



Year 9 Mastery Homework

Maths

Cycle 3a

First name	
Last name	
Advisory	
Class	
Teacher	

Purpose:

This homework booklet is designed to support you in two areas:

1. Retrieval of key information on topics covered.
2. Practising application of knowledge to high frequency exam questions.

Deadlines:

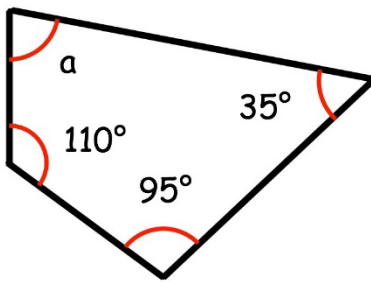
You will have one page of exam practice each week to complete in addition to your SparxMaths homework.

You should spend no longer than 20 minutes on your mastery homework task.

Mastery homework is due every week on Wednesday.

DUE: Wednesday 22nd April

Find a



Simplify

$$x^2+x^2$$

Simplify

$$y^2 \times y^2$$


Arrange in order, smallest to largest

$$\frac{1}{5} \quad \frac{3}{10} \quad \frac{1}{4}$$

Solve $5x+1=16$

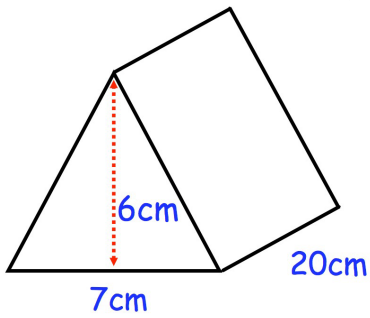
Work out

$$\frac{2}{3} \times \frac{9}{10}$$

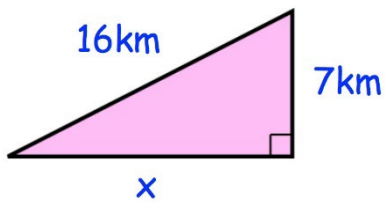
<p>A TV was bought for £132. It was sold at a profit of 25%.</p> <p>What was the selling price?</p>	
<p>Find the value of</p> $(345 \times 8) + (345 \times 2)$	
<p>If $x = 4$ and $y = 3$</p> <p>Find the value of $x^2 + 2y + 5$</p>	
<p>A car travels 120 miles in 3 hours Calculate the average speed.</p> 	
<p>Write 100 as a product of primes</p>	

<p>Expand and simplify</p> $5(3x + 2) + 4(x + 9)$	
<p>Miss Jones gives her class a test. The test is out of 40 marks.</p> <p>Here are their scores.</p> <p>29 20 35 31 32 38 32</p> <p>The pass mark is 75%</p> <p>How many students pass?</p>	
<p>62 people took part in a talent show 43 of the people were women.</p> <p>10 people made it through to the final and the rest were eliminated.</p> <p>3 men made it through to the final.</p> <p>Complete the frequency tree</p>	
<p>Tr</p> <p>Write an expression for the distance from Antrim to Lisburn</p> <p>iangle ABC is similar to triangle ADE.</p>	
<p>4 Litres 6 Litres</p> <p>£2.20 £3.24</p> <p>Cooking oil is sold in two sizes of cans.</p> <p>Which size of can gives the better value for money?</p>	

Find the volume of the prism.



Calculate x
Give your answer to 2 decimal places.



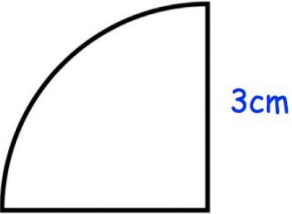
Calculate an estimate for the mean.

Mass	Frequency
$20 < m \leq 25$	12
$25 < m \leq 30$	24
$30 < m \leq 35$	17
$35 < m \leq 40$	15
$40 < m \leq 45$	4

Work out $(9 \times 10^4)^2$

Write an algebraic expression for:

