Year 5 Home Learning – Week Beginning 29th June 2020

Hi Year 5, we hope you are all well. Please keep sending work in for the Padlet, we love seeing it all.

Fairgrounds

You will gain an understanding of the importance of forces and how these affect objects, mechanisms and the world around them, including themselves.

This week we are focussing on a Pulley investigation – remember you can do the whole investigation over one or two days, if you wish – you don't have to follow our suggestion.

Investigate how pulleys work and how the number of pulleys used changes the effort required

Draw diagrams that explain the forces, loads, weights and efforts for levers and pulleys

Science knowledge

A **pulley** system makes it easier to lift an object than lifting the dead weight by hand. A single **pulley** essentially changes the direction of the pull or force applied. When a person uses two or more **pulleys** in a system, then the system also multiplies the force applied besides changing its direction.

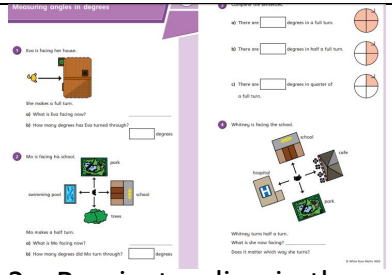
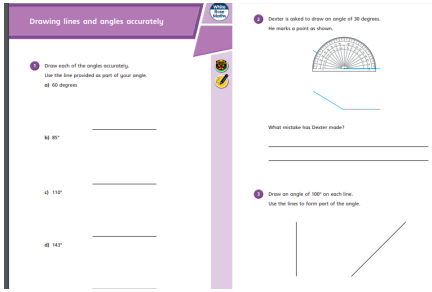
Gears - Most geared **bikes** have one, two, or three chain rings in the front (the rings attached to the pedal crank arm) and anywhere from seven to 12 **gears**—or cogs—in the back (or the cassette attached to the rear wheel). Moving the chain from the smallest rear cog to the largest eases your pedalling effort incrementally. The gears on a bike can make climbing a steep hill easier or riding on the flat faster, or coming downhill more controlled

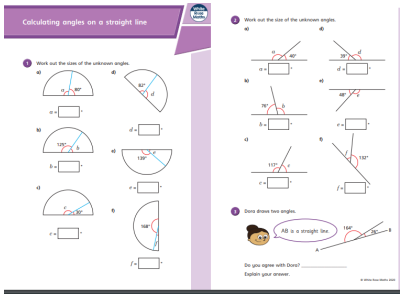
In English this week, your learning will be based on the third chapter of the story, *Banana Boy Slides Again*.

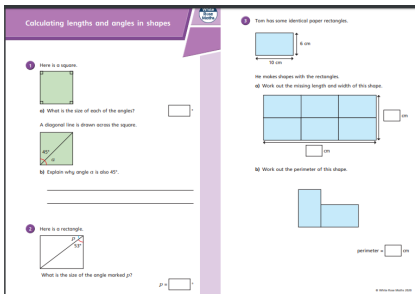
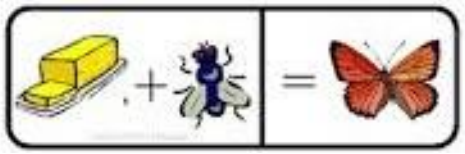
If you would like to do any additional English learning, you can find a new activity each day here: https://www.pobble365.com/

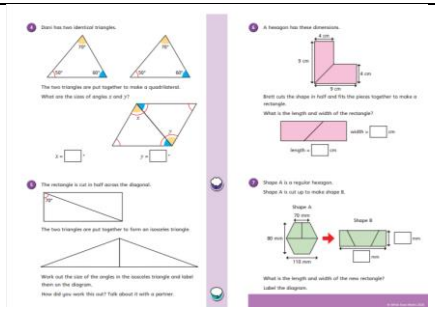
Maths this week, will focus on angles and shapes – a larger version of the worksheets can be found at the bottom of the document.

