mentally first. (W) means a written method is usually more efficient for this question.

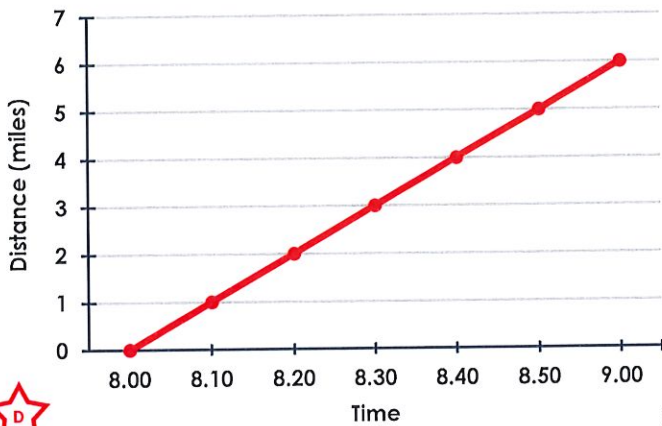
1. $592 \times 3 = \mathbf{1,776}$ (W)
2. $120 + 60 = \mathbf{180}$ (M)
3. $270 \div 30 = \mathbf{9}$ (M)
4. $54,292 + 17,786 = \mathbf{72,078}$ (W)
5. $500 \times 500 = \mathbf{250,000}$ (M)

Read and Interpret Line Graphs

Read and Interpret Line Graphs

1a. By 8.50am, Bella had run 5 miles and Seth had run 6 miles. Whose performance is shown on the line graph?

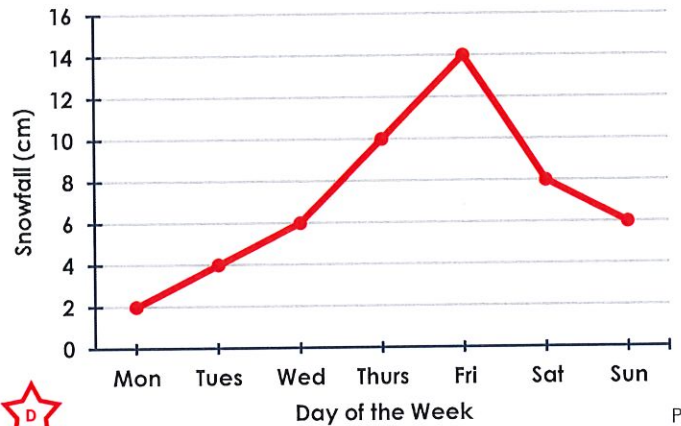
Number of Miles Run in an Hour



PS

1b. Last Friday, 12cm of snow fell in Alaska, and 14cm fell in Greenland. Which country is represented on the line graph?

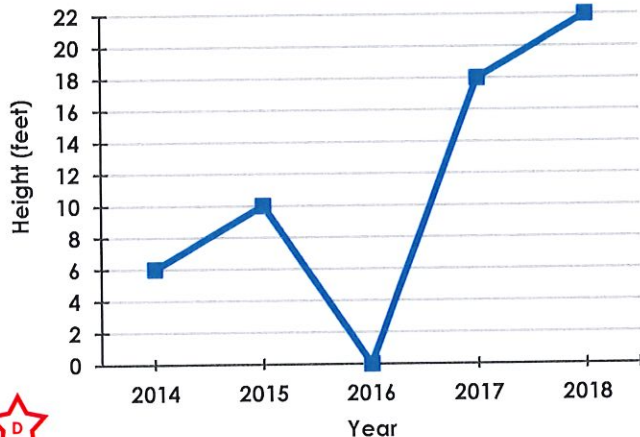
Total Snowfall



PS

2a. Jen made a mistake when she plotted her line graph. Where do you think the mistake was made? Convince me.

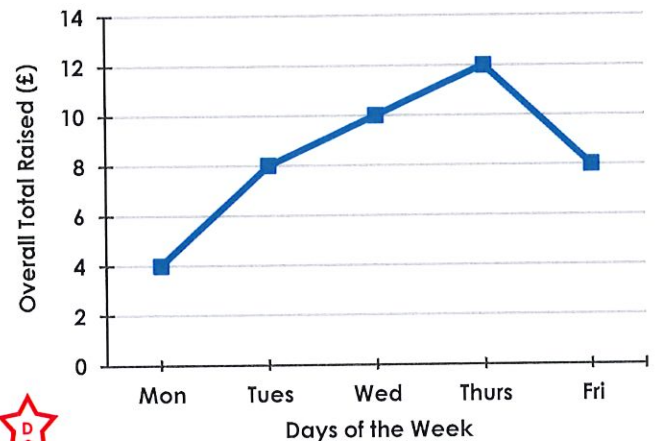
Height of Tree



R

2b. Simon made a mistake when he plotted his line graph. Where do you think the mistake was made? Convince me.

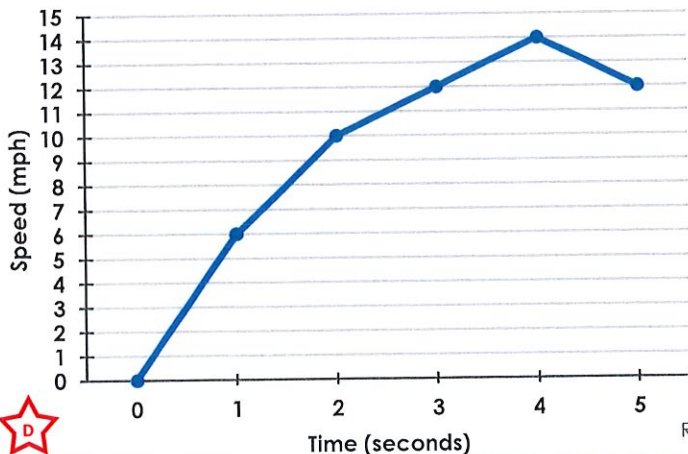
Charity Fundraising



R

3a. Freddie said that the runner took 5 seconds to reach their top speed. Is he correct? Explain why.

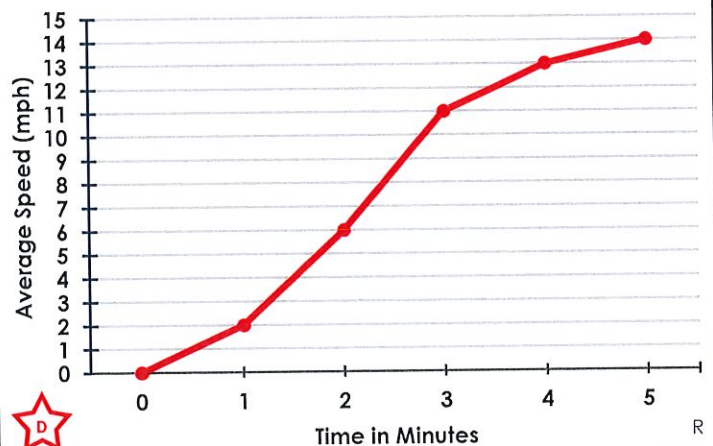
Speed of a Runner During a Race



R

3b. Lily said that the average speed of the car decreased after 4 minutes. Is she correct? Explain why.

Average Speed of a Car

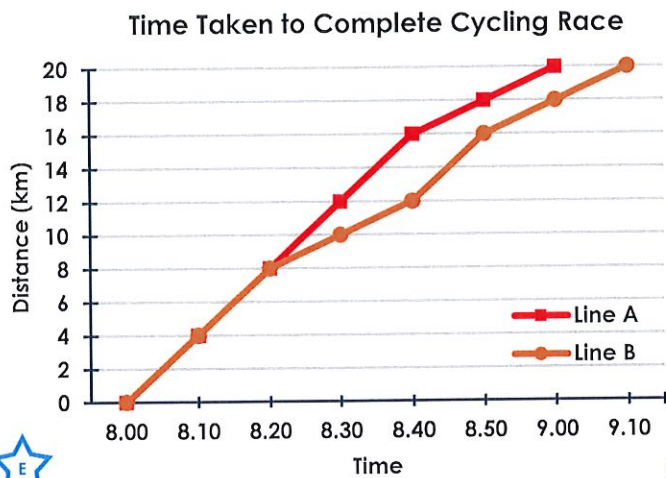


R

Read and Interpret Line Graphs

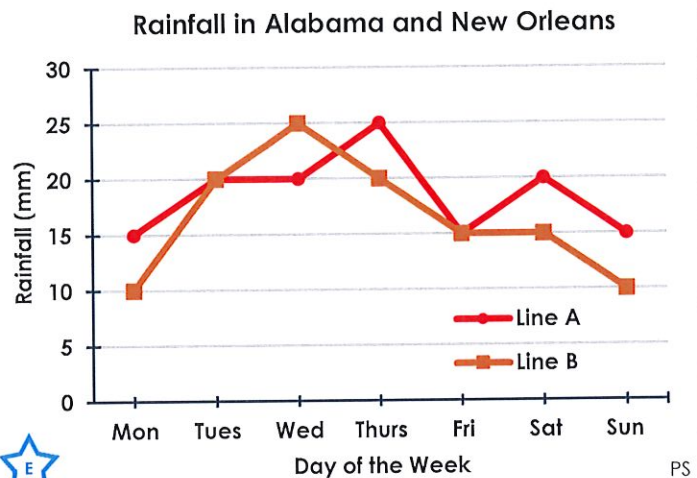
Read and Interpret Line Graphs

4a. Kim reached the finishing line of the cycling race before Danny. Which line represents Kim's performance?



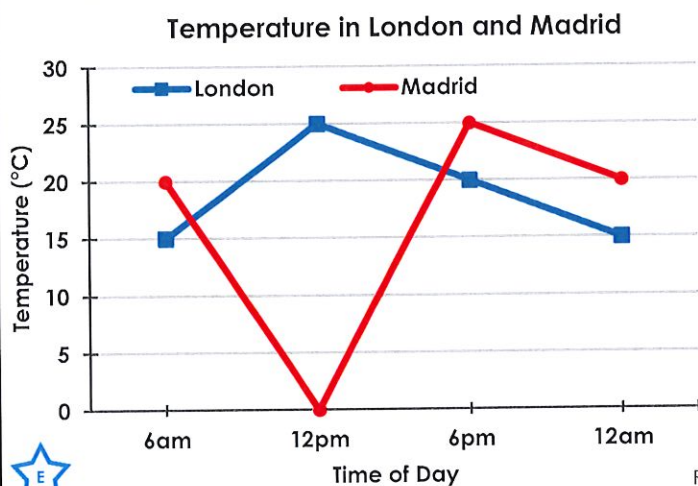
PS

4b. Last week, it rained less in Alabama than it did in New Orleans. Which line represents Alabama's rainfall?



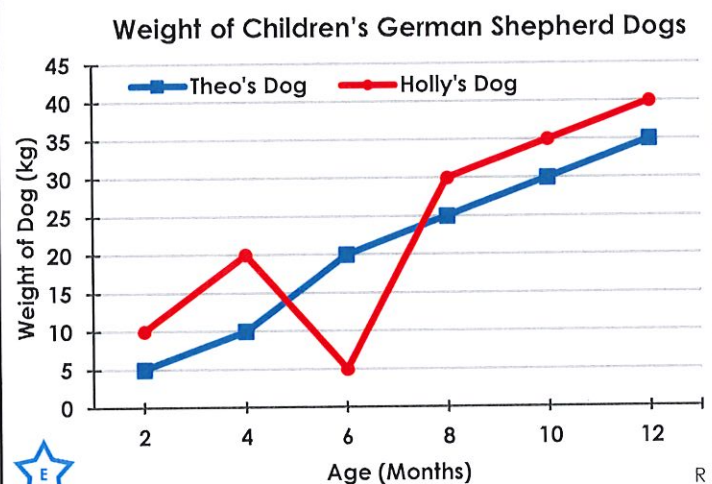
PS

5a. Liz made a mistake when she plotted her line graph. Where do you think the mistake was made? Convince me.



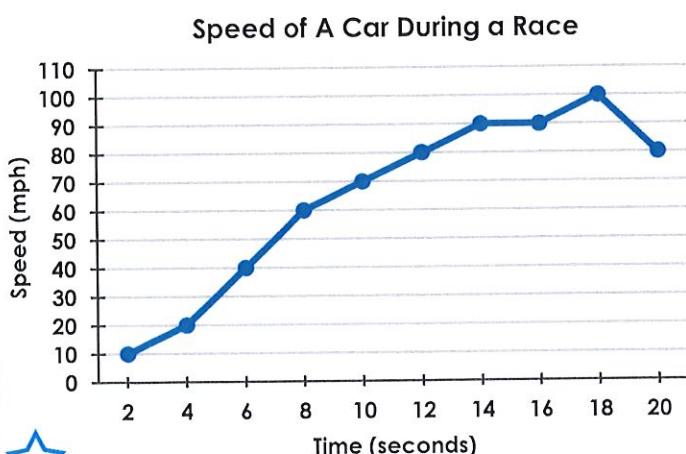
R

5b. Martin made a mistake when he plotted his line graph. Where do you think the mistake was made? Convince me.



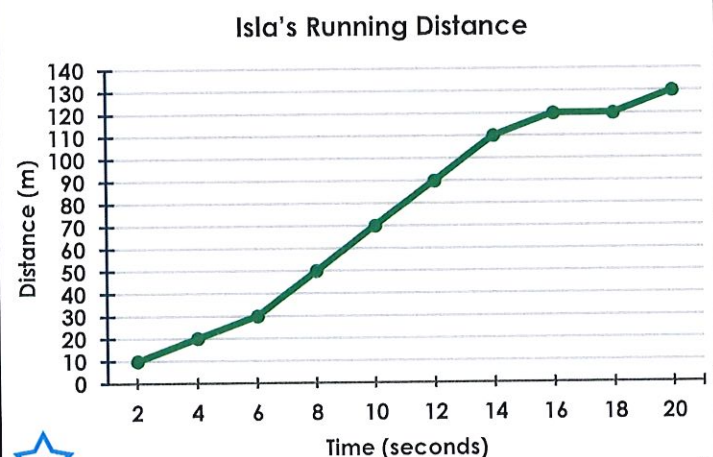
R

6a. Peter said that his car took 14 seconds to reach its top speed. Is he correct? Explain why.



R

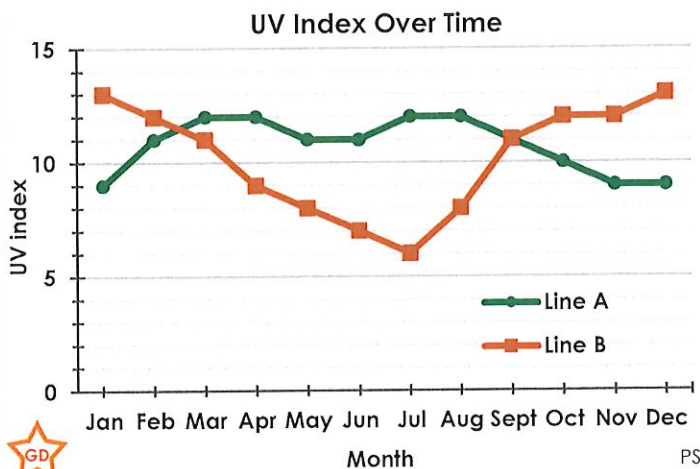
6b. Isla said that the distance she ran increased between 16 and 18 seconds. Is she correct? Explain why.



R

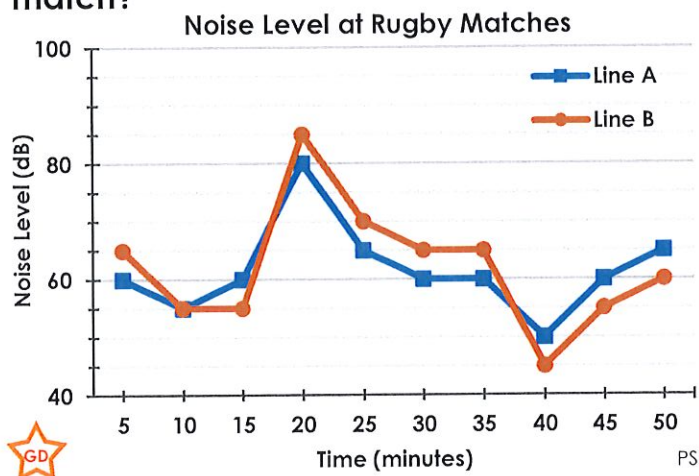
Read and Interpret Line Graphs

7a. The UV Index was higher overall in Panama than Madagascar. Which line represents Madagascar?



Read and Interpret Line Graphs

7b. The rugby match at Hull had a lower noise level overall than the match at Halifax. Which line represents the Halifax match?



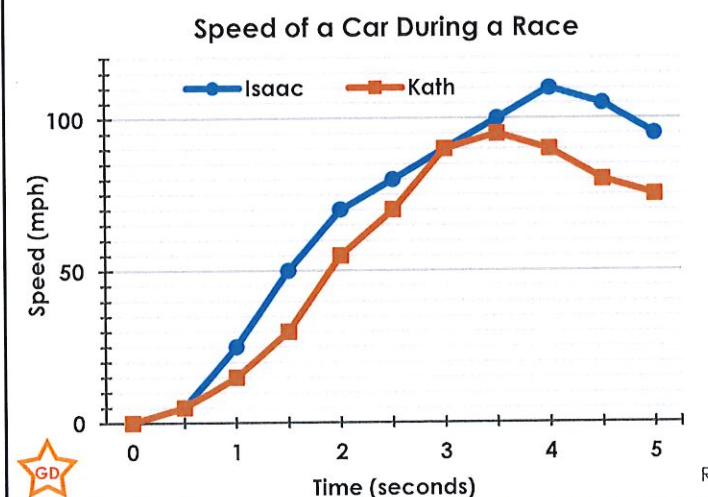
8a. Eva made a mistake when she plotted her line graph. Where do you think the mistake was made? Convince me.



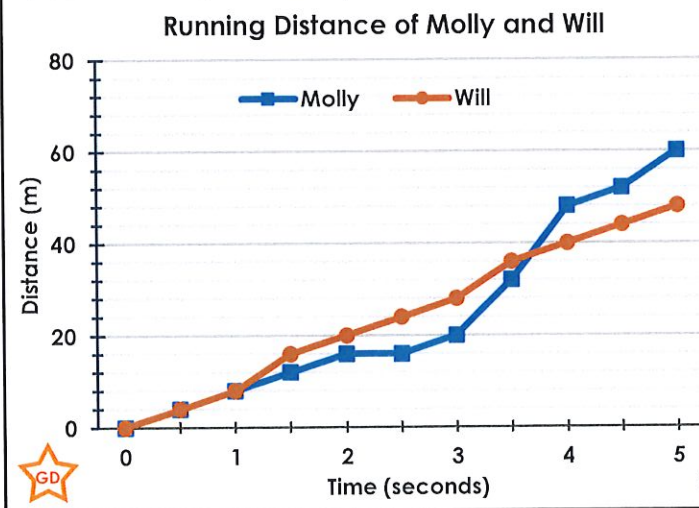
8b. Emilio made a mistake when he plotted his line graph. Where do you think the mistake was made? Convince me.



