

4 (a) Write down all the factors of 24.

..... [2]

(b) Write down the reciprocal of $\frac{3}{7}$.

..... [1]

17 (a) Write down a prime number between 20 and 30.

..... [1]

(b) Simplify $(\sqrt{9})^2$.

..... [1]

18 Work out $\frac{11}{18} - \frac{2}{9}$.

Give your answer as a fraction in its simplest form.

..... [2]

19 By writing each number in the calculation correct to 1 significant figure, find an estimate for the value of

$$\frac{5.3 \times 19.5}{2.49}$$

..... [2]

20 Some students take a test.

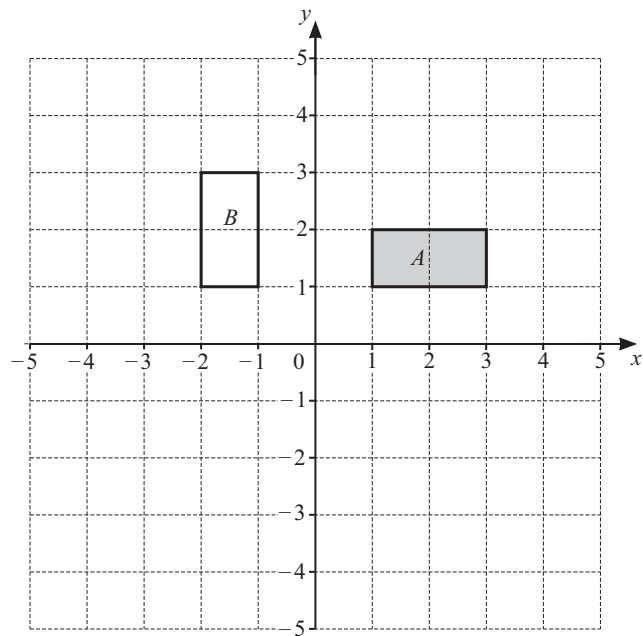
75 of the students pass the test.

This is $\frac{3}{5}$ of the students who take the test.

Work out how many students take the test.

..... [2]

21 Shapes A and B are shown on the grid.



(a) Describe fully the **single** transformation that maps shape A onto shape B .

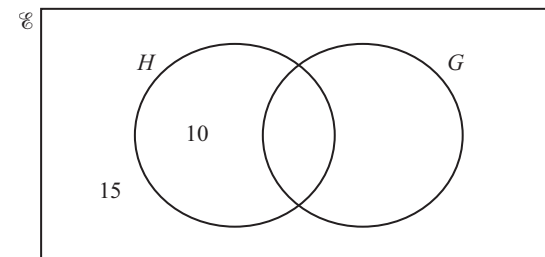
.....
 [3]

(b) Draw the image of shape A after a reflection in the line $y = -1$.

[2]

24 $\mathcal{E} = \{\text{students in a year group}\}$
 $H = \{\text{students who study History}\}$
 $G = \{\text{students who study Geography}\}$

80 students are in the year group.
 40 students study History.



(a) Complete the Venn diagram.

[2]

(b) Find $n(G)$.

..... [1]

(c) A student is chosen at random.

Work out the probability that the student does not study History and does not study Geography.

..... [1]

25 Expand and simplify.

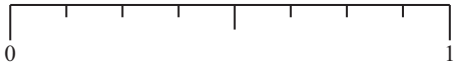
$$(x + 3)(x - 2)$$

..... [2]

26 Write 1.753×10^8 as an ordinary number.

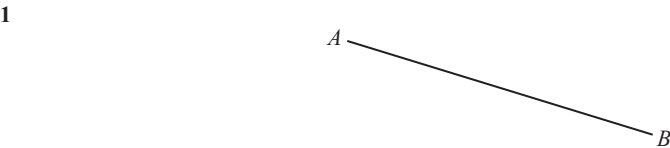
..... [1]

7 A bag contains 8 discs numbered 1 to 8.
A disc is picked at random from the bag.



On the probability scale, draw an arrow ($\downarrow$) to show the probability that the number is

- (a) an even number, label the arrow A [1]
- (b) 9, label the arrow B [1]
- (c) less than 3, label the arrow C. [1]



- (a) Measure the length of line AB in centimetres.
..... cm [1]
- (b) Draw a line that is parallel to line AB . [1]

4 Ben records the favourite sport of each of 20 students.

Football Cricket Hockey Rugby Football Tennis Rugby Football Football Rugby
Tennis Football Rugby Football Cricket Football Rugby Football Cricket Cricket

Complete the frequency table.
You may use the tally column to help you.

Sport	Tally	Frequency
Cricket		
Football		
Hockey		
Rugby		
Tennis		

[2]

8 These are the masses, in kg, of each of 11 bags.

23	16	8	10	27	19	4	17	13	4	14
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(a) Complete the stem-and-leaf diagram to show this information.