	Reading / SPaG	Maths	English	Topic
Monday	**Spelling:** Continue to play games on Spelling Frame. You could focus on these	1. See Worksheet 1 below the planning grid	**Reading Comprehension** Read Chapter 3 of Banana Boy Slides Again and answer these questions in your book. Remember to use full sentences and use evidence from the text.	Over 2 days – you will create 2 different types of Pulleys. Here are the instructions for making two types of pulley – you can make one, both or if you don't have the materials to make either then

	Y5/6 statutory spelling words this week: ancient apparent familiar foreign rhyme rhythm <u>**Reading**</u> Show an enjoyment for reading by reading a book of your choice. Aim to read for at least 10 minutes per day. You could always use your Reading Record to record what you have read.	 2. Ron is standing in the park. He is facing forward and looking at a slide. He makes a 180 degree turn and is now facing a bench. He now makes a 90 degree turn and is facing a tree. Draw a possible diagram of the park.	1. Find and copy the words that tell you the monkey is huge. 2. Find and copy two phrases that tell you how Banana Boy feels. 3. What does the word *peered* tell you about the monkey? 4. What does *I've got you covered* mean? 5. How does Banana Boy make the monkey angry? 6. Who do you think the girl might be and why do you think that?	annotate a diagram showing what you would have made. ***Instructions for making a fixed pulley*** ***Science diagram 1*** **You will need:** Knitting needle or length of dowelling Cotton reel (cylinder) Length of string Small container/bucket to hold load 2 hooks (you could bend or get an adult to bend some thin wire) Length of 10mm wood Load, e.g. marbles, wooden bricks **Method:** 1.Fix hooks into length of wood and place wood across a gap between two tables 2.Push dowelling or knitting needle through the cotton reel and place onto hooks 3.Place load in container and lift 3.Tie the string to handle of container and run over the cotton reel 4.Pull on string to lift the load ***Instructions for making a block and tackle pulley*** **You will need:** 4 cotton reels 1 hook Length of 10mm wood Length of string Scissors Small container/bucket to hold load Load, e.g. marbles, wooden bricks Force meter Method: 1.Fix hook into length of wood and place wood across gap between two tables
Tuesday		See Worksheet 2 below  Draw out an exstimated example of a 360 degree angle, a 90 degree angle and 180 degree angle – use a ruler but not a protractor.	<u>**Vocabulary**</u> Find these words in the story. Write them in your book and explain what they mean. **bother** **familiar** **peered** **reminded** **skipping** **shiver** Now write two new sentences for each word, making sure you use it correctly.	

				2. Tape two cotton reels together and thread string through them, knotting them in place. Tie to the hook (block) 3.Place the load in container and lift 4. Tape together two more cotton reels and thread string through them, knotting them in place. Tie to container (tackle) 5.Tie a third piece of string to the hook and wrap it round the cotton reels as shown in the diagram 6.Pull the string to lift the load 7. Compare the force needed with that in point 3, using a force meter.
Wednesday		See Worksheets 3a and b below 	**<u>Grammar</u>** <u>Expanded noun phrases</u> Draw a cartoon picture of the giant monkey in your book. Then, write as many expanded noun phrases to describe this character as you can in five minutes, such as *two huge, hairy feet*. **<u>Remember</u> – an expanded noun phrase is made up of a determiner, a noun and at least one adjective.** <u>Determiner –</u> used to introduce a noun to specify which one or how many e.g. a/an, the, one, some, most <u>Noun</u> – a person, object or animal <u>Adjective</u> – a word that describes a noun e.g. small, mysterious, angry	Answer these questions about your pulley system in your books using your science knowledge and vocabulary. Which is better for lifting loads – the fixed pulley or the block and tackle? Which pulley system do you recommend to the recovery team and why? What do you think would happen if you added more cotton reels (cylinder)? Test this out and see if it changes your recommendations. What does the pulley/lever do to the amount of force needed to lift or move something? •What do you not need to change each time you test the lever? *(the component parts, the input force being exerted, weight and mass of load)* How can you make sure this stays the same/constant each time? How might the results be affected if these things change, even by just a small amount, each time? •What are you going to investigate? *(how moving the fulcrum increases or decreases*

