

a
Put the following numbers in order from smallest to largest:

-0.7, 0.65, -0.68, -0.625, 0.8

$\frac{10}{12}$, $\frac{5}{8}$, $\frac{2}{3}$, $\frac{17}{24}$

c
Write as a decimal:

$\frac{2}{5}$

0.5%

d
Evaluate:

$13 + 3 \times 7 + 12 \div 2 =$

$8 \times (2 + 3) + 5^2 =$

e
I think of a number, multiply it by 2, square root the result then subtract 4.
The result is 4.

What number did I first think of?

b
It takes 4 workers 6 days to build a shed.

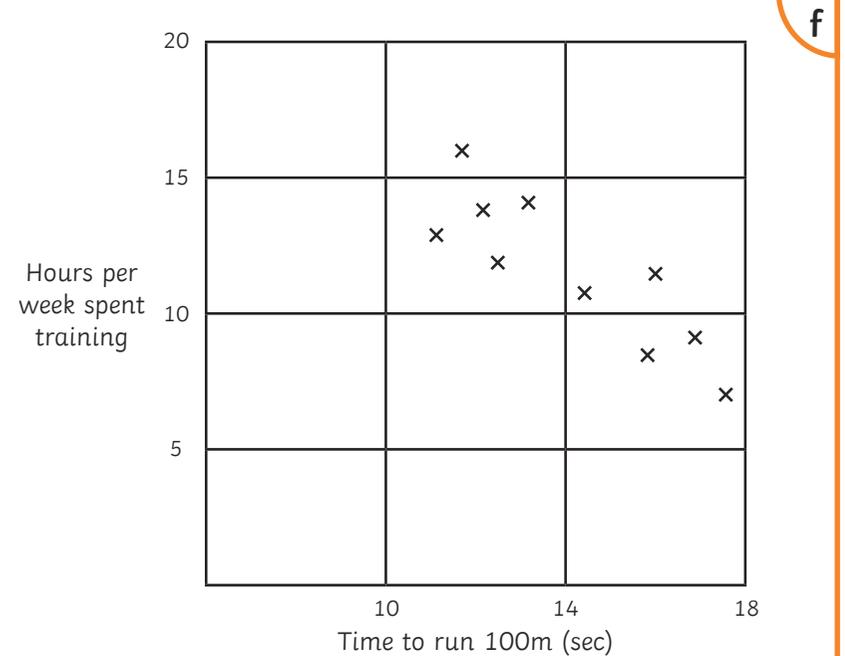
How many sheds could 2 of the workers make in 36 days, if all of the workers work at the same rate?



The scatter graph shows the time spent training and the time taken to run 100m for 10 members of The Whippets Running Club.

A new runner who does 12 hours of training a week joins the club.

How long would you expect it to take the runner to run 100m?



$0.3 \times 0.17 =$

$0.9 \div 0.12 =$

a

$-3 - 8.5 =$

$10 - -1.3 =$

$-(-3 \times -2) =$

c

A rectangle has length 6cm and width 8cm.

Calculate the length of its diagonal?

e

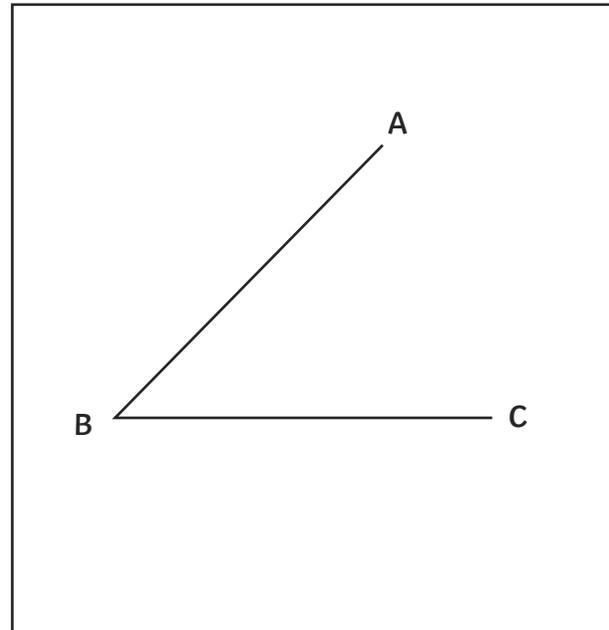
Write as a fully simplified fraction or mixed number:

$2\frac{5}{7} + \frac{4}{5} =$

$1\frac{1}{3} - \frac{5}{6} =$

b

Use a pair of compasses and ruler to construct the locus of points that are equidistant from AB and BC. Do not erase your construction lines.