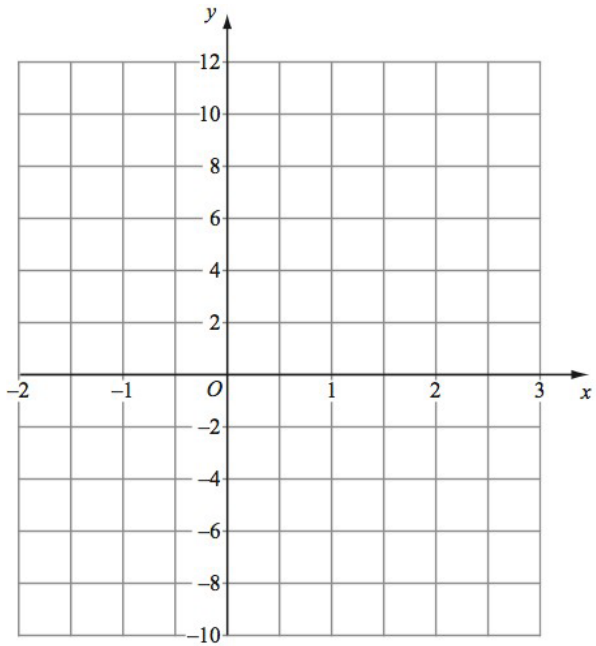
- i) 4 more than x
- ii) 7 less than c
- iii) 3 multiplied by y
- iv) m divided by 3

<p>Find the perimeter of this quarter circle.</p> 	
<p>Simplify</p> $\frac{4^5 \times 4^6}{4^3}$	
<p>Work out the area of a triangle with base 8cm and height 6cm</p>	
<p>Simplify $5w \times 3w$</p>	
<p>A piece of carpet is 240cm long. Mr Patel cuts it into three pieces in the ratio 1 : 2 : 5</p> <p>Work out the length of the longest piece of carpet.</p>	

DUE: Wednesday 6th May

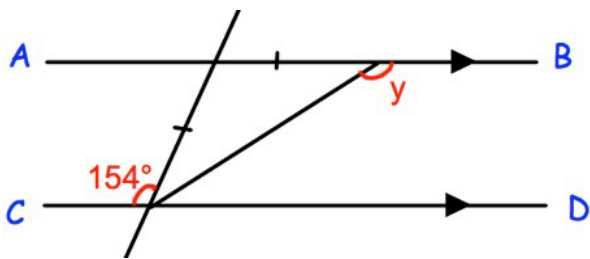
Complete the table of values for
 $y = 5x - 2$

x	-1	0	1	2
y				



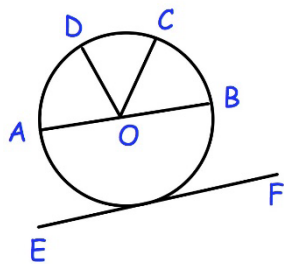
Draw the graph of $y = 5x - 2$

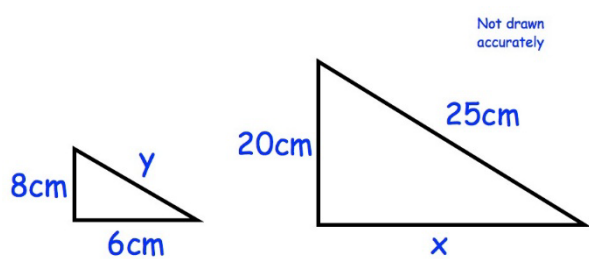
Find the size of y .



Write down the gradient of the line with
equation $y = 3x - 4$

What is the name of the line AB?

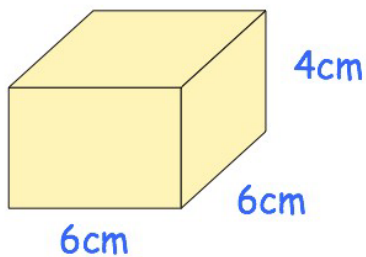


<p>There are 20 counters in a bag.</p> <p>8 of the counters are blue. 4 of the counters are red. The rest are green.</p> <p>What is the probability of selecting a green counter?</p>	
<p>Write 390000000 in standard form.</p> <p>Write 3.1×10^{-5} as an ordinary number.</p>	
<p>Shown below are two similar triangles. Find the size of x.</p>  <p>Not drawn accurately</p>	
<p>Solve $y^2 + 7y + 10 = 0$</p>	
<p>Below are the first two terms of a geometric sequence.</p> <p>4 8 _ _ _</p> <p>Find the next three terms</p>	