				the force needed to lift the load).
Thursday		See worksheet 4 below 	**Grammar** Compound words Compound words are made when you join two words together to make a new word. Can you make eight different compound words by joining the words below? cow / shelf egg / fly book / boy super / house star / market dragon / ball light / fish foot / cup Now choose some of the compound words (or other ones you can think of) and draw cartoon pictures to show the word e.g. 	Record your pulley investigation data, science diagram 3 (below) shows a table you could use. What are bike gears and how do they help cyclists? This film will help https://www.youtube.com/watch?v=Ml9Ojbl2uaw If you have a bike go for a ride (with an adult or their permission) and think how your gears help you, what is happening? Which gear combination do you think would result in slow and steady and which would result in fast and less controlled? You have been sent the gear options that the team has on it bikes (science diagram 4) - you need to work out which gear the team should use for uphill (steep), gentle uphill or flat, and downhill. You can choose to answer one of these or a question of your own; - How do gears work? What effect do specific combinations of gears have? Is there a link between a gear ratio and the terrain it is best used on?
Friday		See Worksheet 5 below	**Prediction** **What does the monstrous monkey**	Write a report to the recovery team explaining how to use the bike gears to best effect when

			**turn into next?** You have three options to choose from: A. It stamps on the pink unicorn. B. It drops Banana Boy into its mouth. C. It tells one more joke. Choose an option and then make a plan to show what will happen in the next chapter. Think carefully about a cliff-hanger to end the chapter. If you want an extra challenge, have a go at writing some or all of your chapter.	going; uphill, downhill or on rough ground. Consider these questions when writing you report. Why do you think that this combination would help cycling uphill? •Does going uphill require a greater or similar force to cycling on the flat? •Why does this gear suit travelling going downhill/uphill?

Additional Information:

Science

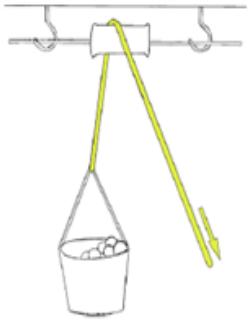


Diagram 1

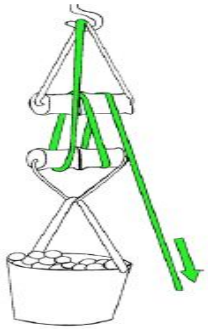


Diagram 2

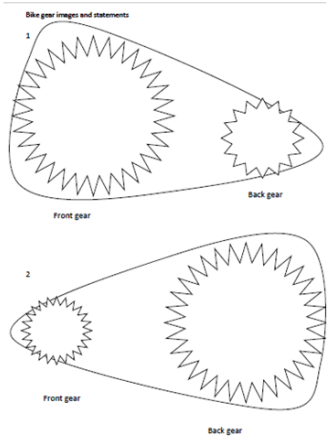
Diagram 3

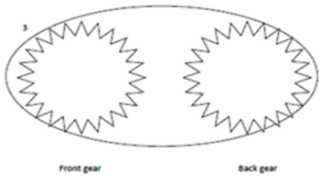
Sample results table (blank and complete) for pulley investigation

PULLEY INVESTIGATION	Enquiry question/s:							
Variables we kept the same:					Variable/s changed:			
Pulley system	**Max weight lifted**							
Fixed pulley								
Block & tackle pulley								
Block & tackle extension	Number of cotton reels							
	4		6		8		10	
Weight lifted								
Overall recommendations								
Scientific rationale								
Possible improvements to our investigation								
What else could we have investigated?								