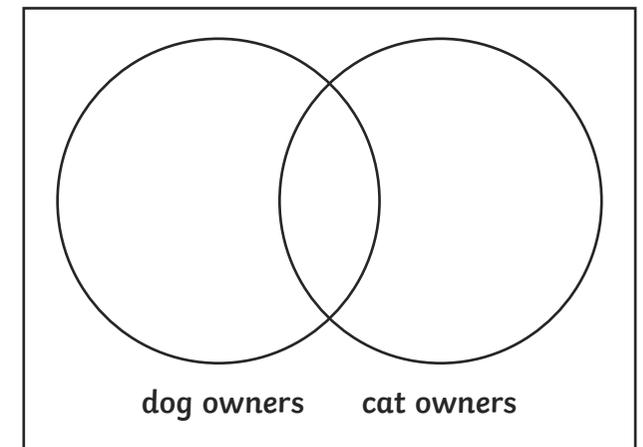


d

There are 30 children in 9C at Yulurn Hir School. 4 of them have both a dog and a cat. 11 of them have no cat or dog. 8 of them have cats.

What is the probability that a child that is picked at random from class 9C has a dog?

You may wish to use this Venn Diagram to help you.



f

a

Expand:

$2(x + 5) =$

$3(2a + b) =$

c

Write as a fully simplified fraction:

32%

0.65

e

Find the LCM of 8 and 10.

Find the HCF of 24 and 20.

Express 240 as the product of prime factors.

b

The table shows the scores earned in a ball game by a group of children.

Find the mean, mode, median and range of the scores:

Score	Frequency
0	1
1	11
2	10
3	3

mean: mode:

median: range:

d

$\sqrt[3]{64}$

$2^5 =$

f

Translate the shaded triangle by $\begin{pmatrix} -6 \\ 2 \end{pmatrix}$.

Rotate the shaded triangle around the point (0,0) 90° in an anti-clockwise direction.

Round 8472 to 1 significant figure.

Round 3.4654 correct to 1 decimal place.

a

There are some green, red, yellow and blue crayons in a box. The table shows the probability of taking green or red when a crayon is picked at random from the box. The probability of picking a yellow is the same as the probability of picking a blue.

What is the probability that a blue is picked?

Colour	Green	Red	Yellow	Blue
Probability	0.3	0.1		

d

$$0.4\text{kg} = \boxed{} \text{ g}$$

$$5\text{ml} = \boxed{} \text{ l}$$

b

When $x = 5$ and $y = -3$, evaluate:

$$x + y$$

$$2x - 3y$$

e

Evaluate, giving your answers as fully simplified fractions or mixed numbers:

$$2\frac{3}{5} \times 3\frac{2}{3} =$$

$$5\frac{3}{4} \div \frac{9}{16} =$$

f

Fully simplify:

$$4a - 2b - 3a + b =$$

c

a

Increase £40 by 35%.

b

You can buy 15 mini gingerbread men for 92p at Pixie's Bakery. At Elvis's Bakery you can buy 7 for 43p.

Which bakery offers better value for money?
Show all of your working.



ABC and DE are parallel lines,
BE = CE, angle BEC = 50°.

Find the value of x.

Give reasons for your answer.

x =

d

The parallelogram cross section of a parallelogram faced prism has height 4cm and base 10cm. The length between the parallelogram faces is 5cm.

What is the volume of the parallelogram prism?

f

Simplify the ratio 6:10:12.

Annie and Billy share £3.50 in the ratio 2:3.
How much money does each get?

Annie: Billy:

e

What is the probability that, when 3 coins are tossed, exactly 2 of them will land on a head?