9a. Isaac said that his car took 3.5 seconds to reach its top speed. Is he correct? Explain why.



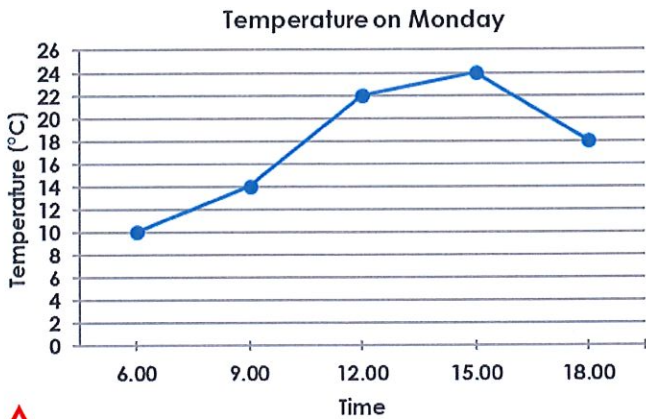
9b. Molly thinks she was quicker than Will in the first 2.5 seconds of the race. Is she correct? Explain why.



Read and Interpret Line Graphs

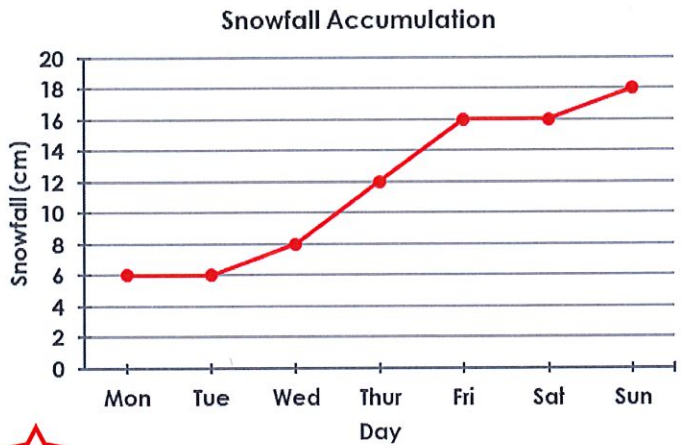
Read and Interpret Line Graphs

1a. What were the highest and lowest temperatures recorded?



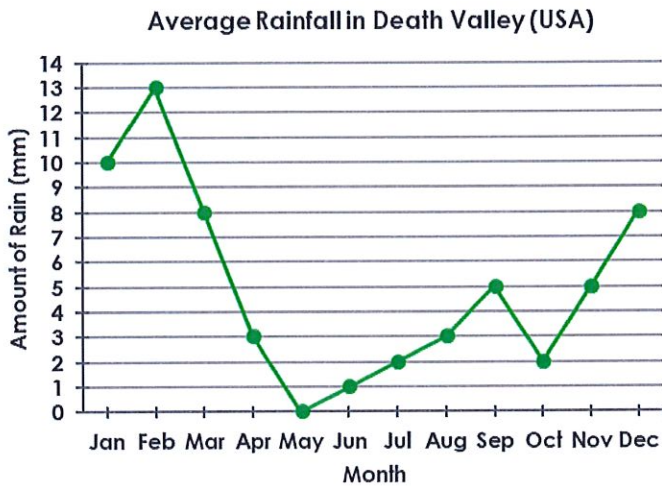
VF

1b. How much snow fell between Friday and Saturday?



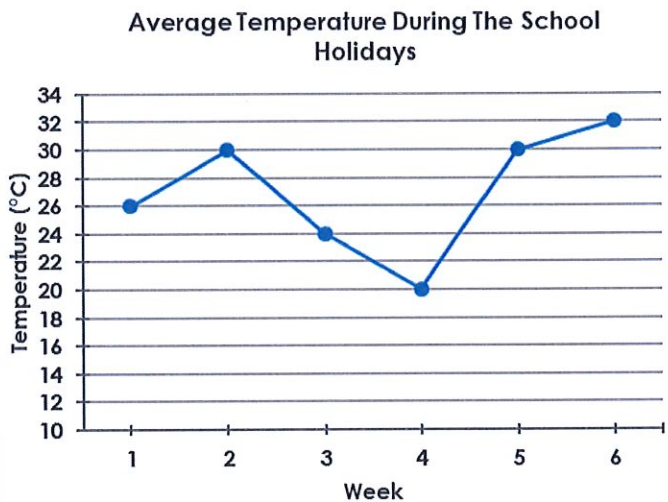
VF

2a. Which months saw more than 4mm of rain?



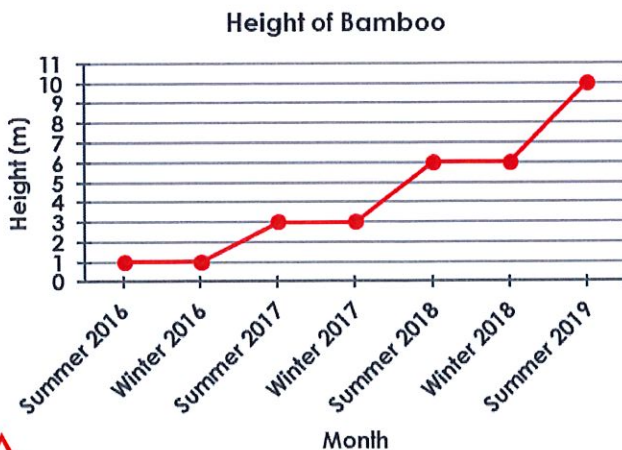
VF

2b. In which weeks were the temperatures 30°C or above?



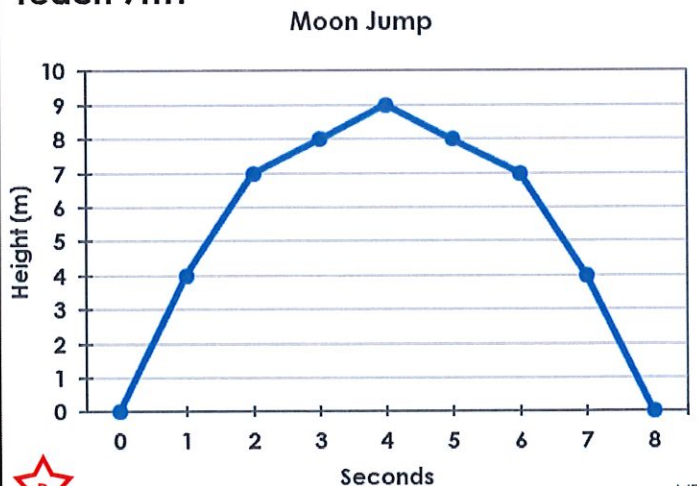
VF

3a. In which season did the height of the bamboo reach over 5m?



VF

3b. How long did it take the astronaut to reach 7m?

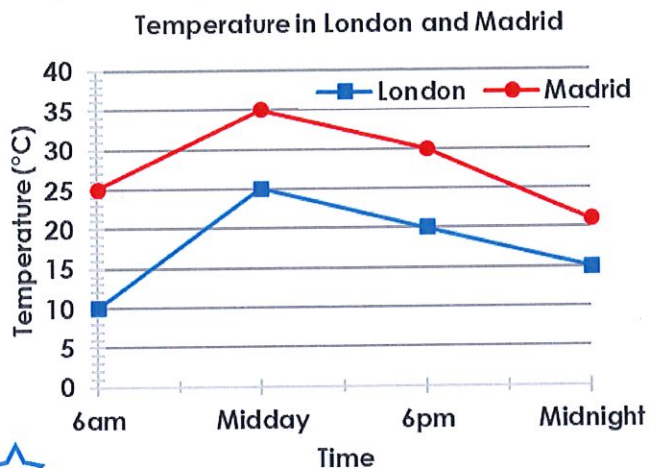


VF

Read and Interpret Line Graphs

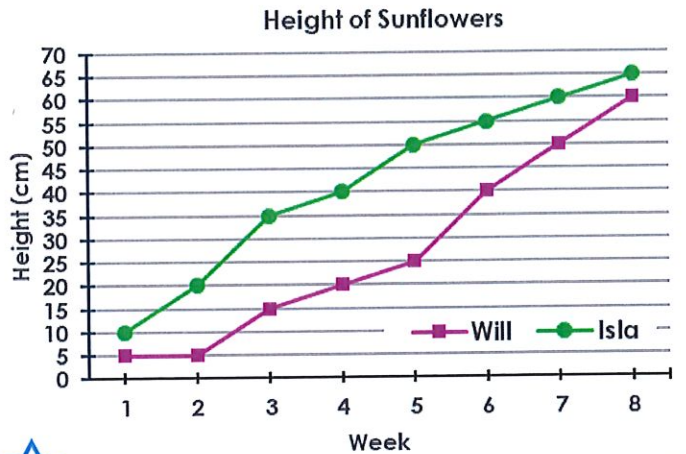
Read and Interpret Line Graphs

4a. What was the difference in temperature at Midday?



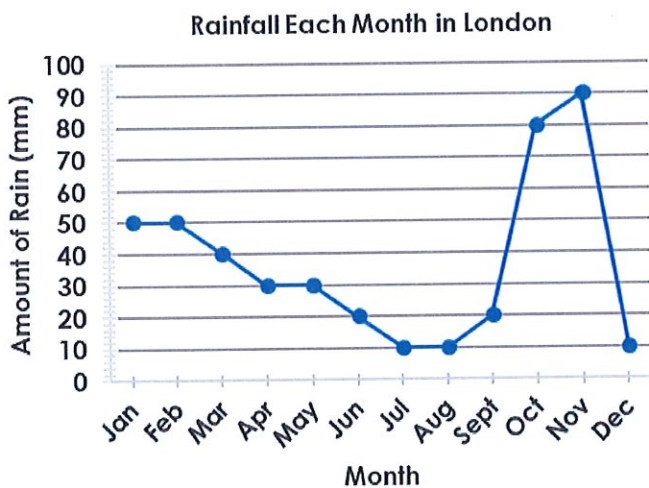
VF

4b. What was the difference in height at 6 weeks?



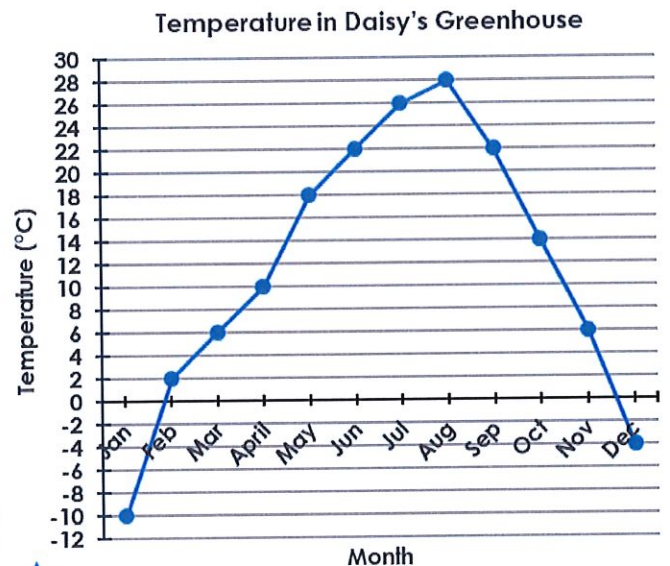
VF

5a. How many months saw more than 40mm of rain?



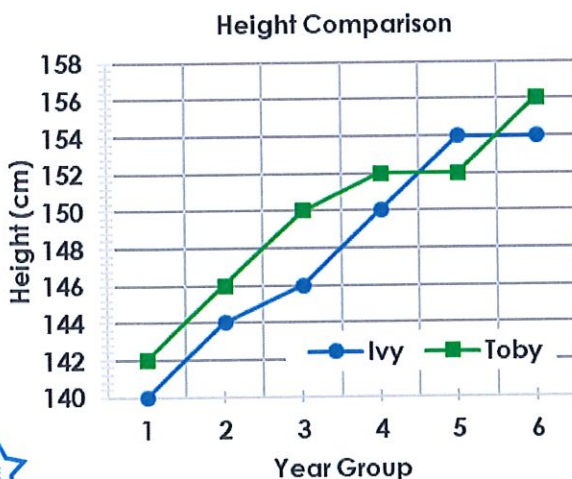
VF

5b. In which months were the temperatures below 0°C?



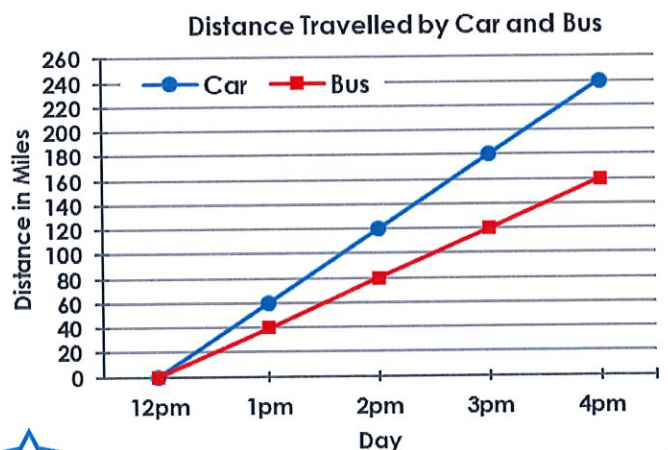
VF

6a. Who was taller in Year 4? Who was taller in Year 5?



VF

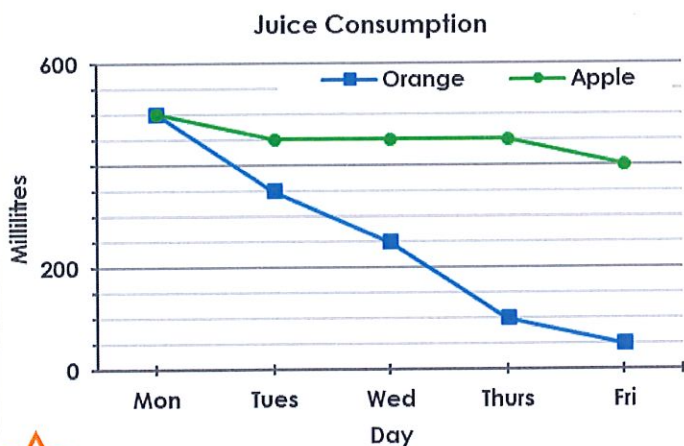
6b. Which vehicle travelled the farthest between 12pm and 4pm?



VF

Read and Interpret Line Graphs

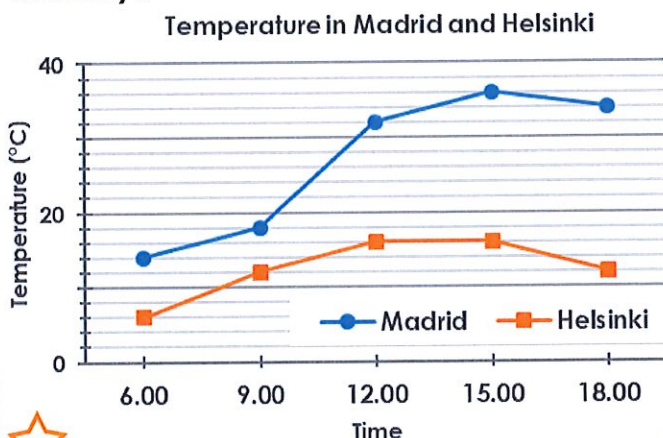
7a. What was the difference between both juices consumed on Wednesday?



VF

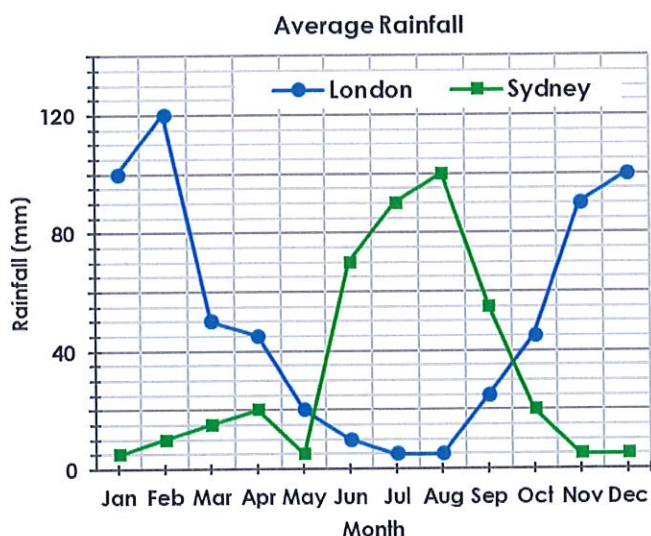
Read and Interpret Line Graphs

7b. What was the difference in temperature in Madrid and Helsinki at Midday?



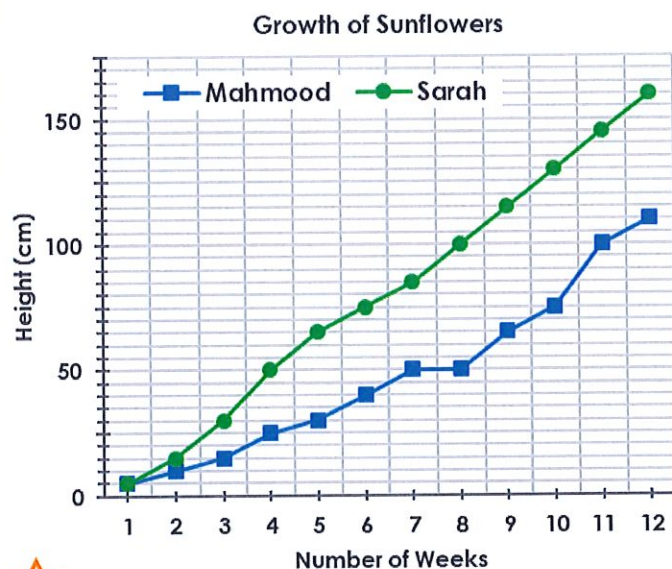
VF

8a. Which months had the highest amount of rainfall for each city?