Diagram 4

Science image 4



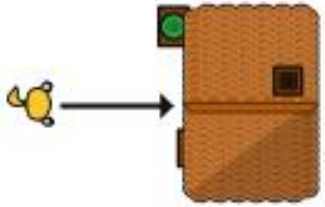


The front gear allows the pedals to go round easily, gradually moving the back gear and wheels. It may take a few rotations before the back wheel completes a turn.
The front and back gears need to go round at the same rate. For every turn of the pedals the back wheel completes a turn.
The front gear needs to turn the back gear multiple times for each complete pedal which makes the back wheel rotate multiple times for one turn of the pedal.

1=downhill
2=flat or gently uphill
3= uphill

Measuring angles in degrees

1 Eva is facing her house.



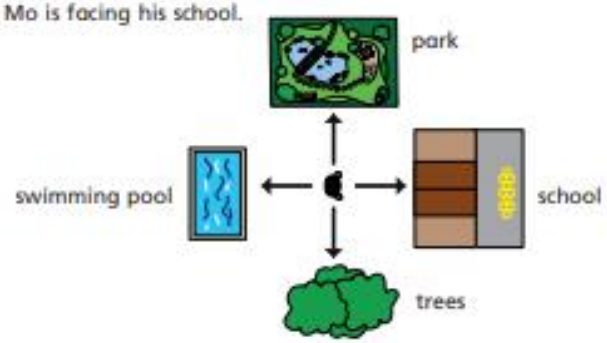
She makes a full turn.

a) What is Eva facing now? _____

b) How many degrees has Eva turned through?

☐ degrees

2 Mo is facing his school.

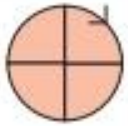


Mo makes a half turn.

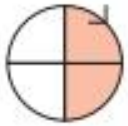
a) What is Mo facing now? _____

b) How many degrees did Mo turn through? ☐ degrees

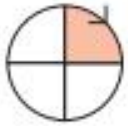
3 Complete the sentences.



a) There are ☐ degrees in a full turn.

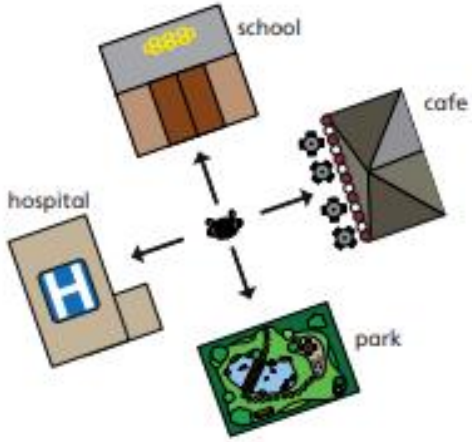


b) There are ☐ degrees in half a full turn.



c) There are ☐ degrees in quarter of a full turn.

4 Whitney is facing the school.



Whitney turns half a turn.

What is she now facing? _____

Does it matter which way she turns?

Drawing lines and angles accurately

1 Draw each of the angles accurately.

Use the line provided as part of your angle.

a) 60 degrees

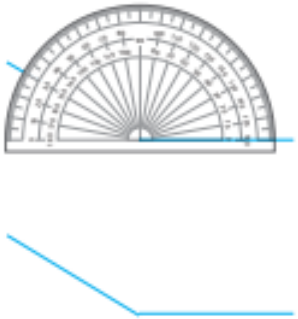
b) 85°

c) 110°

d) 143°

2 Dexter is asked to draw an angle of 30 degrees.

He marks a point as shown.



What mistake has Dexter made?

3 Draw an angle of 100° on each line.

Use the lines to form part of the angle.