Factorise:

$3x^2y + 9xy^2$

a

2, 5, 7, 12, 19, ...

What are the next two terms in this sequence?

b

8, 15, 22, 29, ...

What is the n th term of the sequence?

Is 2345 a term in the sequence?
Give a reason for your answer.

c

A circular lawn of radius 10m has a circular flower bed of radius 5m dug into it.

What is the area of the remaining lawn?
Give your answer in terms of π

d

Express as a single power of 2:

64×16

32^3

e

Complete the table of values for $y = x^2 + 3x + 2$

x	-3	-2	-1	0	1	2	3
y							

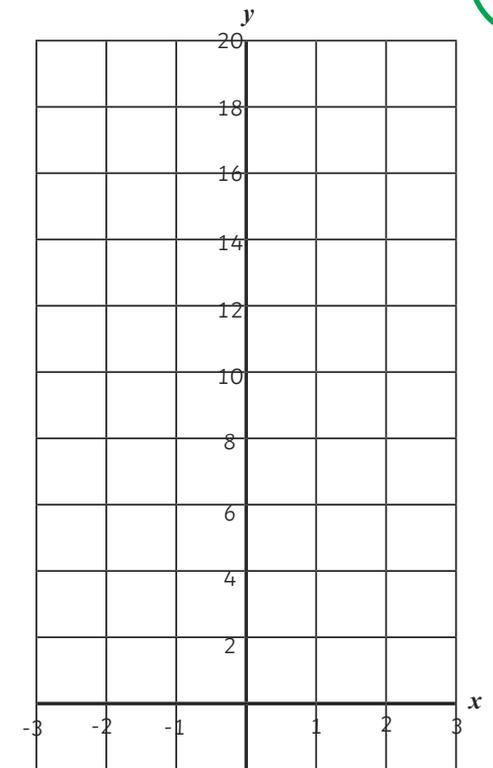
On the axes, draw the graph of $y = x^2 + 3x + 2$

Give the coordinates of the minimum point and the equation of the line of symmetry.

minimum point:

equation of the line of symmetry:

f



a

Put the following numbers in order from smallest to largest:

-0.7, 0.65, -0.68, -0.625, 0.8

-0.7, -0.68, -0.625, 0.65, 0.8

$\frac{10}{12}, \frac{5}{8}, \frac{2}{3}, \frac{17}{24}$

$\frac{5}{8}, \frac{2}{3}, \frac{17}{24}, \frac{10}{12}$

c

Write as a decimal:

$\frac{2}{5}$ **0.4**

0.5% **0.005**

d

Evaluate:

$13 + 3 \times 7 + 12 \div 2 =$ **40**

$8 \times (2 + 3) + 5^2 =$ **65**

e

I think of a number, multiply it by 2, square root the result then subtract 4.
The result is 4.

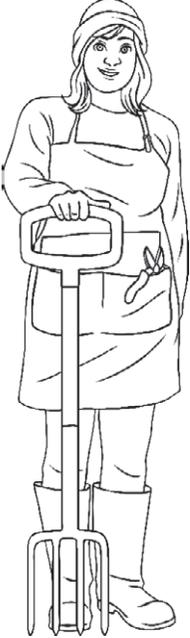
What number did I first think of? **32**

b

It takes 4 workers 6 days to build a shed.

How many sheds could 2 of the workers make in 36 days, if all of the workers work at the same rate?