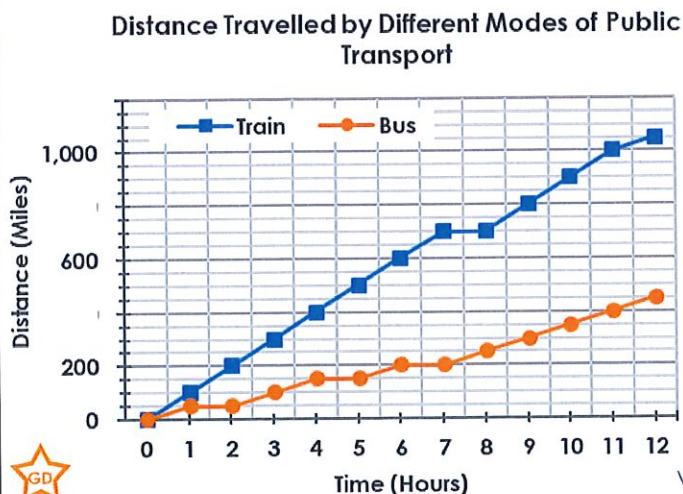
VF

8b. In which week did each person's sunflower pass a height of 100cm?



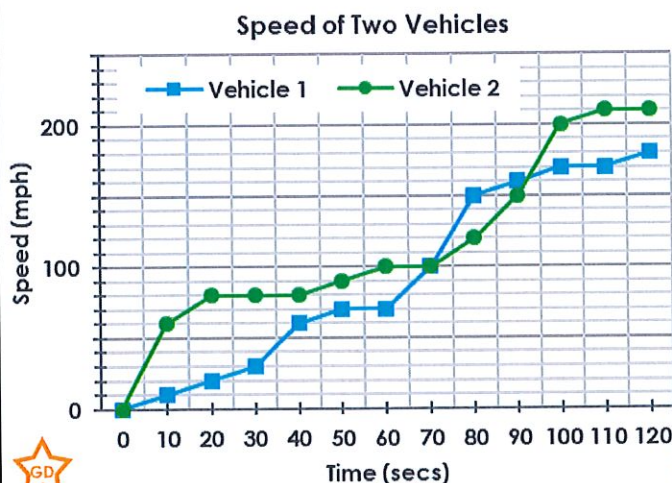
VF

9a. How many hours did each vehicle take to travel 400 miles?

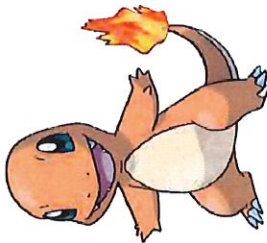



VF

9b. How long did each vehicle take to reach 150mph?



VF

Section A	Section B	Section C
<ol style="list-style-type: none"> 1. What type of Pokémon is Weedle? 2. How heavy is Nidoking? 3. Which Pokémon has the highest number of attack points? 4. How many normal Pokémon are there in the table? 5. There are two Pokémon that weigh 69 grammes. What are their Pokédex numbers? 6. What is the total weight of Bulbasaur, Squirtle and Charmander? 7. What is the difference in weight between Nidoking and Nidoqueen? 	<ol style="list-style-type: none"> 1. What is the difference in weight between Butterfree and Beedrill? 2. I have a team of six Arboks. How many attack points does my team have in total? 3. Bulbasaur evolves into Ivysaur, which evolves into Venusaur. How much has it grown in height by the time it evolves into Venusaur? 4. How many bug Pokémon are taller than 29cm? 5. Which Pokémon type appears the fewest times in the table? 6. I want to create a stack of Vulpix that is 1740cm tall. How many Vulpix will I need to stack up to reach this height? 	<ol style="list-style-type: none"> 1. Name a Pokémon whose attack and defense points have a difference of 0. 2. Zubat evolves into Golbat. How many times heavier is Zubat than Golbat? 3. To work out a Pokémon's strength, multiply its level by its attack points. Which Pokémon would be the strongest in these battles? <ol style="list-style-type: none"> a. Level 3 Bulbasaur vs Level 2 Kakuna b. Level 9 Rattata vs Level 6 Vulpix c. Level 16 Clefable vs Level 12 Nidoking 4. I have a team of four different poison Pokémon. Altogether, they have 224 attack points. Which four Pokémon could they be? 5. I am sailing a tiny boat across the ocean. The boat can only carry 2000g. I want to bring five Pokémon with very high attack points, but that are light enough to stop the boat sinking. Which five should I pick? Explain your decision using your reasoning skills.

Please use the table attached next to answer these Pokémon questions.

<u>Pokédex number</u>	<u>Pokémon name</u>	<u>Height (cm)</u>	<u>Weight (g)</u>	<u>Type</u>	<u>Attack points</u>	<u>Defense points</u>
1	Bulbasaur	70	69	Grass	49	49
2	Ivysaur	100	130	Grass	62	63
3	Venusaur	200	1000	Grass	82	83
4	Charmander	60	85	Fire	52	43
5	Charmeleon	110	190	Fire	64	58
6	Charizard	170	905	Fire	84	78
7	Squirtle	50	90	Water	48	65
8	Wartortle	100	225	Water	63	80
9	Blastoise	160	855	Water	83	100
10	Caterpie	30	29	Bug	30	35
11	Metapod	70	99	Bug	20	55
12	Butterfree	110	320	Bug	45	50
13	Weedle	30	32	Bug	35	30
14	Kakuna	60	100	Bug	25	50
15	Beedrill	100	295	Bug	90	40
16	Pidgey	30	18	Normal	45	40
17	Pidgeotto	110	300	Normal	60	55
18	Pidgeot	150	395	Normal	80	75
19	Rattata	30	35	Normal	56	35
20	Raticate	70	185	Normal	81	60
21	Spearow	30	20	Normal	60	30
22	Fearow	120	380	Normal	90	65
23	Ekans	200	69	Poison	60	44
24	Arbok	350	650	Poison	85	69
25	Pikachu	40	60	Electric	55	40
26	Raichu	80	300	Electric	90	55
27	Sandshrew	60	120	Ground	75	85
28	Sandslash	100	295	Ground	100	110
29	Nidoran (Female)	40	70	Poison	47	52
30	Nidorina	80	200	Poison	62	67
31	Nidoqueen	130	600	Poison	92	87
32	Nidoran (Male)	50	90	Poison	57	40
33	Nidorino	90	195	Poison	72	57
34	Nidoking	140	620	Poison	102	77
35	Clefairy	60	75	Fairy	45	48
36	Clefable	130	400	Fairy	70	73
37	Vulpix	60	99	Fire	41	40
38	Ninetales	110	199	Fire	76	75
39	Jigglypuff	50	55	Normal	45	20
40	Wigglytuff	100	120	Normal	70	45
41	Zubat	80	75	Poison	45	35
42	Golbat	160	550	Poison	80	70

Measuring Angles in Degrees

1a. These mice are facing west. They need to turn to face north to find the cheese.



We need to turn through a right angle.



We need to make a 270° turn clockwise.



Who do you agree with? Explain.



R

Measuring Angles in Degrees

1b. These pirates are facing north. Their captain tells them they need to turn to face south.



We need to turn 90° .



We need to make a $\frac{1}{2}$ turn.

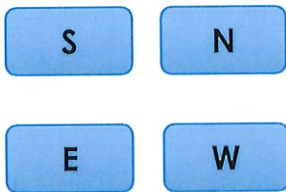


Who do you agree with? Explain.



R

2a. Which of the following cards could be used to complete the statement? Give all of the possible answers.

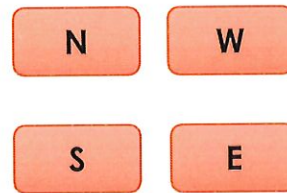


Turning from E to ____ > a 180° turn



PS

2b. Which of the following cards could be used to complete the statement? Give all of the possible answers.



Turning from ____ to N < a 180° turn



PS

3a. Starting at 12:15, the minute hand makes more than 4 but fewer than 7 quarter turns clockwise.

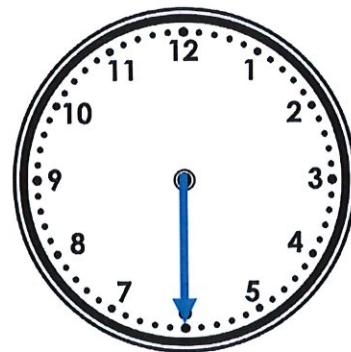
What times could the clock show after the turns?



PS

3b. Starting at 18:30, the minute hand makes more than 3 but fewer than 6 quarter turns clockwise.

What times could the clock show after the turns?



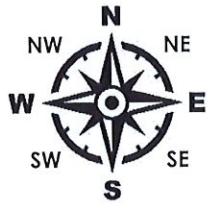
PS

Measuring Angles in Degrees

4a. These pirates are facing north west and their captain tells them that they need to turn to face south.



We need to turn through a reflex angle.



We need to make a $\frac{3}{8}$ turn clockwise.



Who do you agree with? Explain.



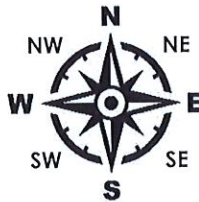
R

Measuring Angles in Degrees

4b. These mice are facing south west. They need to turn to face east to find the cheese.



We need to turn through an obtuse angle anti-clockwise.



We need to make a $\frac{1}{2}$ turn.

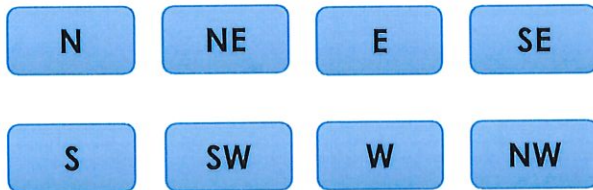


Who do you agree with? Explain.



R

5a. Which of the following cards could be used to complete the statement? Give all of the possible answers.

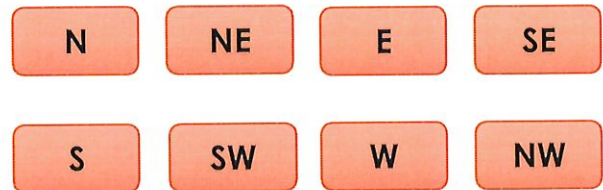


A 360° turn > turning from SE to _____ > a 45° turn
anti-clockwise



PS

5b. Which of the following cards could be used to complete the statement? Give all of the possible answers.



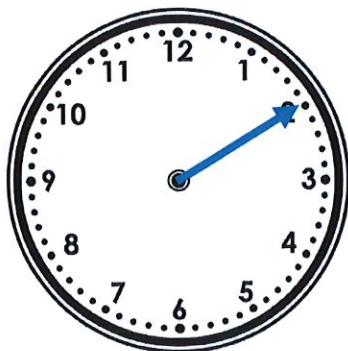
A 45° turn < turning from NW to _____ > a 270° turn
clockwise



PS

6a. Starting at 09:10, the minute hand makes more than 5 but fewer than 8 quarter turns clockwise.

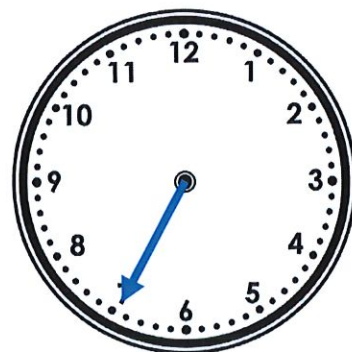
What times could the clock show after the turns?



PS

6b. Starting at 15:35, the minute hand makes more than 4 but fewer than 7 quarter turns anti-clockwise.

What times could the clock show after the turns?



PS

Measuring Angles in Degrees

7a. These children are facing SW and their teacher has told them to turn clockwise and then a greater turn anti-clockwise to face W.



Daniel

We need to make a $\frac{3}{8}$ turn and then a right angle.

We need to make a 45° turn and then a whole turn.



Hafash

Who do you agree with? Explain.



R

Measuring Angles in Degrees

7b. These children are facing NE and their teacher has told them to turn clockwise and then a greater turn anti-clockwise to face W.



Kyle

We need to turn 135° and then an acute angle anti-clockwise.

We need to make a $\frac{3}{8}$ turn and then a reflex angle.



Hattie

Who do you agree with? Explain.



R

8a. Which of the following cards could be used to complete the statement? Give all of the possible answers.



A 405° turn $>$ turning from _____ to NE anti-clockwise $>$ a $\frac{3}{8}$ turn



PS

8b. Which of the following cards could be used to complete the statement? Give all of the possible answers.



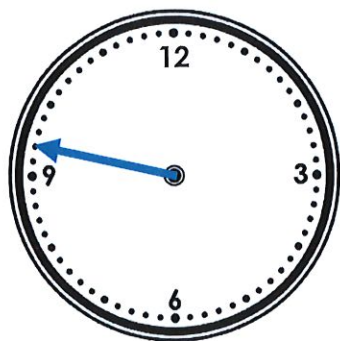
A 135° turn $<$ turning from _____ to SW clockwise $>$ a $\frac{1}{8}$ turn



PS

9a. Starting at 18:47, the minute hand makes more than 6 but fewer than 9 twelfth turns.

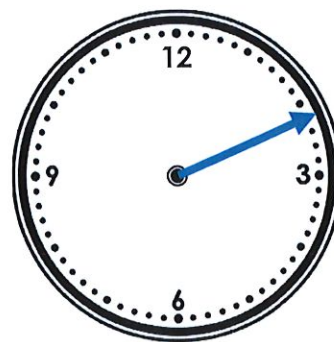
What times could the clock show after the turns?



PS

9b. Starting at 05:11, the minute hand makes more than 5 but fewer than 8 twelfth turns.

What times could the clock show after the turns?



PS

Reasoning and Problem Solving Measuring Angles in Degrees

Developing

- 1a. Sally is correct because a right angle (90°) turn clockwise will reach North. Fahad is also correct as a 270° turn anti-clockwise will also reach North.
- 2a. N and E clockwise or S and E if anti-clockwise.
- 3a. 5 quarter turns clockwise – 13:30 or 6 quarter turns clockwise – 13:45

Expected

- 4a. Peter is correct if they turn clockwise because the turn is more than 180° to face South.
- 5a. NE, N, NW, W, SW and S.
- 6a. 6 quarter turns clockwise – 10:40 or 7 quarter turns clockwise – 10:55

Greater Depth

- 7a. Hafash is correct because after the 45° turn she will be facing W. Then a whole turn is 360° which is greater than 45° and she will be facing W again.
- 8a. NE, N, NW, W and SW.
- 9a. 7 twelfth turns clockwise – 19:22; 8 twelfth turns clockwise – 19:27; 7 twelfth turns anti-clockwise – 18:12; 8 twelfth turns anti-clockwise – 18:07

Reasoning and Problem Solving Measuring Angles in Degrees

Developing

- 1b. Tara is correct because a $\frac{1}{2}$ turn in either direction will have them facing South.
- 2b. W clockwise or E anti-clockwise.
- 3b. 4 quarter turns clockwise – 19:30 or 5 quarter turns clockwise – 19:45

Expected

- 4b. Mitch is correct because if they turn 135° anti-clockwise they will be facing E and 135° is an obtuse angle.
- 5b. NE, E, SE and S.
- 6b. 5 quarter turns anti-clockwise – 14:20 or 6 quarter turns anti-clockwise – 14:05

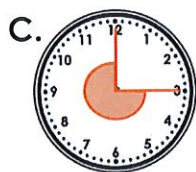
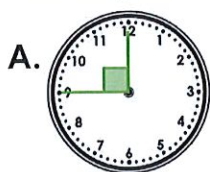
Greater Depth

- 7b. Hattie is correct because if she turns clockwise $\frac{3}{8}$, this will be a 135° turn and she will be facing S. Then if she turns a reflex angle of 270° anti-clockwise she will be facing W.
- 8b. N, NE, NW, SW, W
- 9b. 6 twelfth turns clockwise – 05:41, 7 twelfth turns clockwise – 05:46; 6 twelfth turns anti-clockwise – 04:41; 7 twelfth turns anti-clockwise – 04:36

Measuring Angles in Degrees

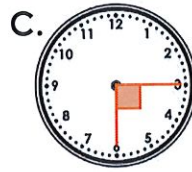
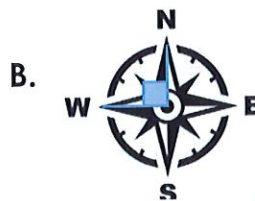
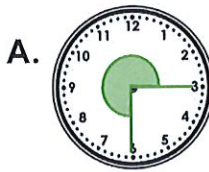
Measuring Angles in Degrees

1a. Label each image with the name of the angle.



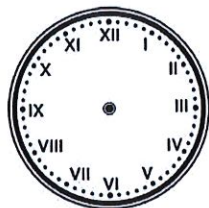
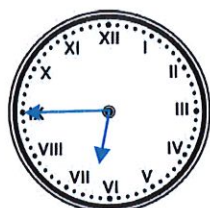
VF

1b. Label each image with the name of the angle.



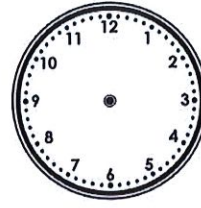
VF

2a. Look at the time on the clock. Draw where the minute hand will be after a right angle turn anti-clockwise.



VF

2b. Look at the time on the clock. Draw where the minute hand will be after a 90° turn anti-clockwise.



VF

3a. How many degrees will I move through if I turn from N to W clockwise?



VF

3b. How many degrees will I move through if I turn from S to W clockwise?



VF

4a. How many $\frac{1}{4}$ turns are equal to 360°?



VF

4b. How many $\frac{1}{4}$ turns are equal to 270°?



VF

5a. Use >, < or = to complete the equation.

$$180^\circ \quad \square \quad \frac{2}{4} \text{ turn}$$



VF

5b. Use >, < or = to complete the equation.

$$\frac{3}{4} \text{ turn} \quad \square \quad 360^\circ$$

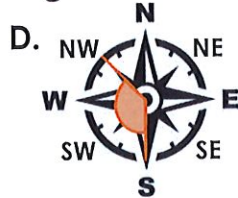
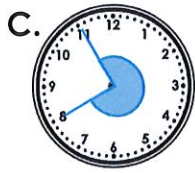
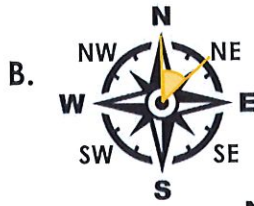
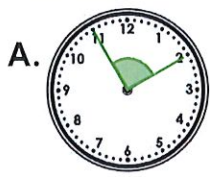


VF

Measuring Angles in Degrees

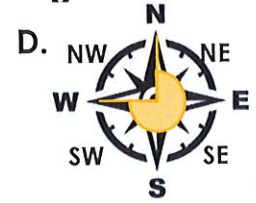
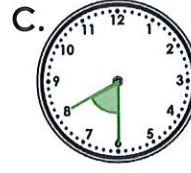
Measuring Angles in Degrees

6a. Label each image with the name of the angle.



VF

6b. Label each image with the name of the angle.



VF

7a. Look at the time on the clock. Draw where the minute hand will be after a 270° turn clockwise.