5 2 4 8 2 1 5 3 2

- i) Find the mode
- ii) Find the median
- iii) Work out the range

Work out the volume



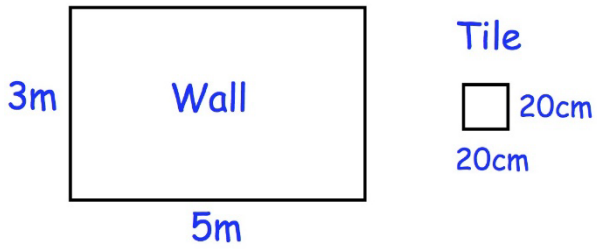
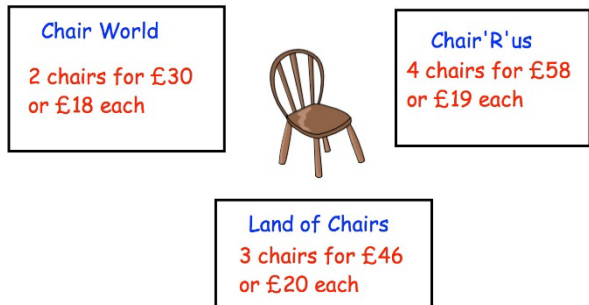
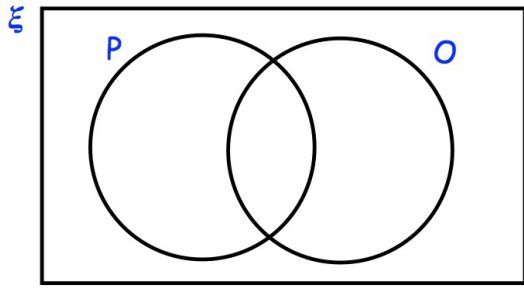
What is the mass of an object which has a volume of 120cm^3 and a density of 6g/cm^3 ?

James is drawing a pie chart
Calculate the size of each angle

Meal	Frequency
Chicken	14
Beef	9
Pork	57
Vegetarian	10

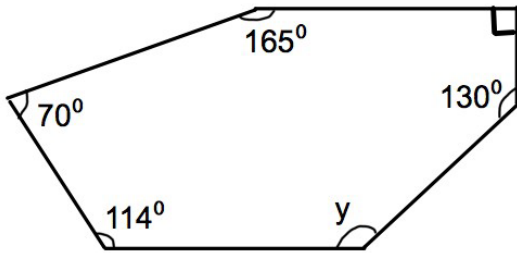
Lorcan and Mary share £16 in the ratio 1:3

How much does Mary receive?

<p>How many tiles are needed to cover the wall?</p>  <p>3m</p> <p>5m</p> <p>Wall</p> <p>Tile</p> <p>20cm</p> <p>20cm</p>	
<p>Expand and simplify</p> <p>$(y + 2)(y + 1)$</p>	
<p>Beth wants to buy 9 chairs. Which shop is best value for money?</p>  <p>Chair World</p> <p>2 chairs for £30 or £18 each</p> <p>Chair'R'us</p> <p>4 chairs for £58 or £19 each</p> <p>Land of Chairs</p> <p>3 chairs for £46 or £20 each</p>	
<p>$\xi = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13\}$ $O = \text{Odd numbers}$ $P = \text{Prime numbers}$</p> <p>Complete the Venn diagram</p>	
<p>A number is chosen at random</p> <p>Find $P(O \cup P)$</p> <p>A number is chosen at random</p> <p>Find $P(O \cap P)$</p>	

DUE: Wednesday 20th May

Find y



What type of correlation is shown?



A container exerts a force of 4000 Newtons on the floor.
The pressure on the floor is 500 Newtons/m²

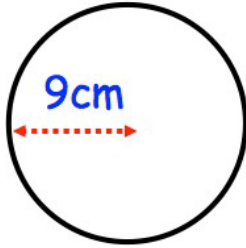
Calculate the area of the container that is in contact with the floor

The number of visitors to a museum fell by 8% from March to April. In April, 51520 people visited the museum.

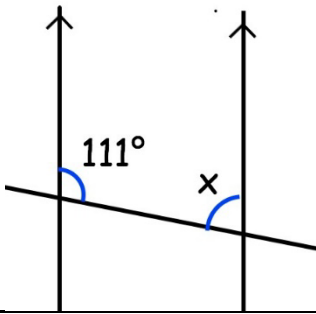
How many people visited the museum in March?

Work out $\frac{7}{8} - \frac{1}{6}$

Work out the circumference of the circle.
Give your answer to 1 decimal place.



Work out the size of the angle marked x.
Give a reason for your answer



Sarah is x years old.
Thomas is 9 years older than Sarah.
Dan is three times as old as Sarah. The
total of their ages is 94.

How old is Dan?

The price of a cinema ticket is reduced
from £8 to £7.50

Calculate the reduction as a
percentage of the original price.

Work out the
perimeter of
the shape