3 sheds



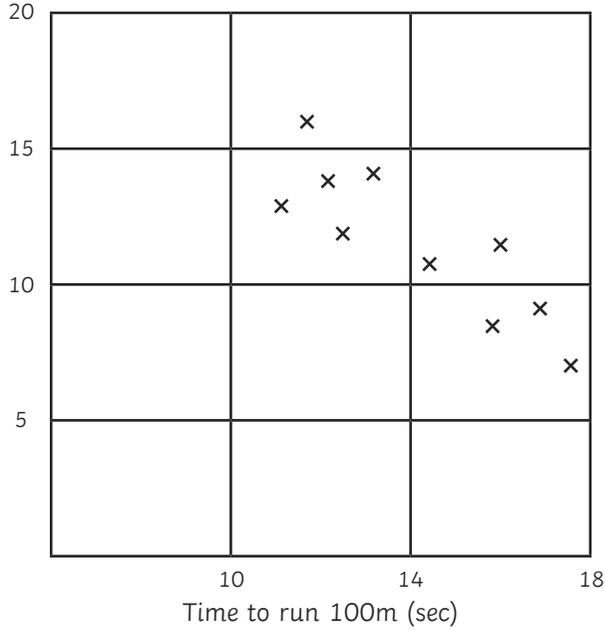
f

The scatter graph shows the time spent training and the time taken to run 100m for 10 members of The Whippets Running Club.

A new runner who does 12 hours of training a week joins the club.

How long would you expect it to take the runner to run 100m?

Approx 14 secs



Time to run 100m (sec)	Hours per week spent training
11	13
12	14
13	14
12	12
14	11
15	11
16	9
17	9
17	7
18	7

$$0.3 \times 0.17 = \boxed{0.051}$$

$$0.9 \div 0.12 = \boxed{7.5}$$

$$-3 - 8.5 = \boxed{-11.5}$$

$$10 - -1.3 = \boxed{11.3}$$

$$-(-3 \times -2) = \boxed{-6}$$

A rectangle has length 6cm and width 8cm.

Calculate the length of its diagonal?

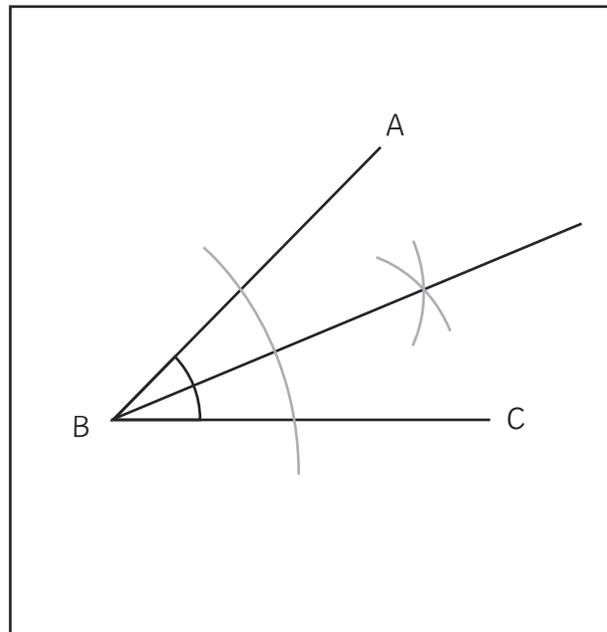
10cm

Write as a fully simplified fraction or mixed number:

$$2\frac{5}{7} + \frac{4}{5} = \boxed{3\frac{18}{35}}$$

$$1\frac{1}{3} - \frac{5}{6} = \boxed{\frac{1}{2}}$$

Use a pair of compasses and ruler to construct the locus of points that are equidistant from AB and BC. Do not erase your construction lines.

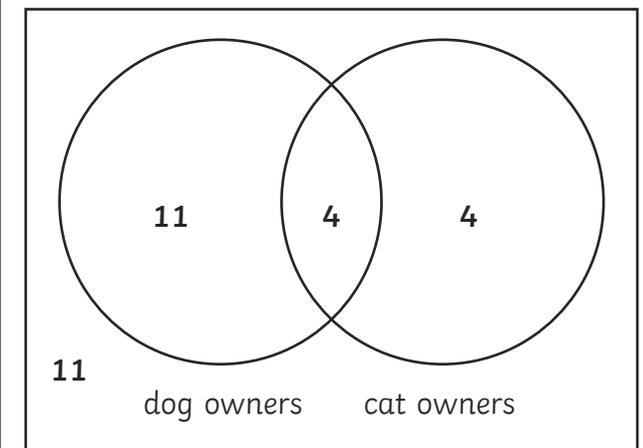


There are 30 children in 9C at Yulurn Hir School. 4 of them have both a dog and a cat. 11 of them have no cat or dog. 8 of them have cats.

What is the probability that a child that is picked at random from class 9C has a dog?