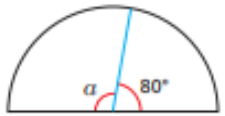
Worksheet 3a – Maths

Calculating angles on a straight line

White Rose Maths

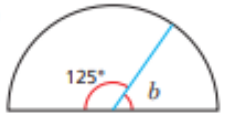
1 Work out the sizes of the unknown angles.

a)



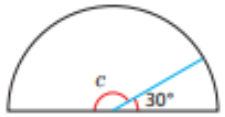
$a =$ ☐°

b)



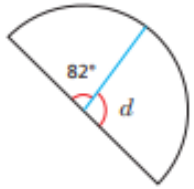
$b =$ ☐°

c)



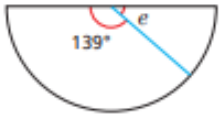
$c =$ ☐°

d)



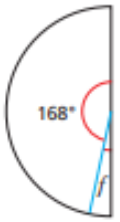
$d =$ ☐°

e)



$e =$ ☐°

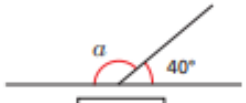
f)



$f =$ ☐°

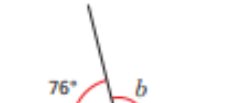
2 Work out the size of the unknown angles.

a)



$a =$ ☐°

b)

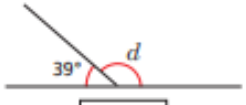


$b =$ ☐°

c)

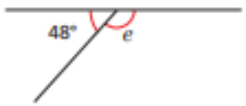
$c =$ ☐°

d)



$d =$ ☐°

e)



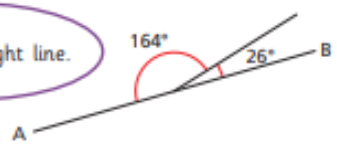
$e =$ ☐°

f)

$f =$ ☐°

3 Dora draws two angles.

AB is a straight line.



Do you agree with Dora? _____

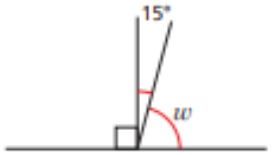
Explain your answer.

Worksheet 3 b

4 Work out the size of the unknown angles.

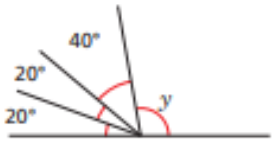
Show the steps in your working.

a)



$w =$ ☐ °

c)



$y =$ ☐ °

b)

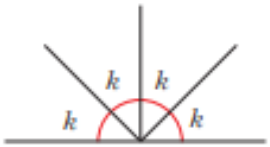
$x =$ ☐ °

d)

$z =$ ☐ °

5 Work out the sizes of the unknown angles.

a)

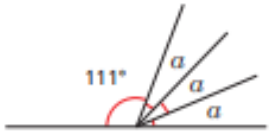


$k =$ ☐ °

b)

$g =$ ☐ °

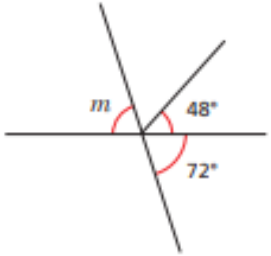
6 Work out the size of angle a.



$a =$ ☐ °

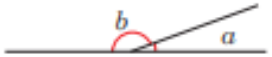
7 Work out the size of angle m.

Show all your working out.



$m =$ ☐ °

8 Two angles are marked.



Angle b is eight times the size of angle a.

What is the size of each angle?

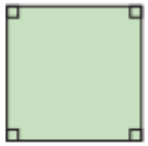
$a =$ ☐ ° $b =$ ☐ °

Worksheet 4

Calculating lengths and angles in shapes

White Rose Maths

1 Here is a square.



a) What is the size of each of the angles? ☐°

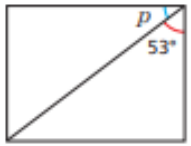
A diagonal line is drawn across the square.

b) Explain why angle a is also 45°.

_____

_____

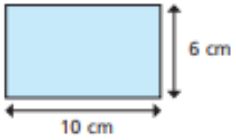
2 Here is a rectangle.



What is the size of the angle marked p?