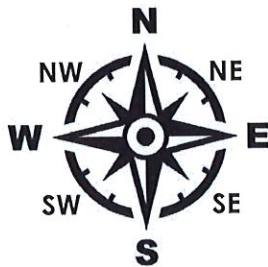
VF

7b. Look at the time on the clock. Draw where the minute hand will be after a 90° turn anti-clockwise.



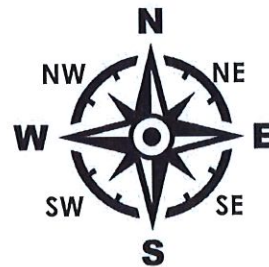
VF

8a. How many degrees will I move through if I turn from NE to N anti-clockwise?



VF

8b. How many degrees will I move through if I turn from SW to N clockwise?



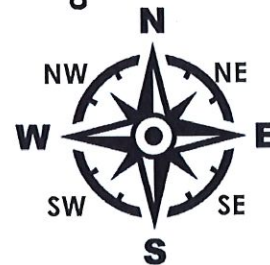
VF

9a. How many $\frac{1}{8}$ turns are equal to 180° ?



VF

9b. How many $\frac{1}{8}$ turns are equal to 270° ?



VF

10a. Use $>$, $<$ or $=$ to complete the equation.

$$135^\circ \quad \square \quad \frac{3}{8} \text{ turn}$$



VF

10b. Use $>$, $<$ or $=$ to complete the equation.

$$180^\circ \quad \square \quad \frac{3}{4} \text{ turn}$$



VF

Measuring Angles in Degrees

Measuring Angles in Degrees

11a. Label each image with the name of the angle.



B. Minute hand moves from 5 to 15 clockwise

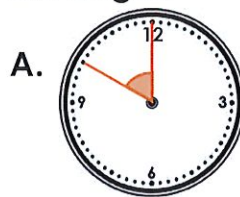
C. Minute hand moves from 4 to 9 clockwise.

D. SW to N clockwise



VF

11b. Label each image with the name of the angle.



B. Minute hand moves from 7 to 12 clockwise.

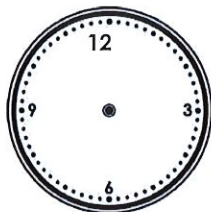
C. SW to NW anti-clockwise

D. SE to NE anti-clockwise



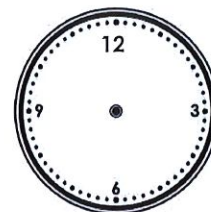
VF

12a. Look at the time on the clock. Draw where the minute hand will be after a 120° turn clockwise and $\frac{3}{4}$ turn anti-clockwise.



VF

12b. Look at the time on the clock. Draw where the minute hand will be after a 270° turn anti-clockwise and $\frac{1}{4}$ turn clockwise.



VF

13a. How many degrees will I move through if I turn from NE to N anti-clockwise and N to SW clockwise?



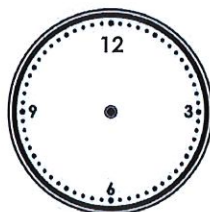
VF

13b. How many degrees will I move through if I turn from SE to N clockwise and N to S anti-clockwise?



VF

14a. How many $\frac{1}{12}$ turns are equal to 270° ?



VF

14b. How many $\frac{1}{8}$ turns are equal to 180° ?



VF

15a. Use $>$, $<$ or $=$ to complete the equation.

270° $\frac{3}{4}$ turn acute angle



VF

15b. Use $>$, $<$ or $=$ to complete the equation.

135° $\frac{1}{8}$ turn reflex angle



VF

Varied Fluency
Measuring Angles in Degrees

Developing

- 1a. **A – right angle; B – right angle; C – reflex; D – reflex**
2a. **6**
3a. **270°**
4a. **4 turns**
5a. **=**

Expected

- 6a. **A – right angle; B – acute angle; C – reflex angle; D – obtuse angle**
7a. **7**
8a. **45°**
9a. **4 turns**
10a. **=**

Greater Depth

- 11a. **A – right angle; B – acute angle; C – obtuse angle; D – obtuse angle**
12a. **8**
13a. **270°**
14a. **9 turns**
15a. **=, >**

Varied Fluency
Measuring Angles in Degrees

Developing

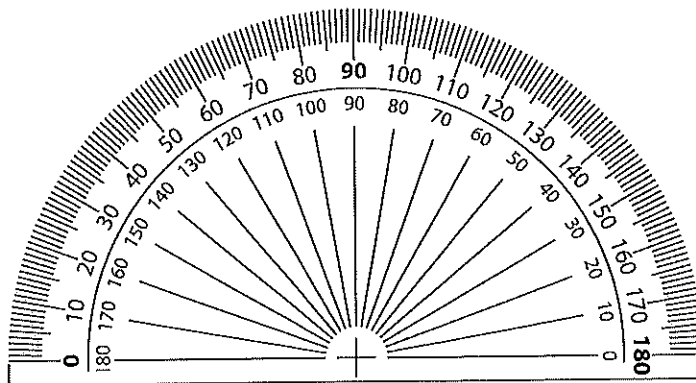
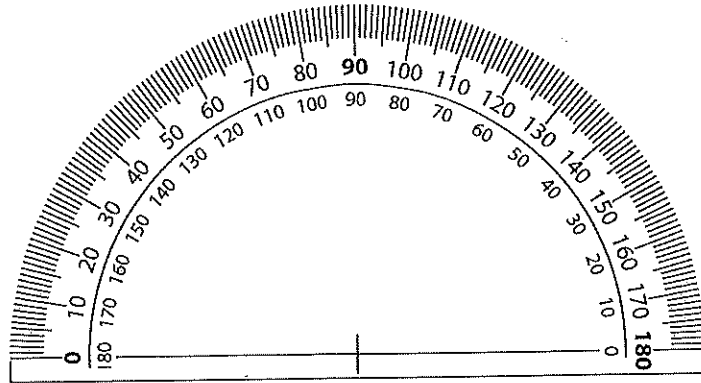
- 1b. **A – reflex angle; B – right angle; C – right angle; D – reflex angle**
2b. **9**
3b. **90°**
4b. **3 turns**
5b. **<**

Expected

- 6b. **A – obtuse; B – right angle; C – acute angle; D – reflex angle**
7b. **2**
8b. **135°**
9b. **6 turns**
10b. **<**

Greater Depth

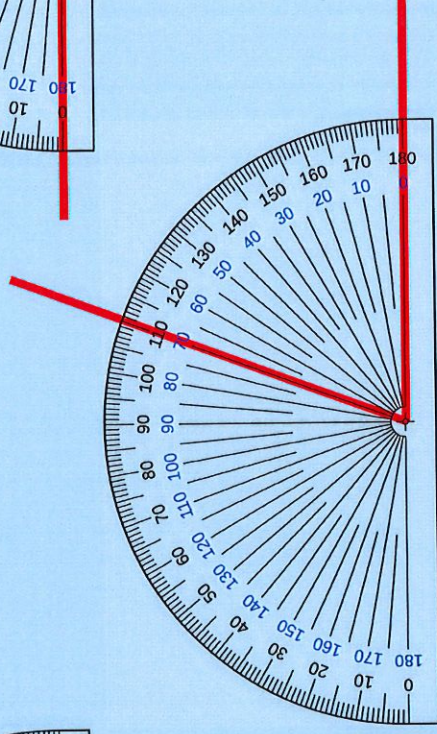
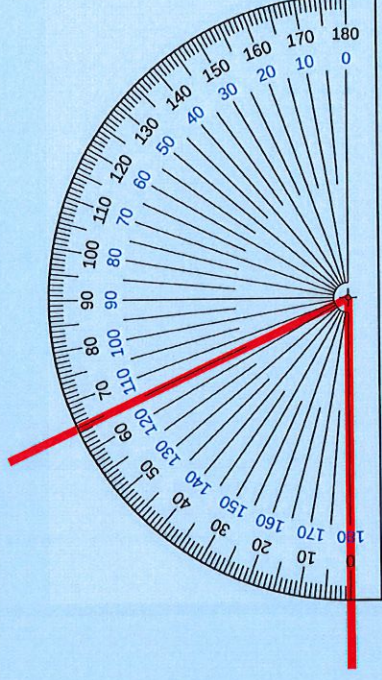
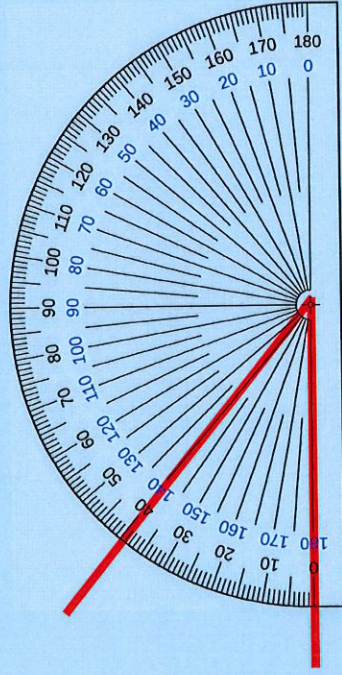
- 11b. **A – acute angle; B – obtuse angle; C – reflex angle; D – right angle**
12b. **1**
13b. **405°**
14b. **4 turns**
15b. **>, <**



Activity 2

Measuring with Protractor

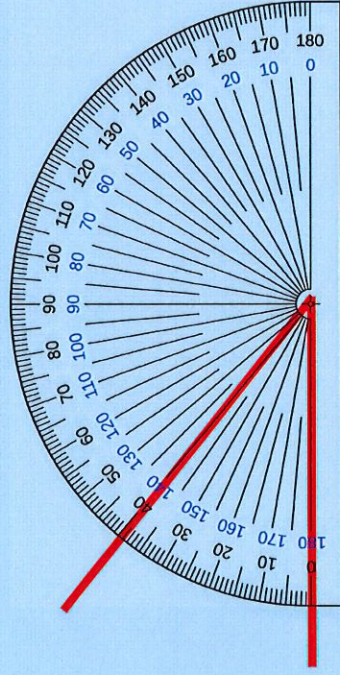
Read the angles shown on the protractor.



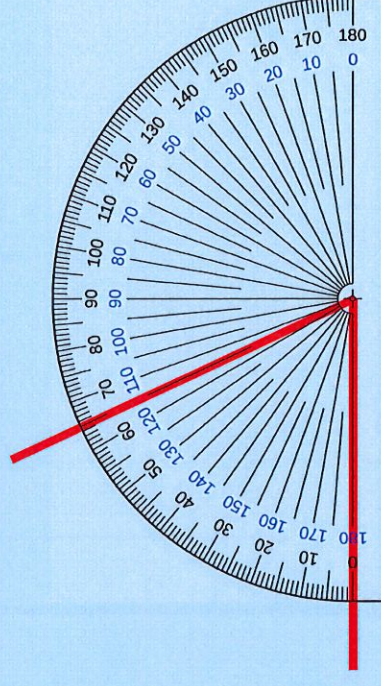
Activity 2

Measuring with Protractor

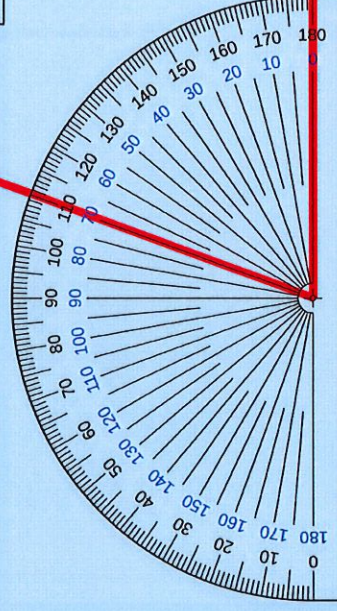
Read the angles shown on the protractor.



40°



65°



70°

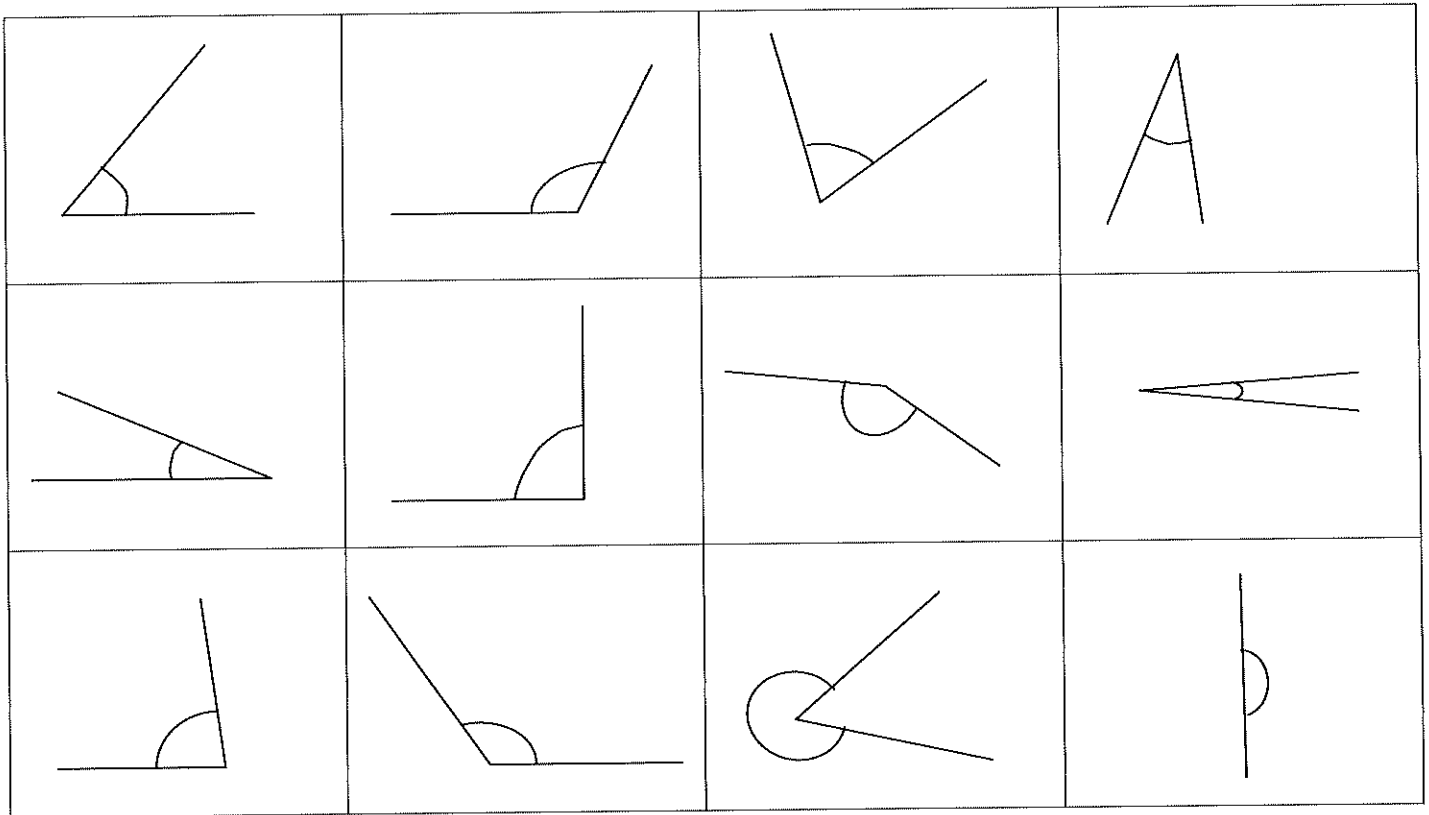
?

What's the same? What's different?

L.O – To use a protractor to measure angles

Tip: Make sure you line up the cross of the protractor with the corner of the angle.

Challenge: Write whether each angle is an obtuse, acute or right angle. Then use a protractor to measure each angle.



Now can you use the protractor to draw angles of the following degrees?

1) 45°

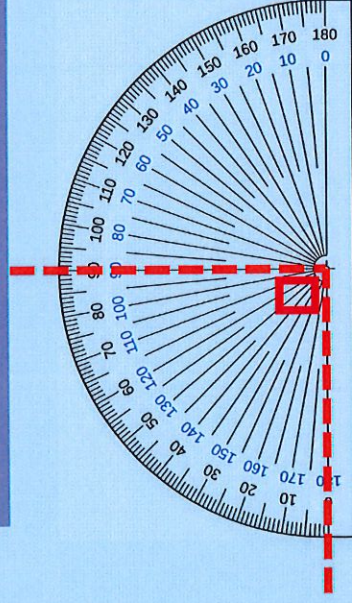
2) 120°

3) 20°

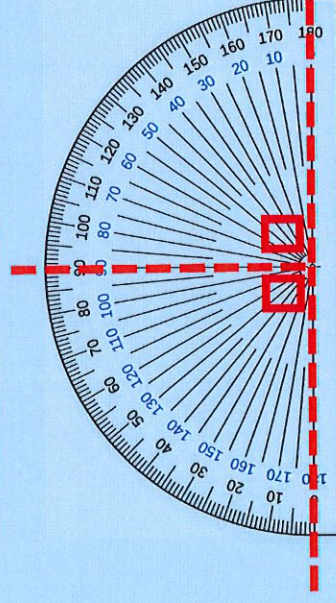
Activity 1

Angles on a Straight Line

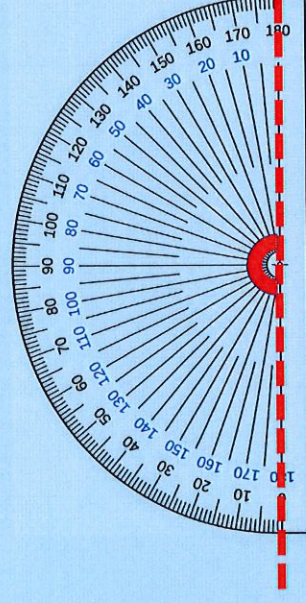
Fill in the blanks.



There are ____ degrees in a right angle.



There are ____ right angles on a straight line.

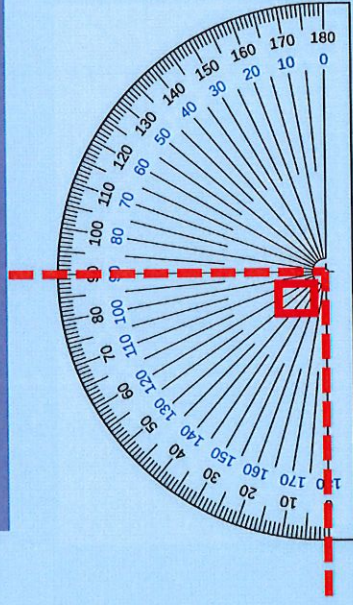


There are ____ degrees on a straight line.