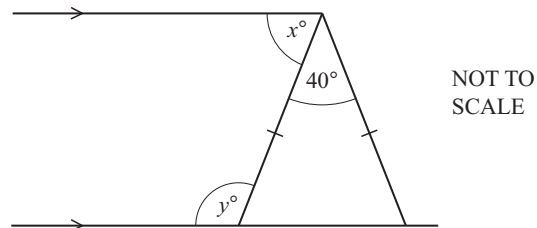
0	
1	
2	

Key: 2 | 7 represents 27 kg [2]

(b) Find the median.

..... kg [1]

10



The diagram shows an isosceles triangle between a pair of parallel lines.

- (a) Find the value of x .

$x =$ [2]

- (b) Find the value of y .
Give a geometrical reason for your answer.

$y =$ because
..... [2]

- 11 (a) Sam buys 3 apples at 40 cents each.
He also buys 5 peaches.
The total cost is \$3.45 .

Find the cost of 1 peach.

..... cents [3]

- (b) Pears cost 55 cents each.
Bananas cost 36 cents each.

Write an expression, in cents, for the cost of x pears and y bananas.

..... [2]

12

- (a) Simplify.

$$3y - 4y + 2y$$

..... [1]

- (b) Solve.

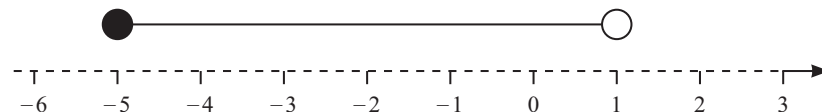
(i) $x + 5 = 19$

$x =$ [1]

(ii) $6x - 5 = 7$

$x =$ [2]

13



Write down the inequality represented on the number line.

..... [2]

17 (a) $k^x \times k^5 = k^{20}$

Find the value of x .

$x =$ [1]

(b) Expand and simplify.

$(x + 5)(x - 4)$

..... [2]

(c) Factorise.

$21r^3 - 7r$

..... [2]

18 The diameter of a circle is 16 cm.

Find the area of the circle.
Leave your answer in terms of π .

..... cm^2 [2]

19 Find the number of sides of a regular polygon with interior angle 160° .

..... [2]

24 (a) The scale on a map is 1 cm represents 12 km.

Write this in the ratio $1 : n$.

$1 :$ [1]

(b) The bearing of B from A is 070° .

Find the bearing of A from B .

..... [2]

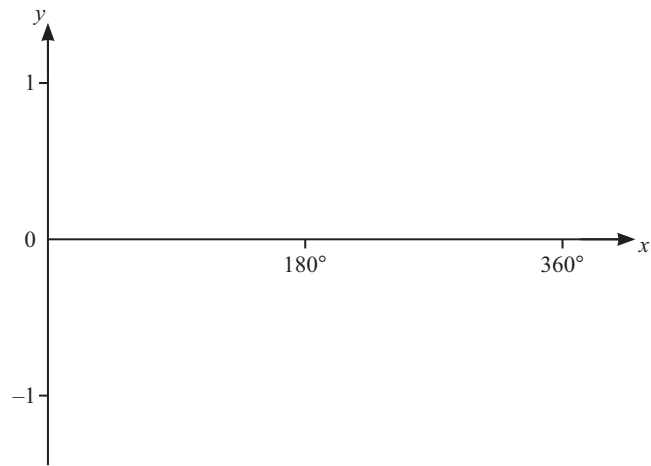
25 Work out.

$\frac{3}{4} \times 1\frac{2}{3}$

Give your answer as a mixed number in its simplest form.

..... [3]

17 (a) Sketch the graph of $y = \cos x$ for $0^\circ \leq x \leq 360^\circ$.

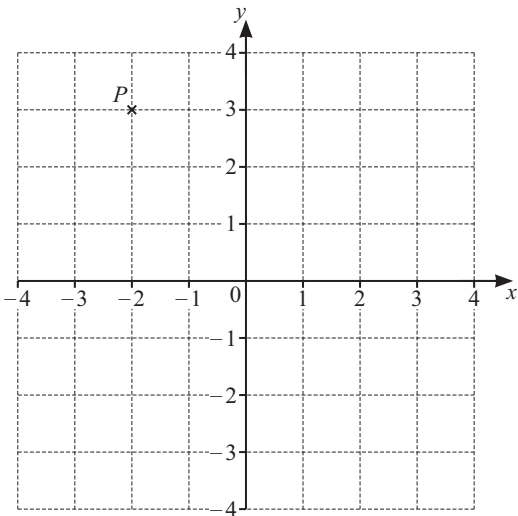


[2]

(b) $\cos x^\circ = \frac{1}{\sqrt{2}}$ and x is a **reflex** angle.
Find the value of x .