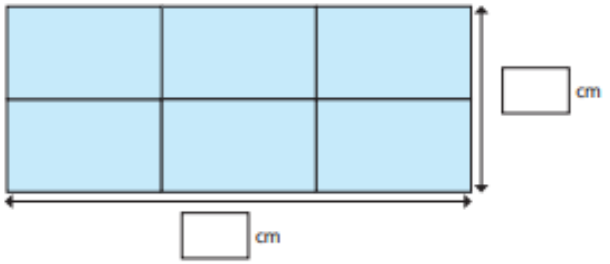
p = ☐°

3 Tom has some identical paper rectangles.

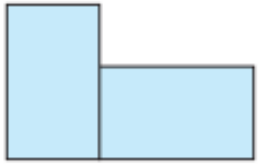


He makes shapes with the rectangles.

a) Work out the missing length and width of this shape.



b) Work out the perimeter of this shape.



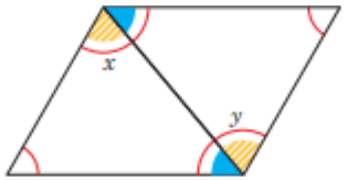
perimeter = ☐ cm

Worksheet 5

4 Dani has two identical triangles.

The two triangles are put together to make a quadrilateral.

What are the sizes of angles x and y?

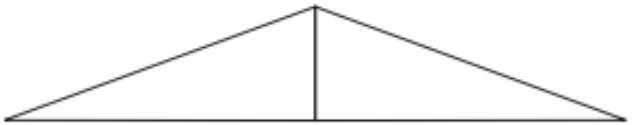


$x =$ ☐ °

$y =$ ☐ °

5 The rectangle is cut in half across the diagonal.

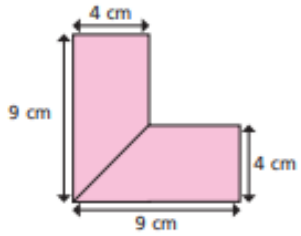
The two triangles are put together to form an isosceles triangle.



Work out the size of the angles in the isosceles triangle and label them on the diagram.

How did you work this out? Talk about it with a partner.

6 A hexagon has these dimensions.



Brett cuts the shape in half and fits the pieces together to make a rectangle.

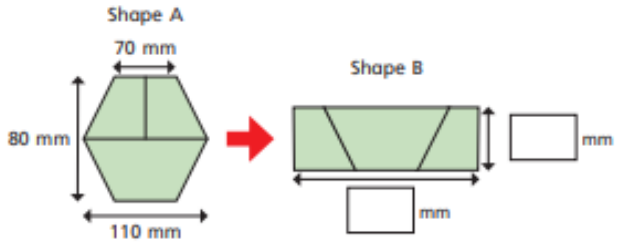
What is the length and width of the rectangle?

width = ☐ cm

length = ☐ cm

7 Shape A is a regular hexagon.

Shape A is cut up to make shape B.



What is the length and width of the new rectangle?

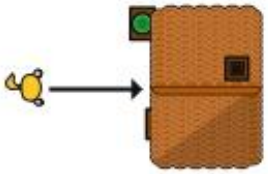
Label the diagram.

Answers

Worksheet 1 - Maths

Measuring angles in degrees

1 Eva is facing her house.



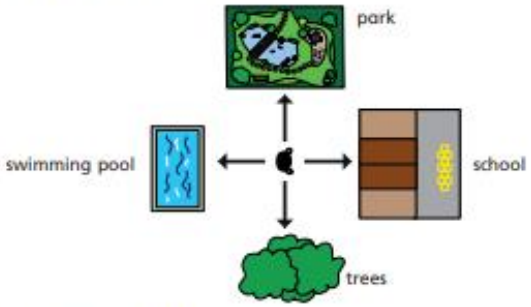
She makes a full turn.

a) What is Eva facing now? House.

b) How many degrees has Eva turned through?

360 degrees

2 Mo is facing his school.



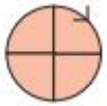
Mo makes a half turn.

a) What is Mo facing now? Swimming pool

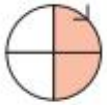
b) How many degrees did Mo turn through? 180 degrees

3 Complete the sentences.

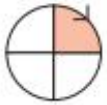
a) There are 360 degrees in a full turn.