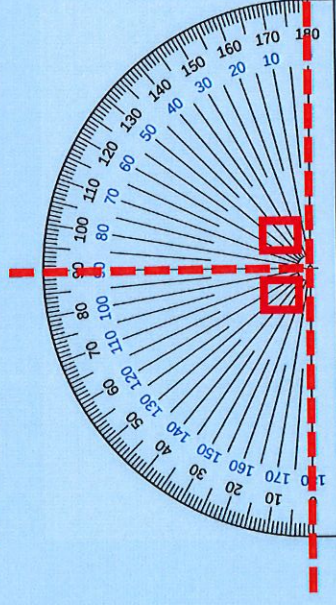
Activity 1

Angles on a Straight Line

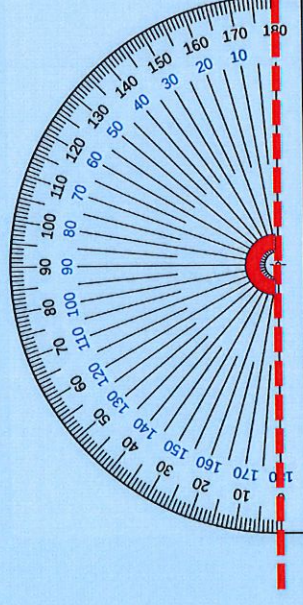
Fill in the blanks.



There are **90** degrees in a right angle.



There are **2** right angles on a straight line.

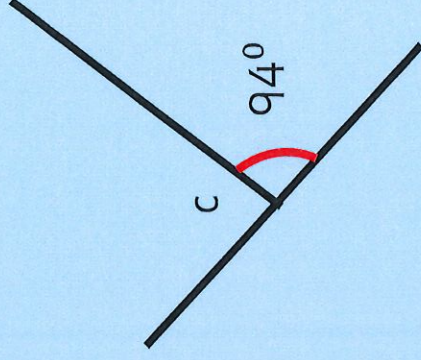
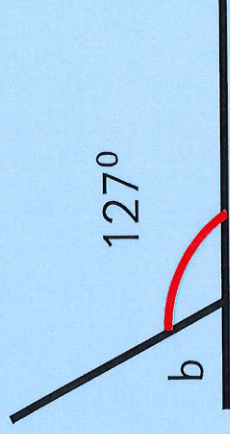


There are **180** degrees on a straight line.

Activity 2

Angles on a Straight Line

Calculate the missing angles.



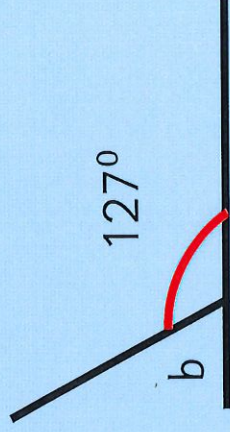
Activity 2

Angles on a Straight Line

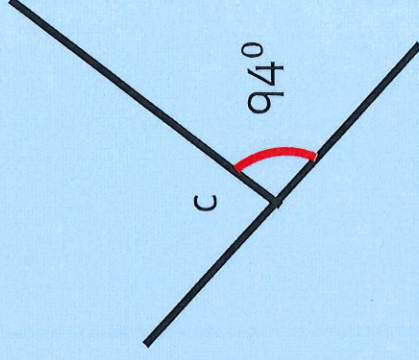
Calculate the missing angles.



147°



53°

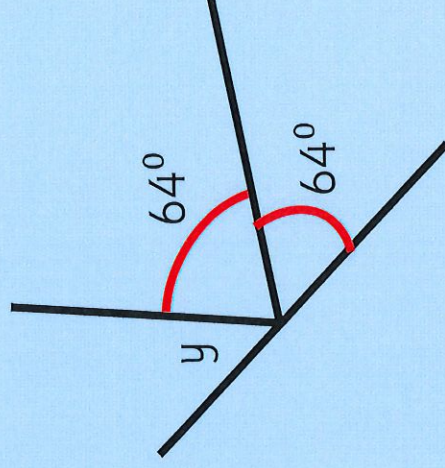
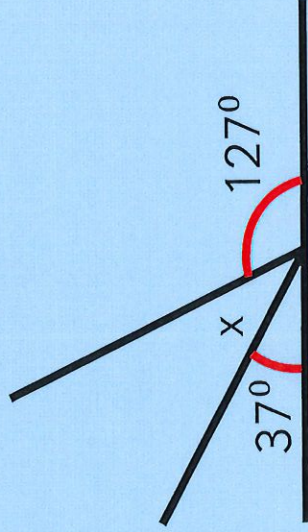


86°

Activity 3

Angles on a Straight Line

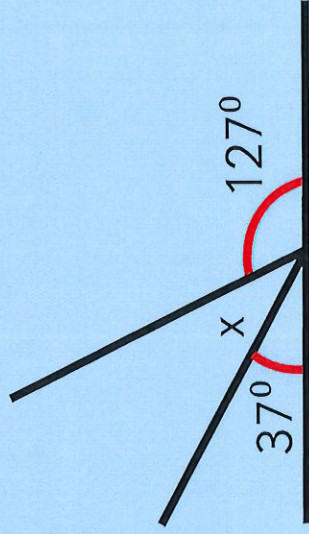
Calculate the missing angles.



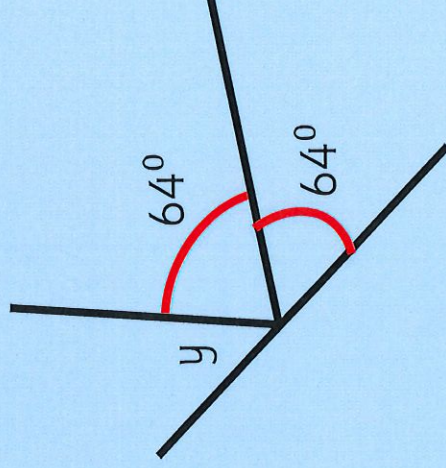
Activity 3

Angles on a Straight Line

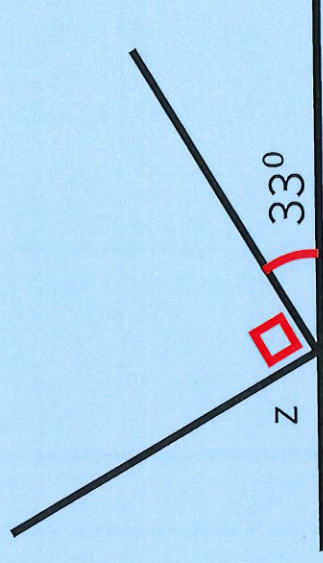
Calculate the missing angles.



16°



52°

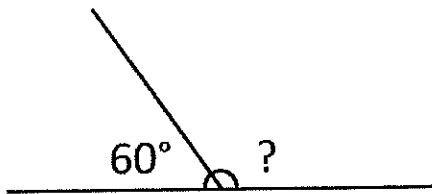


57°

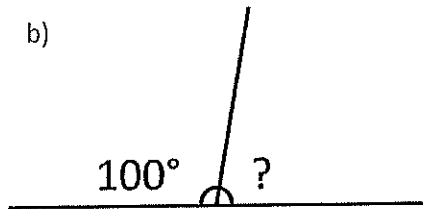
?

Is there more than one way to calculate the missing angles?

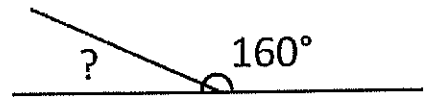
a)



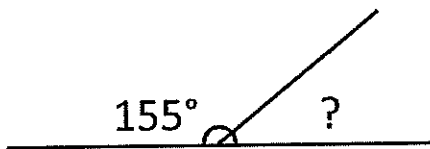
b)



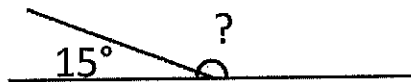
c)



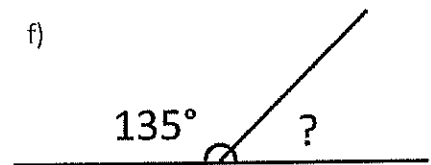
d)



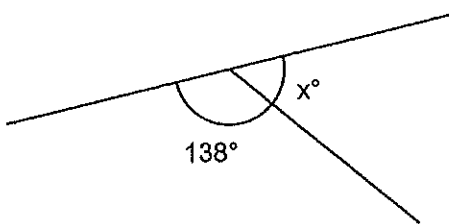
e)



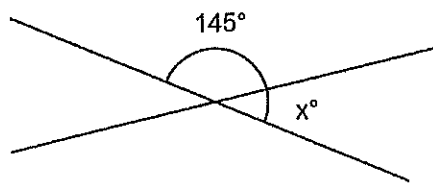
f)



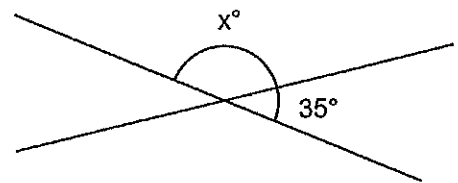
g)



h)



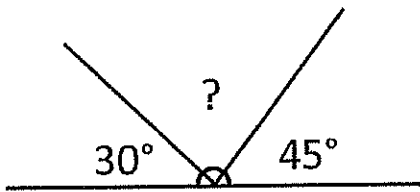
i)



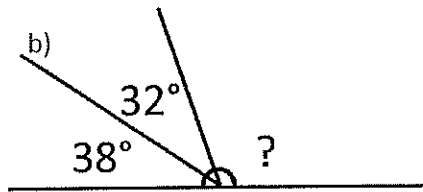
Angles on a straight line = 180°

2) Find the missing angles

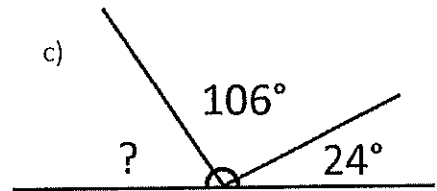
a)



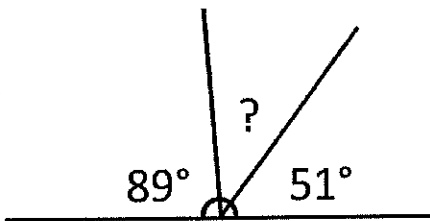
b)



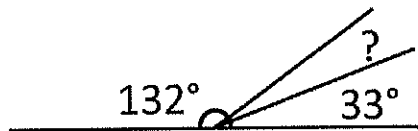
c)



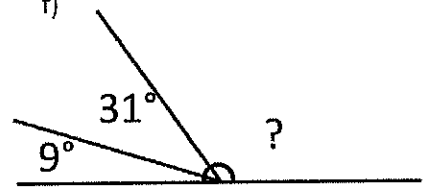
d)



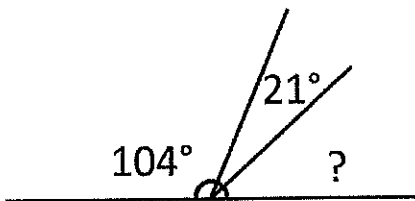
e)



f)



g)



Lengths and Angles in Shapes

5



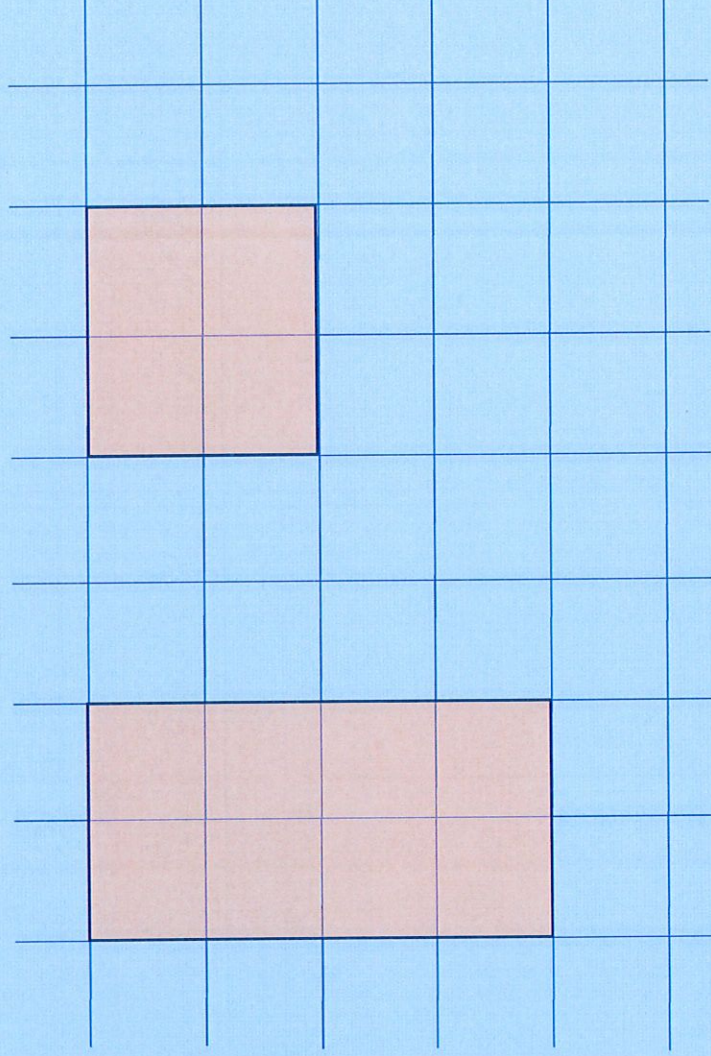
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Activity 1

Lengths and Angles in Shapes

Look at the square and the rectangle.



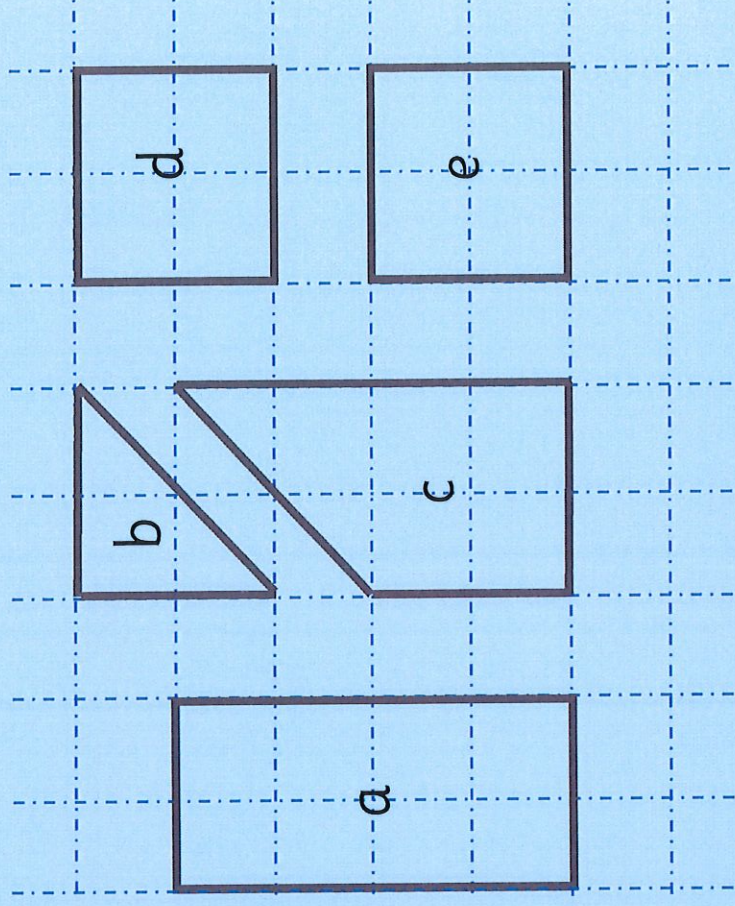
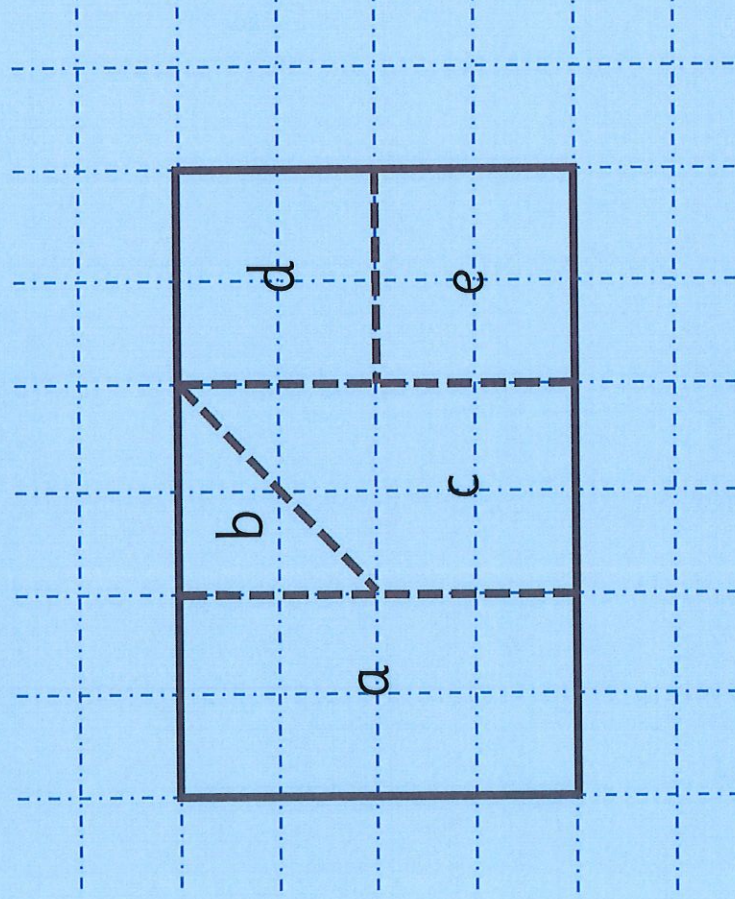
?

What's the same? What's different?