$\frac{1}{2}$

You may use this Venn Diagram to help you.



Expand:

$2(x + 5) =$

$3(2a + b) =$

Write as a fully simplified fraction:

32%

0.65

Find the LCM of 8 and 10.

Find the HCF of 24 and 20.

Express 240 as the product of prime factors.

The table shows the scores earned in a ball game by a group of children.

Find the mean, mode, median and range of the scores:

Score	Frequency
0	1
1	11
2	10
3	3

mean: mode:

median: range:

$\sqrt[3]{64}$

$2^5 =$

Translate the shaded triangle by $\begin{pmatrix} -6 \\ 2 \end{pmatrix}$.

Rotate the shaded triangle around the point (0,0) 90° in an anti-clockwise direction.

Triangle with vertices at (-5,5) (-5,3) (-4,3)

Triangle with vertices at (-1,2) (-1,1) (-3,1)

Round 8472 to 1 significant figure.

8000

Round 3.4654 correct to 1 decimal place.

3.5

There are some green, red, yellow and blue crayons in a box. The table shows the probability of taking green or red when a crayon is picked at random from the box. The probability of picking a yellow is the same as the probability of picking a blue.

What is the probability that a blue is picked?

Colour	Green	Red	Yellow	Blue
Probability	0.3	0.1	0.3	0.3

0.4kg =

400g

5ml =

0.005l

When $x = 5$ and $y = -3$, evaluate:

$x + y$

2

$2x - 3y$

19

Fully simplify:

$$4a - 2b - 3a + b = a - b$$

Evaluate, giving your answers as fully simplified fractions or mixed numbers:

$$2\frac{3}{5} \times 3\frac{2}{3} =$$

$9\frac{8}{15}$

$$5\frac{3}{4} \div \frac{9}{16} =$$

$10\frac{2}{9}$

a

Increase £40 by 35%. £54

b

You can buy 15 mini gingerbread men for 92p at Pixie's Bakery. At Elvis's Bakery you can buy 7 for 43p.

Which bakery offers better value for money? Show all of your working.

Pixie's Bakery

6.13 p per gingerbread man at Pixie's.

6.14p per gingerbread man at Elvis's.

Pixie's is better.



c

ABC and DE are parallel lines, BE = CE, angle BEC = 50°.

Find the value of x.

Give reasons for your answer.

$x =$ 65°

Angle EBC = Angle BCE = 65° (angle sum of isosceles triangle)

$x = 65°$ (alternate angles)

d

The parallelogram cross section of a parallelogram faced prism has height 4cm and base 10cm. The length between the parallelogram faces is 5cm.

What is the volume of the parallelogram prism? 200cm³

f

Simplify the ratio 6:10:12.

3:5:6

Annie and Billy share £3.50 in the ratio 2:3. How much money does each get?

Annie: £1.40 Billy: £2.10

e

What is the probability that, when 3 coins are tossed, exactly 2 of them will land on a head? $\frac{3}{8}$

a

Factorise:

$3x^2y + 9xy^2$ $3xy(x + 3y)$

b

2, 5, 7, 12, 19, ...

What are the next two terms in this sequence?

$31, 50$

c

8, 15, 22, 29, ...

What is the nth term of the sequence?

$7n+1$

Is 2345 a term in the sequence?
Give a reason for your answer.

$7n = 2344$

$2344 \div 7 = 334.85\dots$

$n = 334.85\dots$

**n is not an integer (whole number) so
2344 is not a number in the sequence.**

d

A circular lawn of radius 10m has a circular flower bed of 5m radius dug into it.

What is the area of the remaining lawn?
Give your answer in terms of π

$7.5\pi \text{ m}^2$

e

Express as a single power of 2:

64×16 2^{10}

32^3 2^{15}

f

Complete the table of values for $y = x^2 + 3x + 2$

x	-3	-2	-1	0	1	2	3
y	2	0	0	2	6	12	20

On the axes, draw the graph of $y = x^2 + 3x + 2$

Give the coordinates of the minimum point and the equation of the line of symmetry.

minimum point: $(-1.5, -0.25)$

equation of the line of symmetry: $x = -1.5$