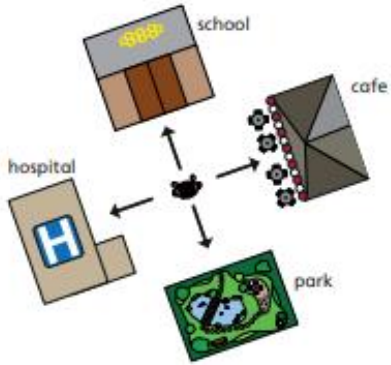
b) There are 180 degrees in half a full turn.



c) There are 90 degrees in quarter of a full turn.



4 Whitney is facing the school.



Whitney turns half a turn.

What is she now facing? park

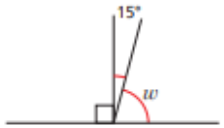
Does it matter which way she turns?

Worksheet 2 – Answers Maths

4 Work out the size of the unknown angles.

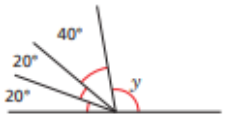
Show the steps in your working.

a)



$w =$ 75° °

c)



$y =$ 100° °

b)

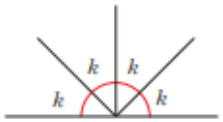
$x =$ 69 °

d)

$z =$ 107 °

5 Work out the sizes of the unknown angles.

a)

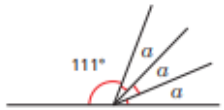


$k =$ 45 °

b)

$g =$ 30 °

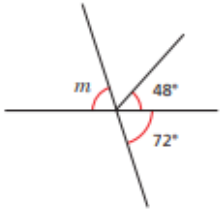
6 Work out the size of angle a.



$a =$ 23 °

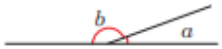
7 Work out the size of angle m.

Show all your working out.



$m =$ 72 °

8 Two angles are marked.



Angle b is eight times the size of angle a.

What is the size of each angle?

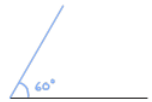
$a =$ 20 ° $b =$ 160 °

Answers Worksheet 3a and 3b

Drawing lines and angles accurately

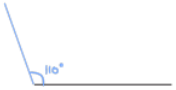
1 Draw each of the angles accurately.
Use the line provided as part of your angle.

a) 60 degrees



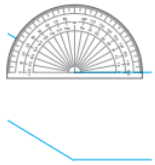
b) 85°

c) 110°



d) 143°

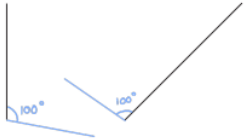
2 Dexter is asked to draw an angle of 30 degrees.
He marks a point as shown.



What mistake has Dexter made?

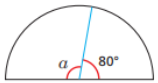
He has used the wrong scale on the protractor.

3 Draw an angle of 100° on each line.
Use the lines to form part of the angle.



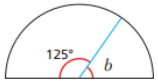
1 Work out the sizes of the unknown angles.

a)



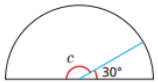
$a =$ 100 °

b)



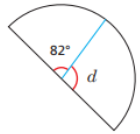
$b =$ 55 °

c)



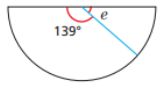
$c =$ 150 °

d)



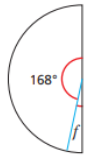
$d =$ 98 °

e)



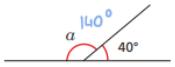
$e =$ 41 °

f)

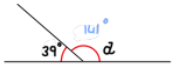


$f =$ 12 °

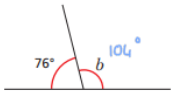
a) 140° a 40°



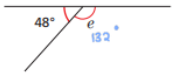
d) 141° 39° d



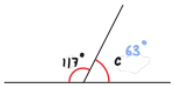
b) 76° b 104°



e) 48° e 132°

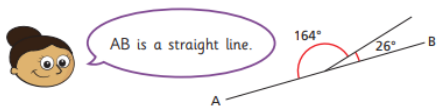


c) 117° c 63°



f) 48° f 132°

3 Dora draws two angles.



Do you agree with Dora? No

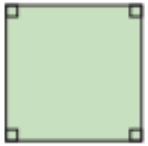
Explain your answer.