Activity 2

Lengths and Angles in Shapes

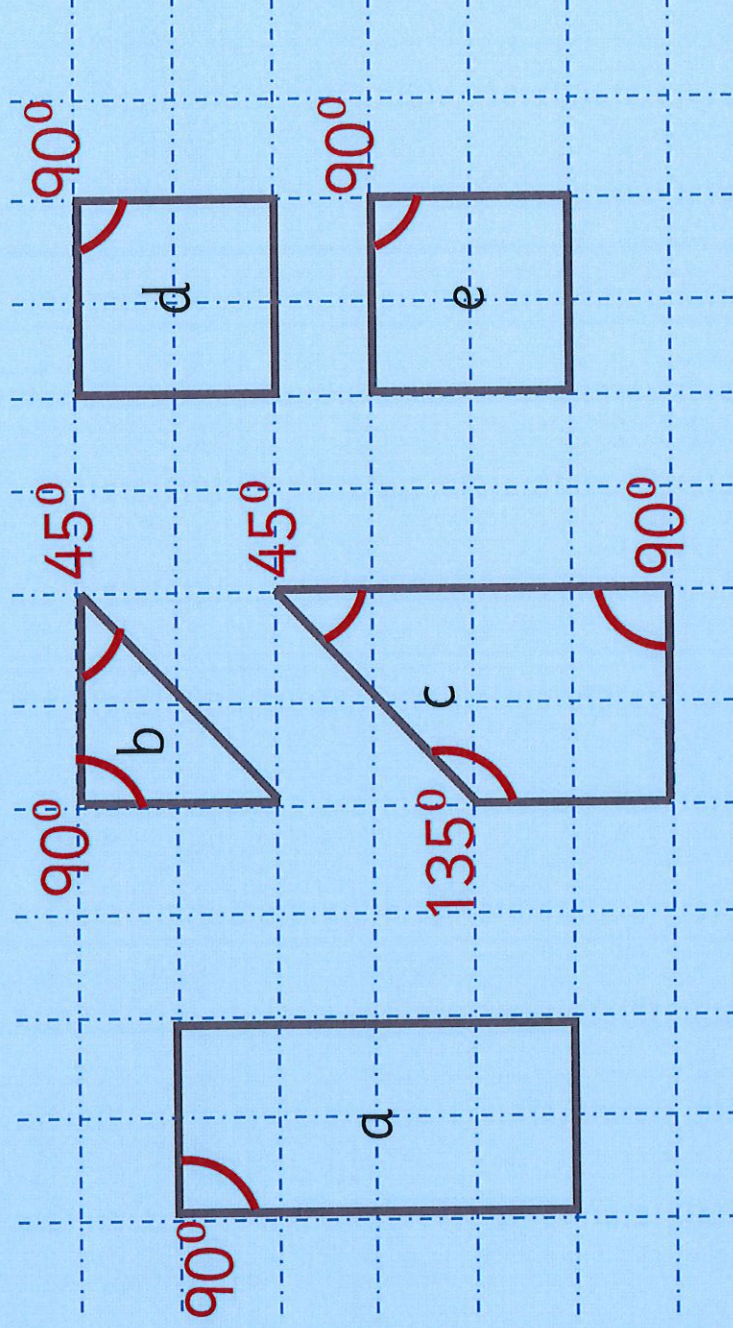
Calculate the size of the angles in each shape.



Activity 2

Lengths and Angles in Shapes

Calculate the size of the angles in each shape.



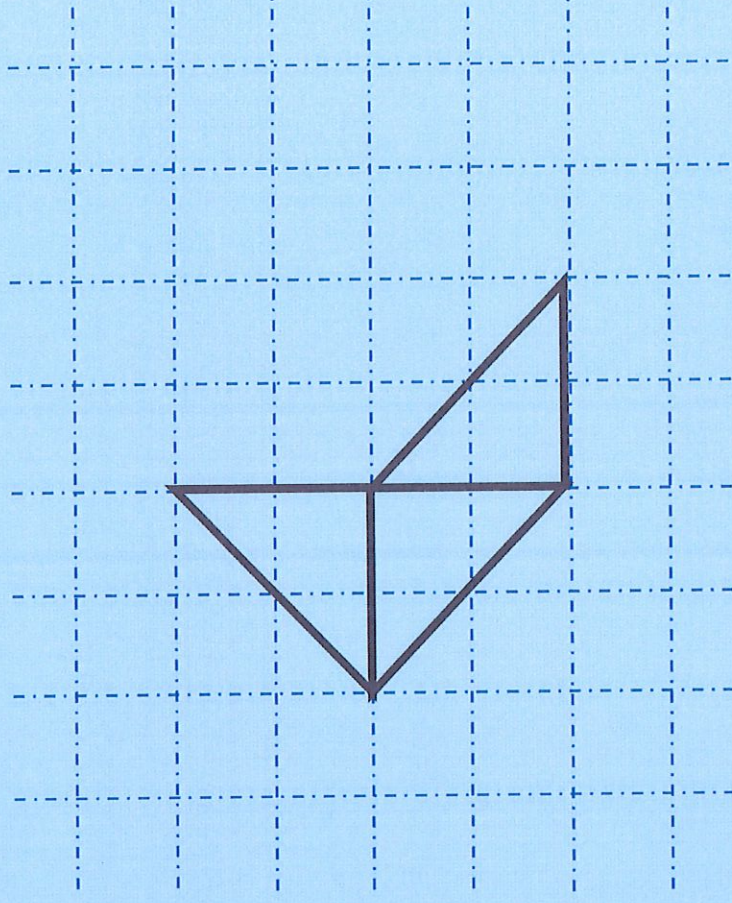
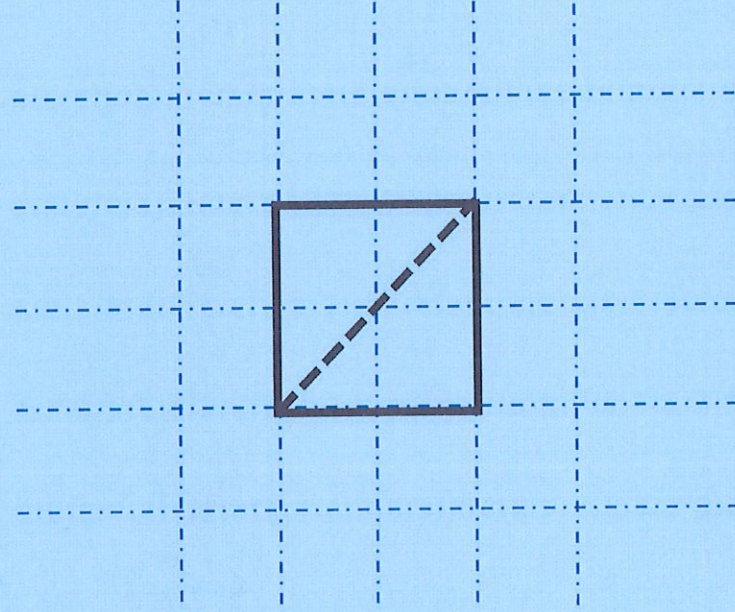
?

What's the same? What's different?

Activity 3

Lengths and Angles in Shapes

Here is a square cut into two triangles.



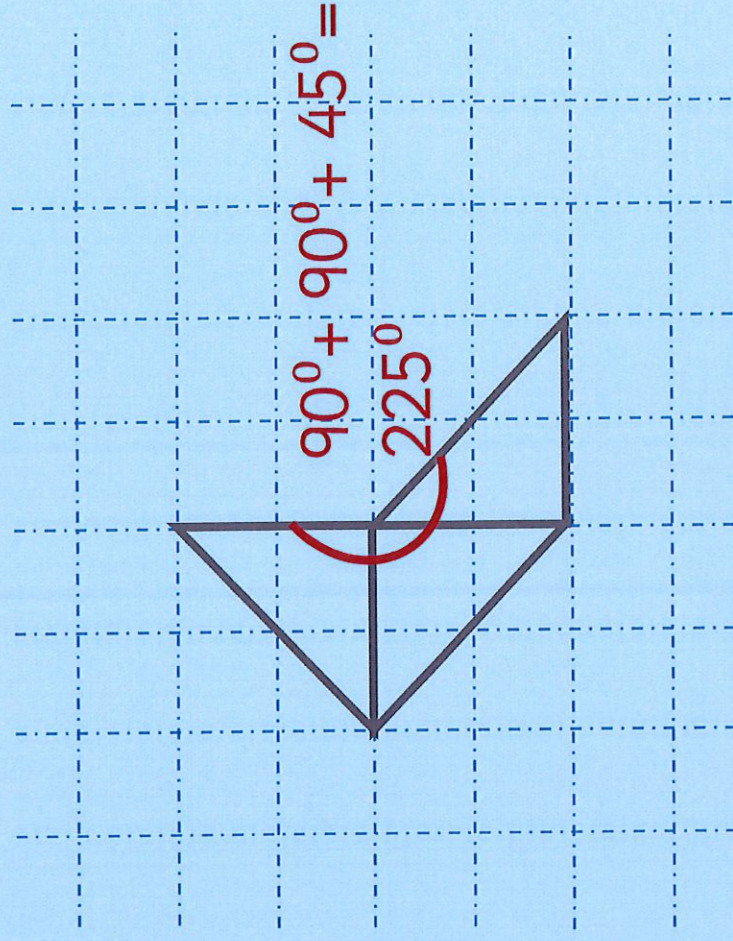
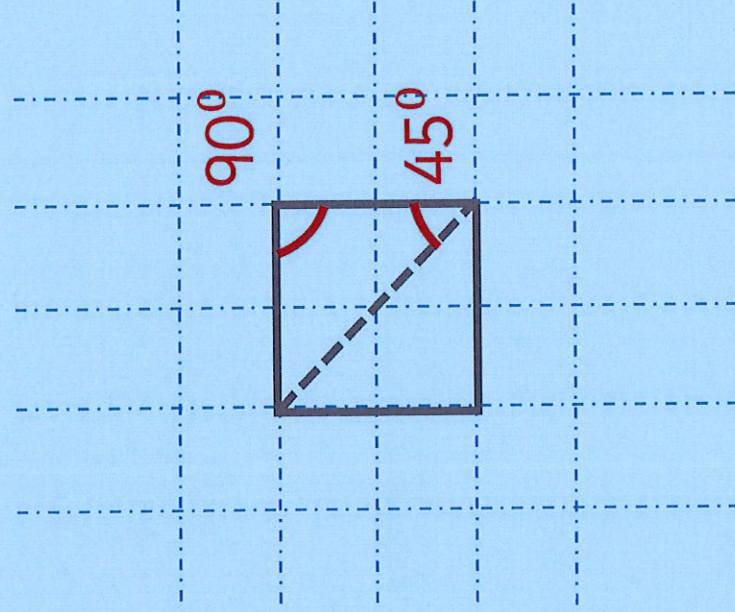
?

Use the square to calculate the size of the angle.

Activity 3

Lengths and Angles in Shapes

Here is a square cut into two triangles.

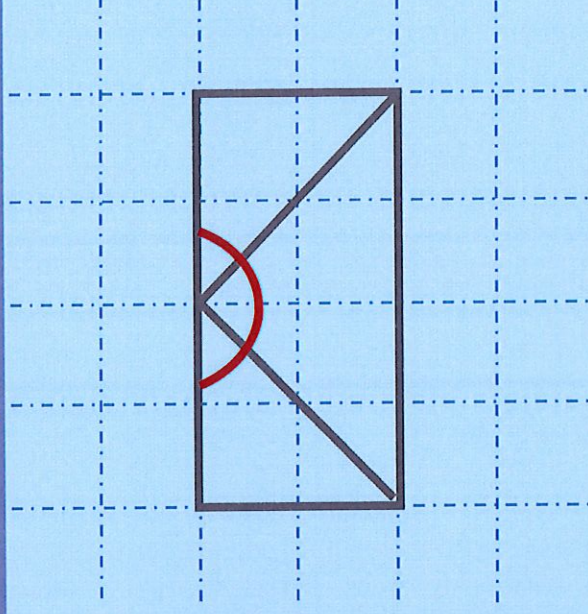


Reasoning 1

Lengths and Angles in Shapes

Rosie is calculating the missing angles in the shape.

The missing angles are 60°
because $180^\circ / 3 = 60^\circ$



?

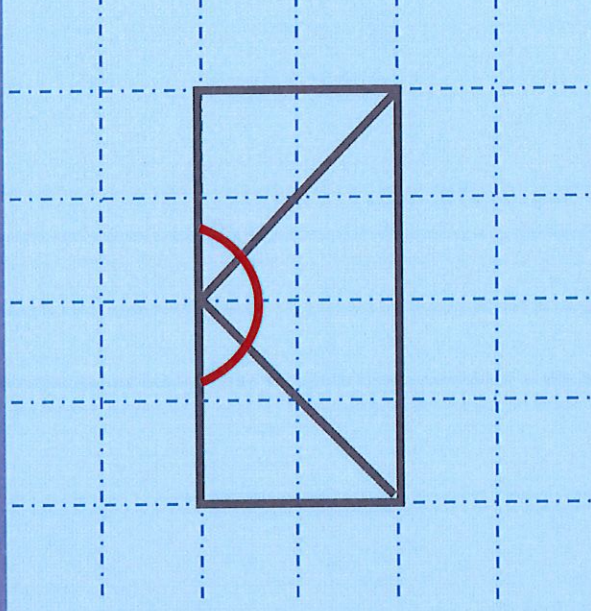
Do you agree? Explain why.

Reasoning 1

Lengths and Angles in Shapes

Rosie is calculating the missing angles in the shape.

The missing angles are 60°
because $180^\circ / 3 = 60^\circ$



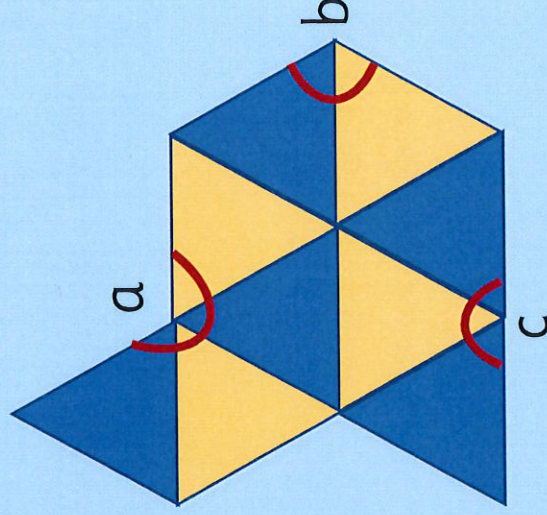
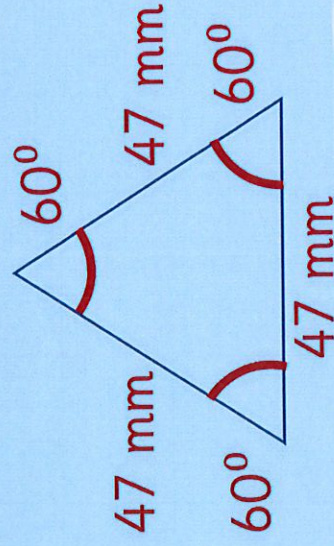
She is wrong. The angles are not equal.

The angles will be worth 45° , 90° , and 45° because the line shows a square being split in half diagonally. This means 90° has been divided by 2.

Reasoning 2

Lengths and Angles in Shapes

Esin has this triangle on the left side. She makes the composite shape on the right using triangles identical to the one on the left.



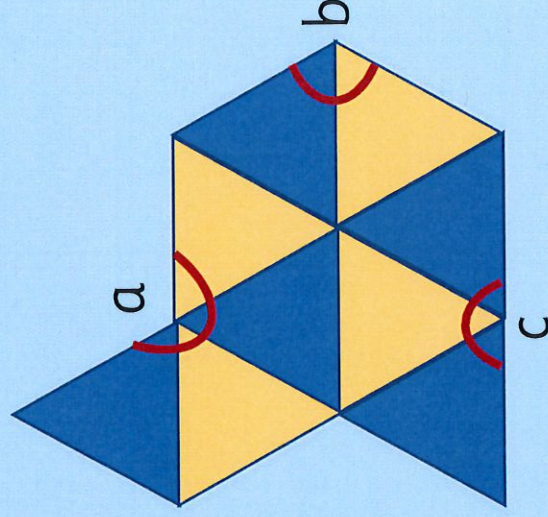
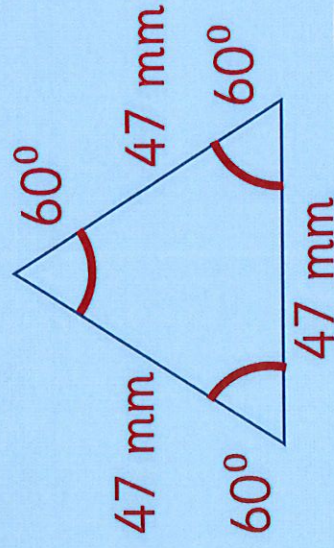
?

Calculate the perimeter of the shape and the missing angles.

Reasoning 2

Lengths and Angles in Shapes

Esin has this triangle on the left side. She makes the composite shape on the right using triangles identical to the one on the left.



$$a = 60^{\circ} \times 4 = 240^{\circ}$$

$$b = 60^{\circ} \times 2 = 120^{\circ}$$

$$c = 60^{\circ} \times 3 = 180^{\circ}$$

$$\text{Perimeter} = 47 \text{ mm} \times 9 = 423 \text{ mm}$$

?

Use your own triangle, square or rectangle to make a similar problem.

Discuss

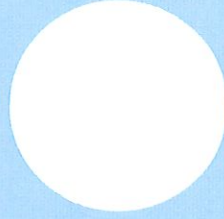
Lengths and Angles in Shapes

Look at the rectangle and square. Where can you see parallel lines? How many right angles do they have?

What can you say about the lengths of the sides in a rectangle or in a ____?

If I fold a square in half diagonally to make a triangle, what will be the size of each of the angles in the triangle?

Using what you know about squares and rectangles, how can you calculate the sizes of the angles?



Regular and Irregular Polygons

5



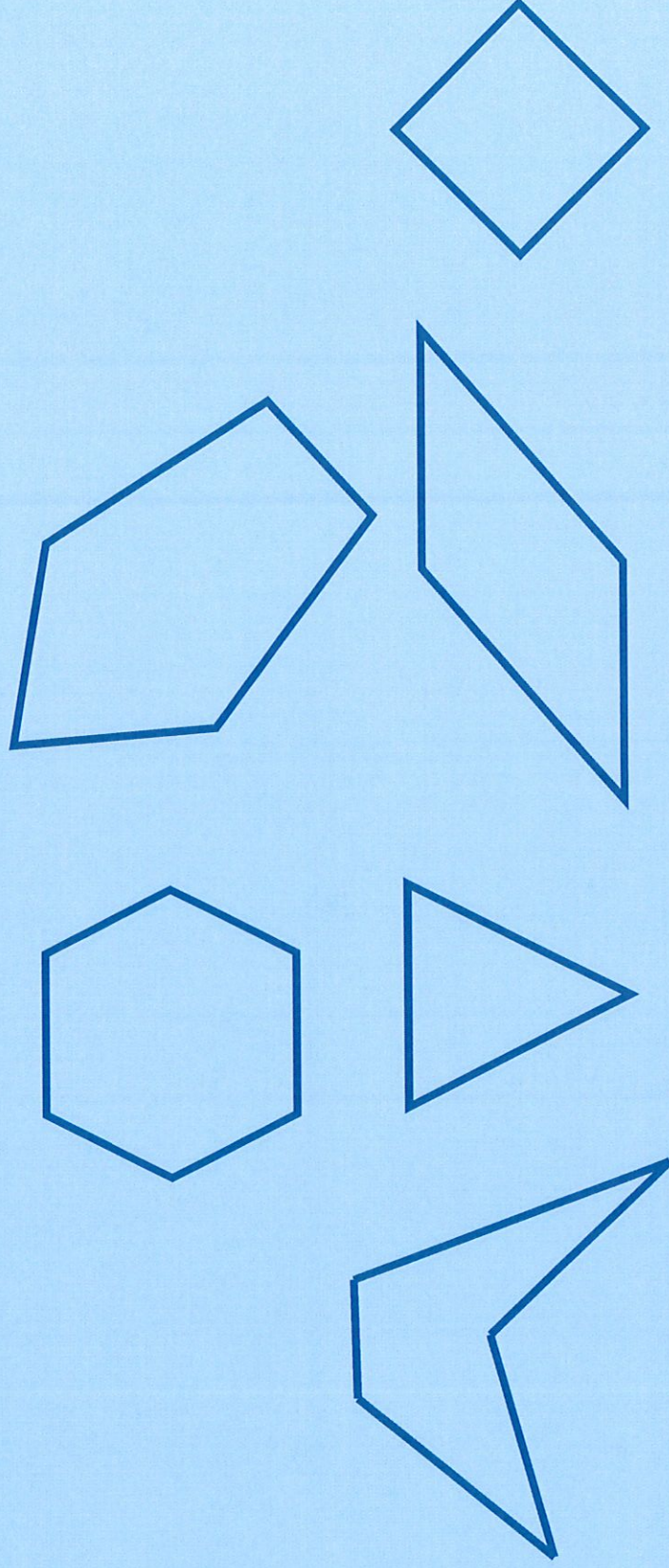
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Activity 1

Regular and Irregular Polygons

Sort the shapes into irregular and regular polygons.