Answers worksheet 4

Calculating lengths and angles in shapes

White Rose Maths

1 Here is a square.



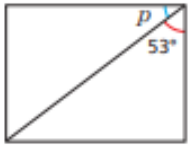
a) What is the size of each of the angles? 90 °

A diagonal line is drawn across the square.

b) Explain why angle a is also 45°.

A right angle is 90° and 90° - 45° = 45°

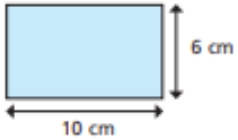
2 Here is a rectangle.



What is the size of the angle marked p?

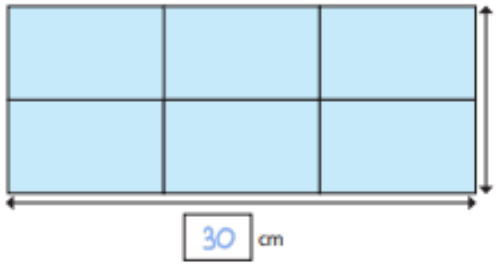
p = 37 °

3 Tom has some identical paper rectangles.



He makes shapes with the rectangles.

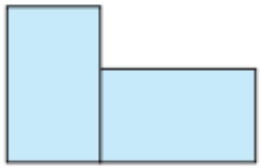
a) Work out the missing length and width of this shape.



12 cm

30 cm

b) Work out the perimeter of this shape.



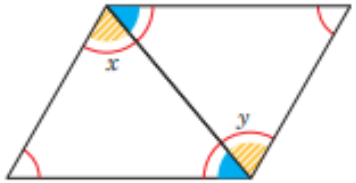
perimeter = 52 cm

Answers Worksheet 5

4 Dani has two identical triangles.

The two triangles are put together to make a quadrilateral.

What are the sizes of angles x and y?

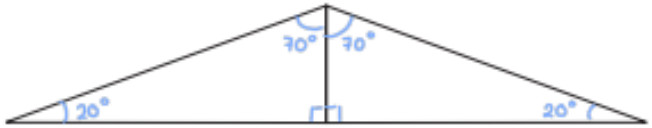


$x =$ 130 °

$y =$ 130 °

5 The rectangle is cut in half across the diagonal.

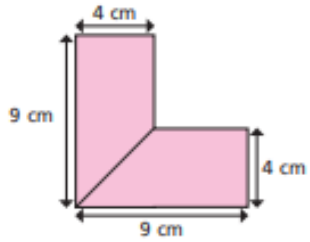
The two triangles are put together to form an isosceles triangle.



Work out the size of the angles in the isosceles triangle and label them on the diagram.

How did you work this out? Talk about it with a partner.

6 A hexagon has these dimensions.



Brett cuts the shape in half and fits the pieces together to make a rectangle.

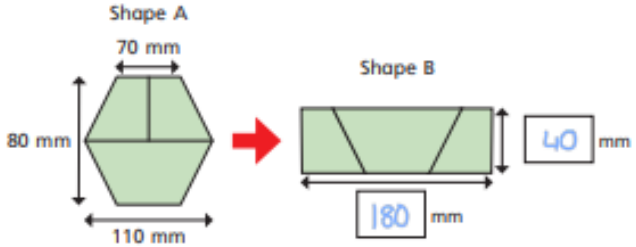
What is the length and width of the rectangle?

width = 4 cm

length = 14 cm

7 Shape A is a regular hexagon.

Shape A is cut up to make shape B.



What is the length and width of the new rectangle?

Label the diagram.