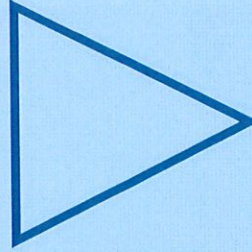
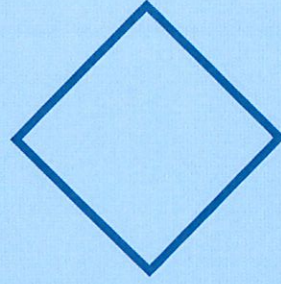
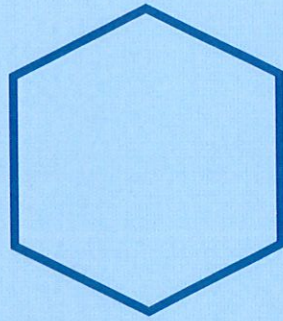


Activity 1

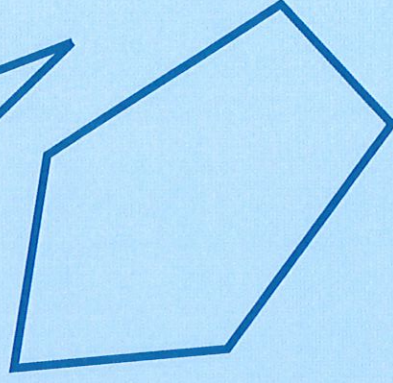
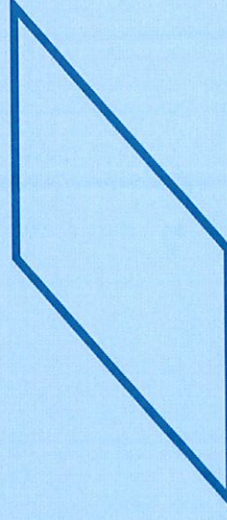
Regular and Irregular Polygons

Sort the shapes into irregular and regular polygons.

Regular



Irregular

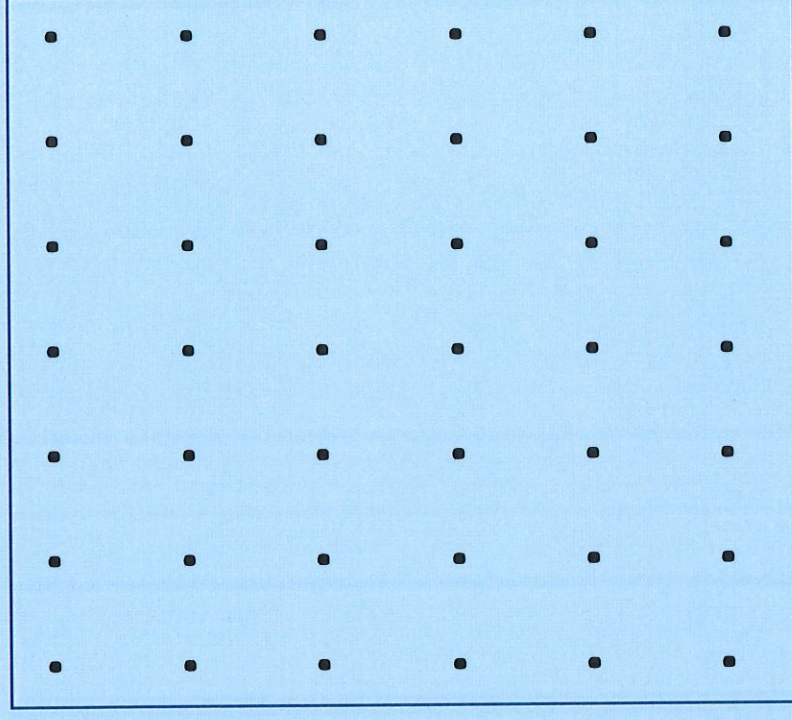
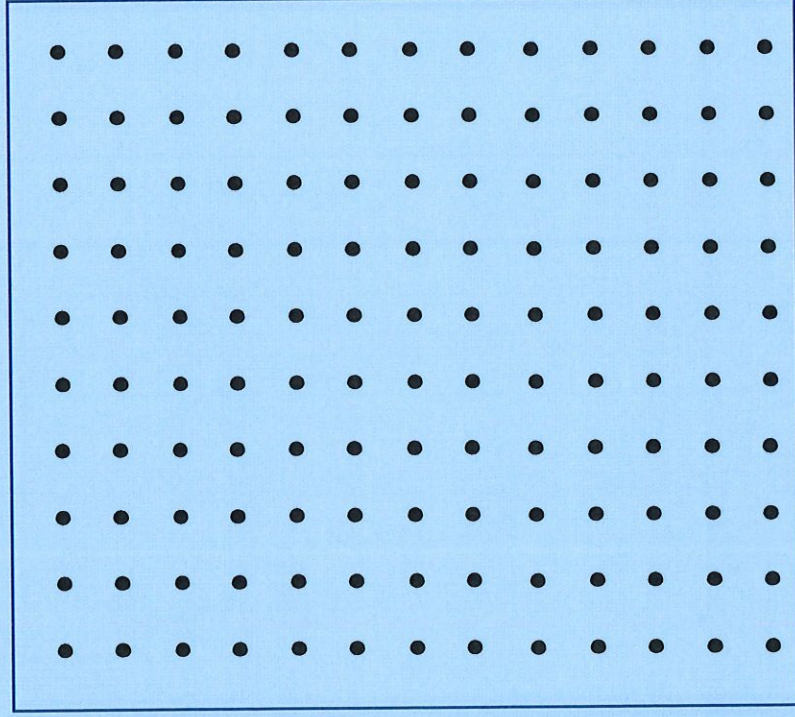


What's the same? What's different?

Activity 2

Regular and Irregular Polygons

Draw a regular polygon and an irregular polygon on the grids.

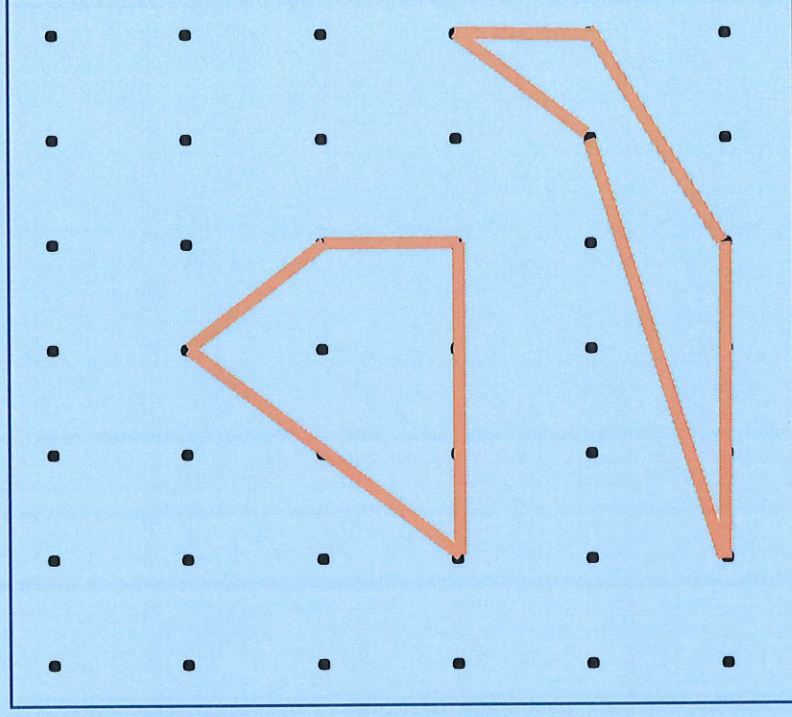
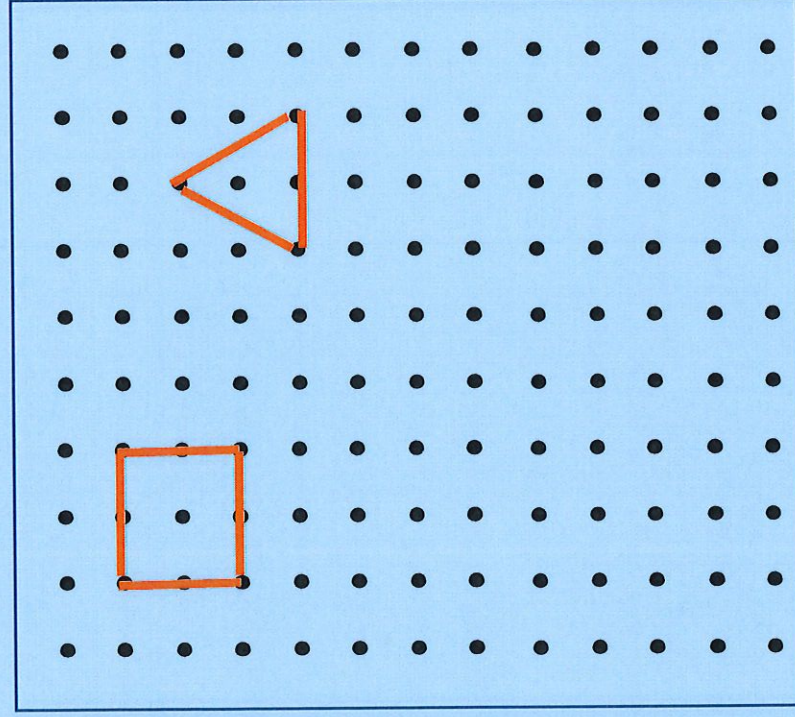


Activity 2

Regular and Irregular Polygons

Draw a regular polygon and an irregular polygon on the grids.

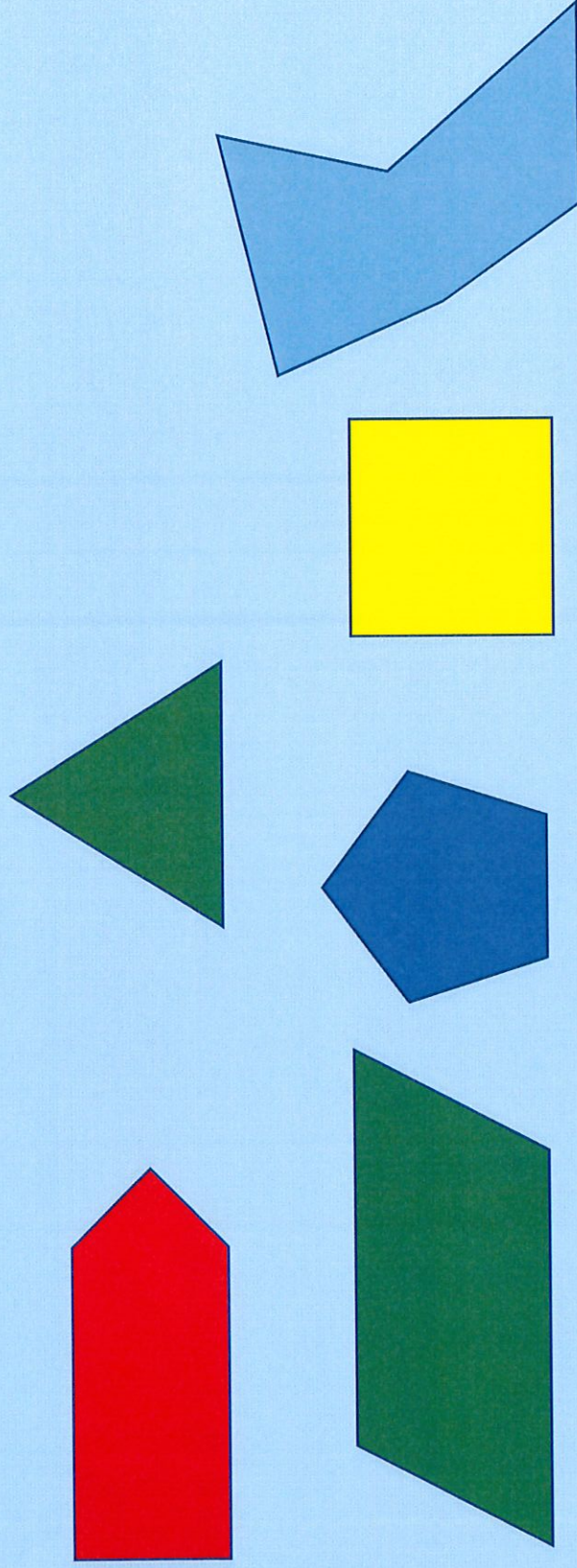
Examples



Activity 3

Regular and Irregular Polygons

Look at the 2D shapes. Decide whether the shape is a regular or irregular polygon.



?

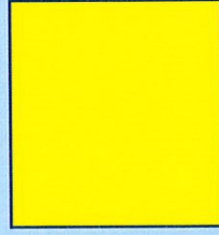
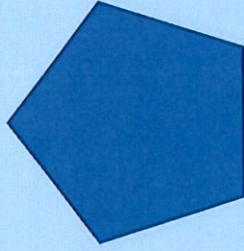
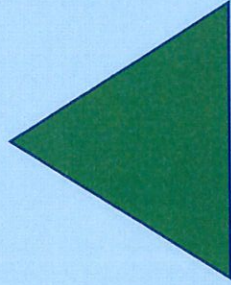
Measure the angles to check.

Activity 3

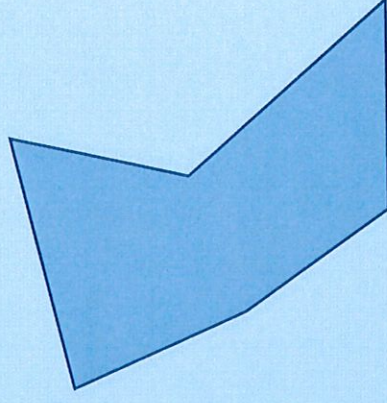
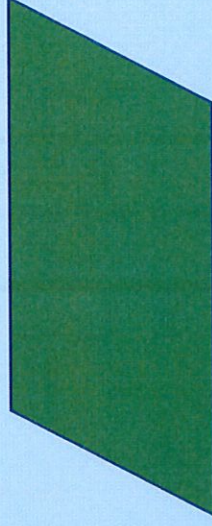
Regular and Irregular Polygons

Look at the 2D shapes. Decide whether the shape is a regular or irregular polygon.

Regular



Irregular



Reasoning 1

Regular and Irregular Polygons

Always, Sometimes, or Never True?

- A regular polygon has equal sides but not equal angles.
- A triangle is a regular polygon.
- A rhombus is a regular polygon.
- The number of angles is the same as the number of sides in any polygon.

Reasoning 1

Regular and Irregular Polygons

Always, Sometimes, or Never True?

- A regular polygon has equal sides but not equal angles.

- A triangle is a regular polygon.

- A rhombus is a regular polygon.

- The number of angles is the same as the number of sides in any polygon.

- Never true – equal sides have equal angles.

- Sometimes true – equilateral triangles are but scalene are not.

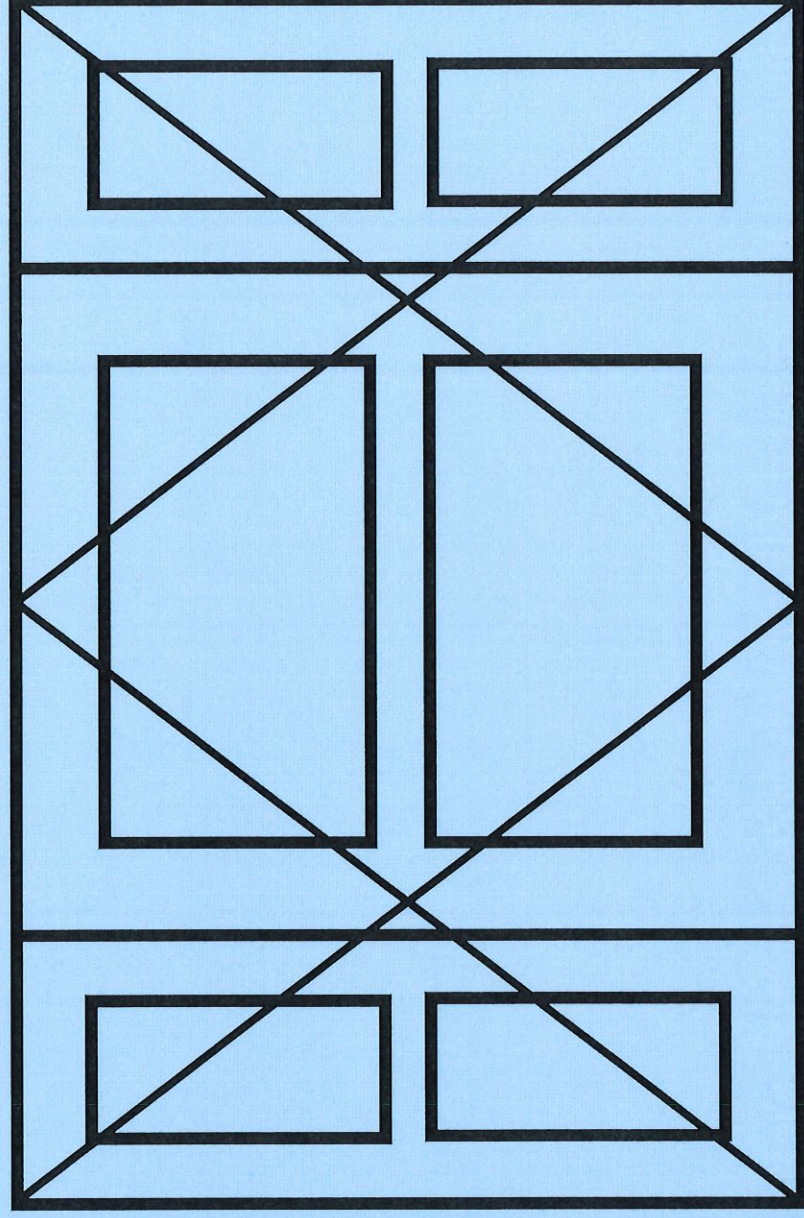
- Sometimes true – if the rhombus has right angles and is a square.

- Always true.

Reasoning 2

Regular and Irregular Polygons

How many regular and irregular polygons can you find in this picture?



Discuss

Regular and Irregular Polygons

What is a polygon?

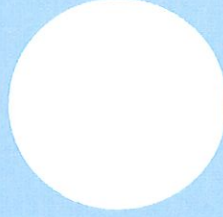
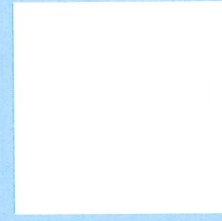
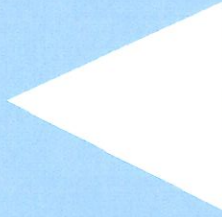
Can a polygon have a curved line?

Name a shape which isn't a polygon.

What makes a polygon irregular or regular?

Is a square regular?

Are all hexagons regular?



Reasoning about 3D Shapes

5



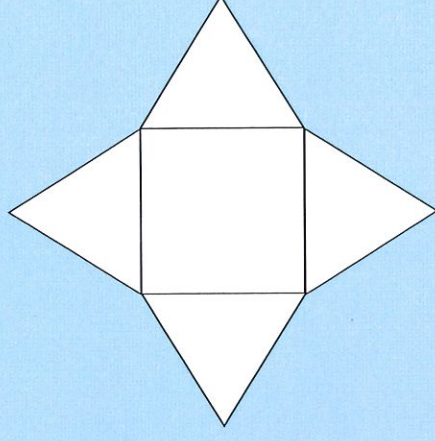
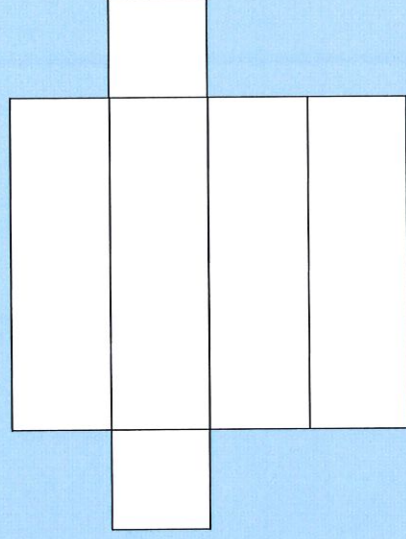
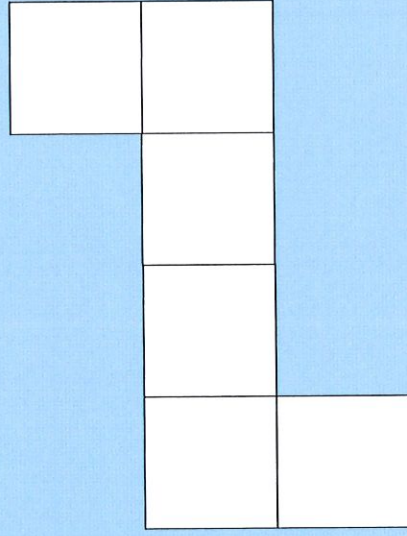
Fluency & Reasoning Teaching Slides

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Activity 1

Reasoning about 3D Shapes

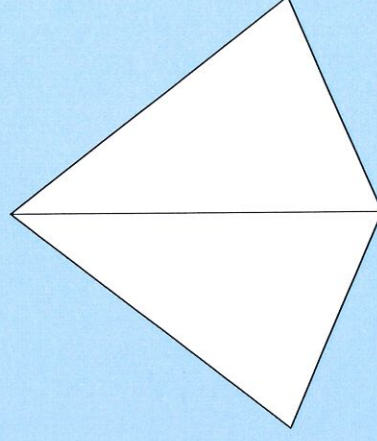
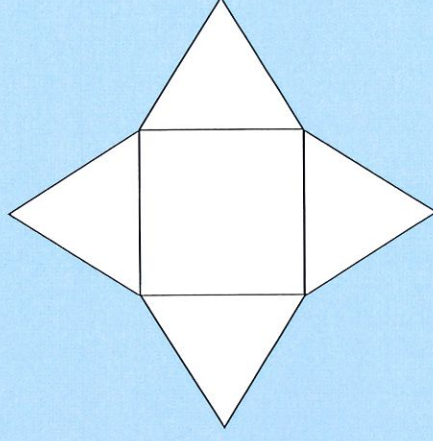
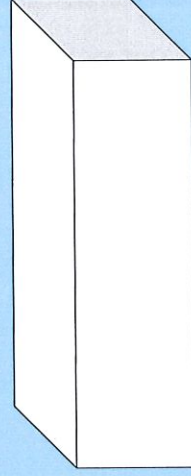
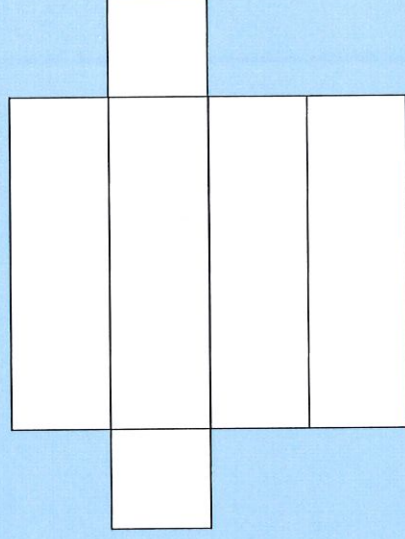
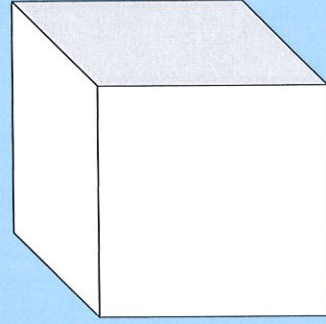
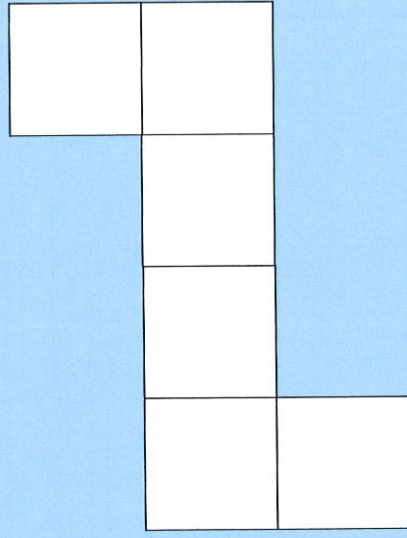
Look at the different nets. Describe the 2D shapes used to make them and identify the 3D shape.



Activity 1

Reasoning about 3D Shapes

Look at the different nets. Describe the 2D shapes used to make them and identify the 3D shape.



Activity 2

Reasoning about 3D Shapes

Use equipment, such as Polydron or 2D shapes, to build the 3D solids being described.

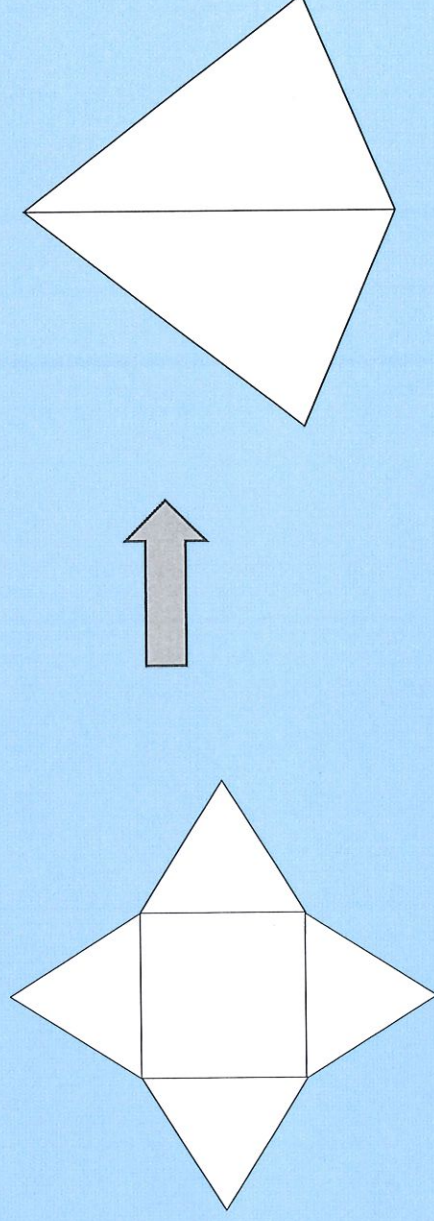
**My faces are made up of a square
and four triangles.**

Activity 2

Reasoning about 3D Shapes

Use equipment, such as Polydron or 2D shapes, to build the 3D solids being described.

**My faces are made up of a square
and four triangles.**



Can the descriptions make more than one shape?

Activity 3

Reasoning about 3D Shapes

Use equipment, such as Polydron or 2D shapes, to build the 3D solids being described.

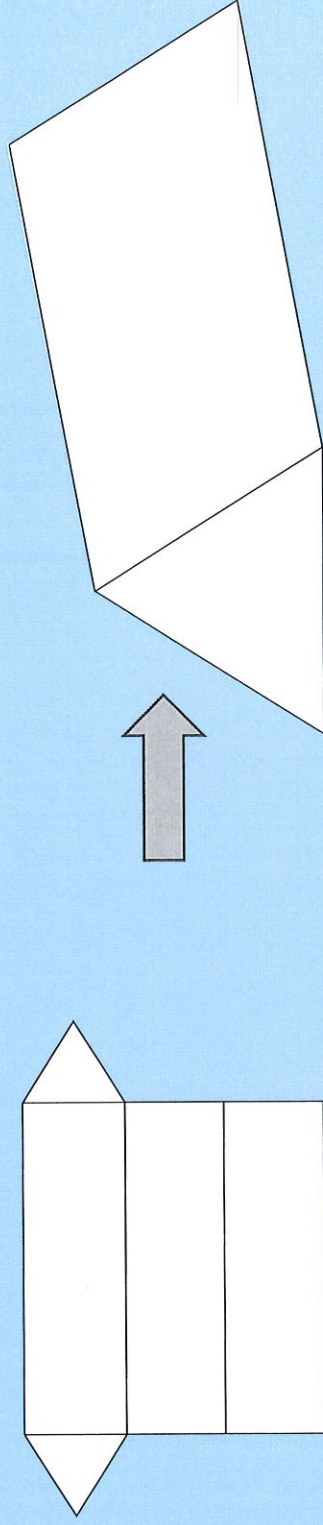
**My faces are made up of rectangles
and triangles.**

Activity 3

Reasoning about 3D Shapes

Use equipment, such as Polydron or 2D shapes, to build the 3D solids being described.

My faces are made up of rectangles and triangles.



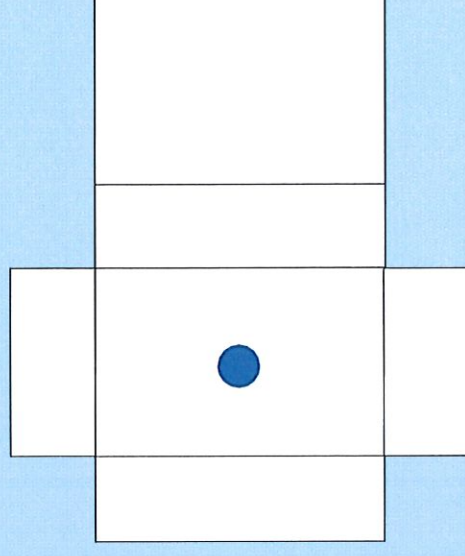
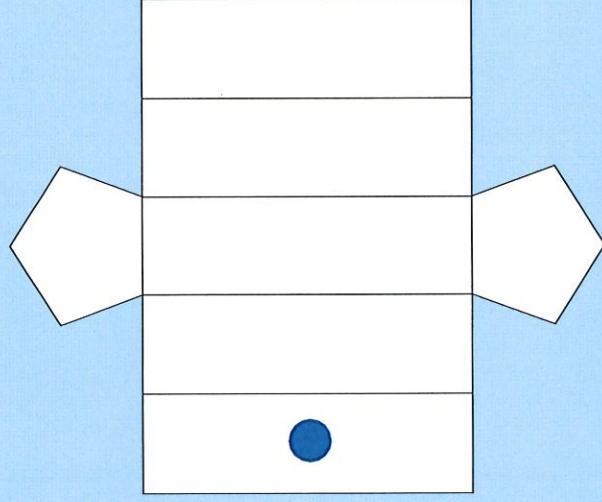
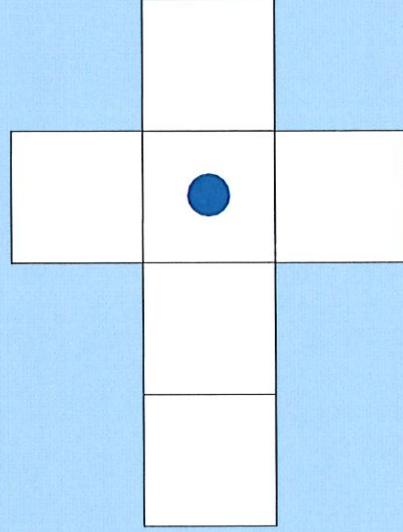
?

Can the descriptions make more than one shape?

Activity 3

Reasoning about 3D Shapes

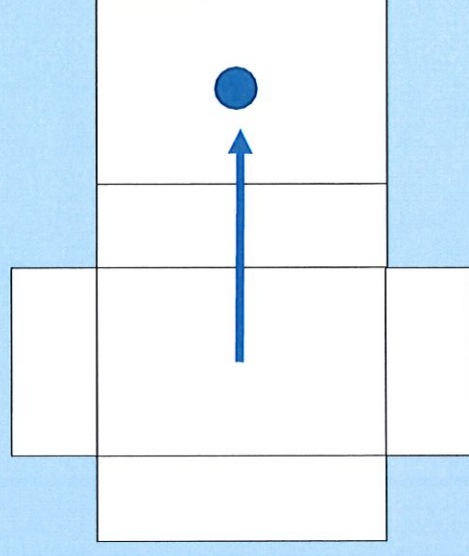
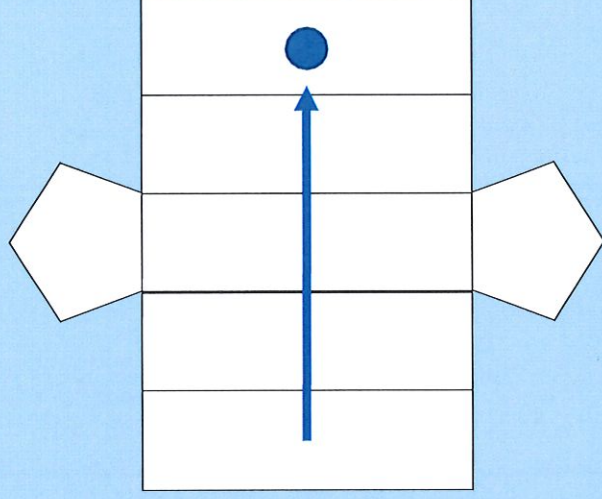
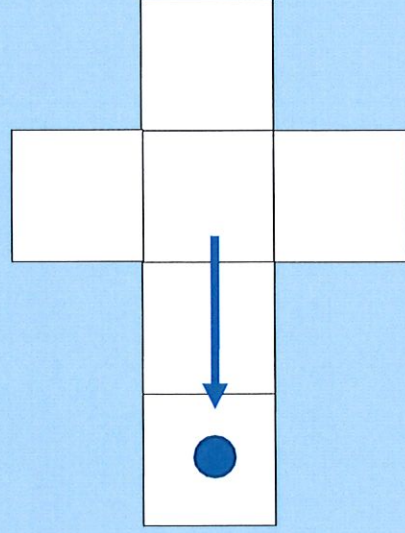
Draw another dot on the nets so the dots are on opposite faces when the 3D shape is constructed.



Activity 3

Reasoning about 3D Shapes

Draw another dot on the nets so the dots are on opposite faces when the 3D shape is constructed.



Reasoning 1

Reasoning about 3D Shapes

Malachi says:

If two 3D shapes have the same number of vertices, then they also have the same number of edges.



?

Do you agree? Explain why.

Reasoning 1

Reasoning about 3D Shapes

Malachi says:

If two 3D shapes have the same number of vertices, then they also have the same number of edges.

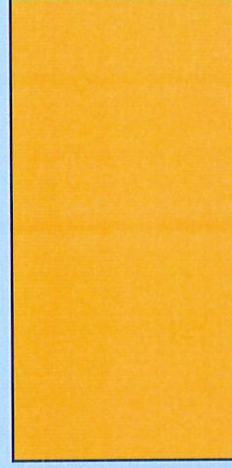
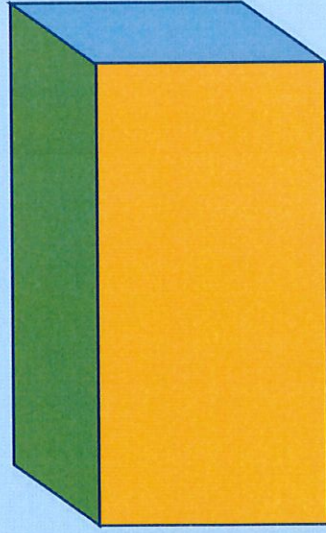


No, e.g. a square-based pyramid and a triangular prism.

Reasoning 2

Reasoning about 3D Shapes

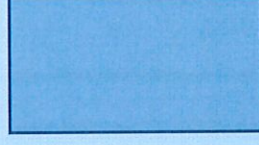
Using different 3D solids, how can you represent them from different views? Work out which representation goes with which solid.



Front view



Plan view



Side view

?

Example is shown above.

Discuss

Reasoning about 3D Shapes

What's the difference between a face and a curved surface?

Name some 3D solids which have curved surfaces and some which don't.

What faces can we see in the net? What shape will this make?

Which face will be opposite this face? Why?

Can we spot a pattern between the number of faces and the number of vertices a prism or pyramid has?