$x =$ [2]

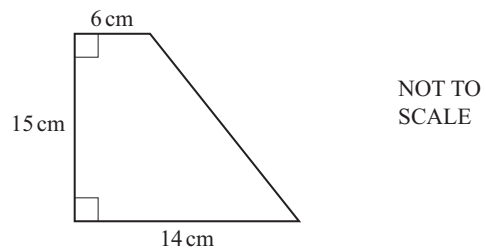
4



- (a) Write down the coordinates of point P .

(..... ,) [1]
- (b) On the grid, draw the line $y = x$. [1]
- (c) On the grid, draw the line that goes through point P and is perpendicular to the line $y = x$. [1]

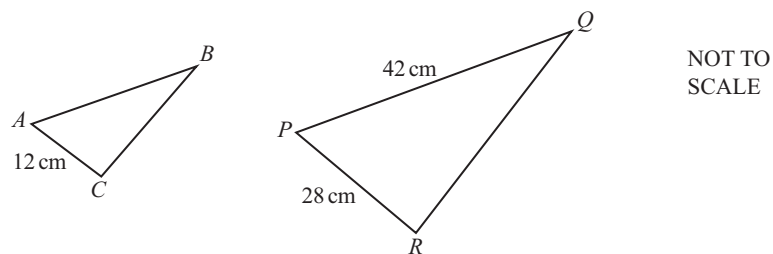
23



Calculate the perimeter of this trapezium.

..... cm [4]

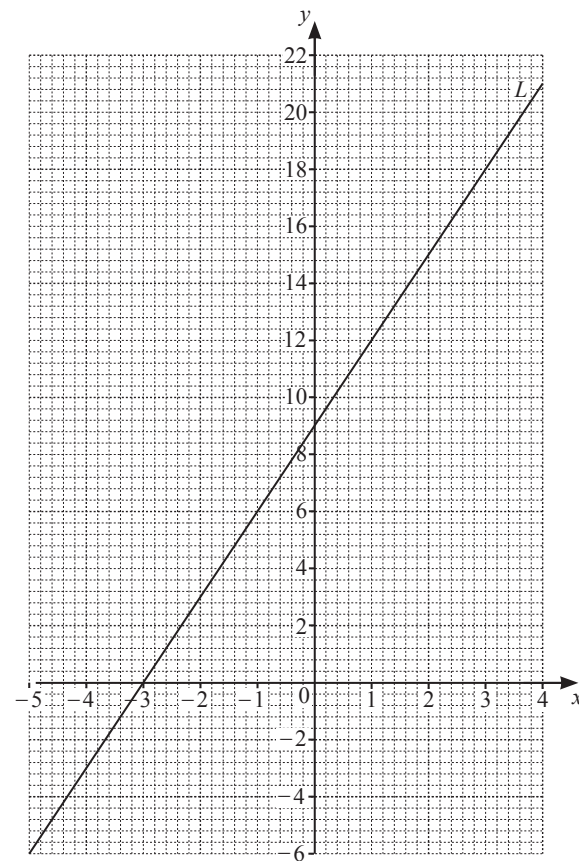
24 Triangles ABC and PQR are mathematically similar.



Calculate AB .

$AB =$ cm [2]

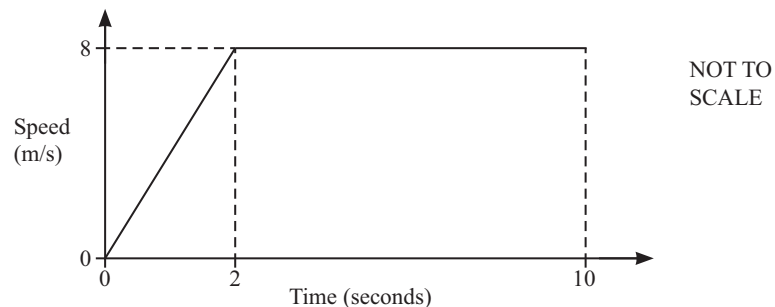
26 Line L is drawn on the grid.



Find the equation of line L in the form $y = mx + c$.

$y =$ [3]

18



The diagram shows part of the speed–time graph for an athlete in a race.

- (a) Calculate the distance the athlete runs in the first 10 seconds.

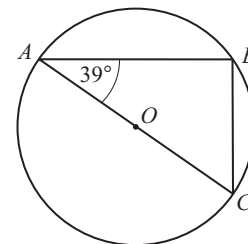
..... m [2]

- (b) The length of the race is 100 m.
After 10 seconds, the athlete continues to run at a speed of 8 m/s until the end of the race.

Calculate the **total** time the athlete takes to complete the 100 m race.

..... s [2]

- 21 Points A , B and C lie on the circle, centre O .



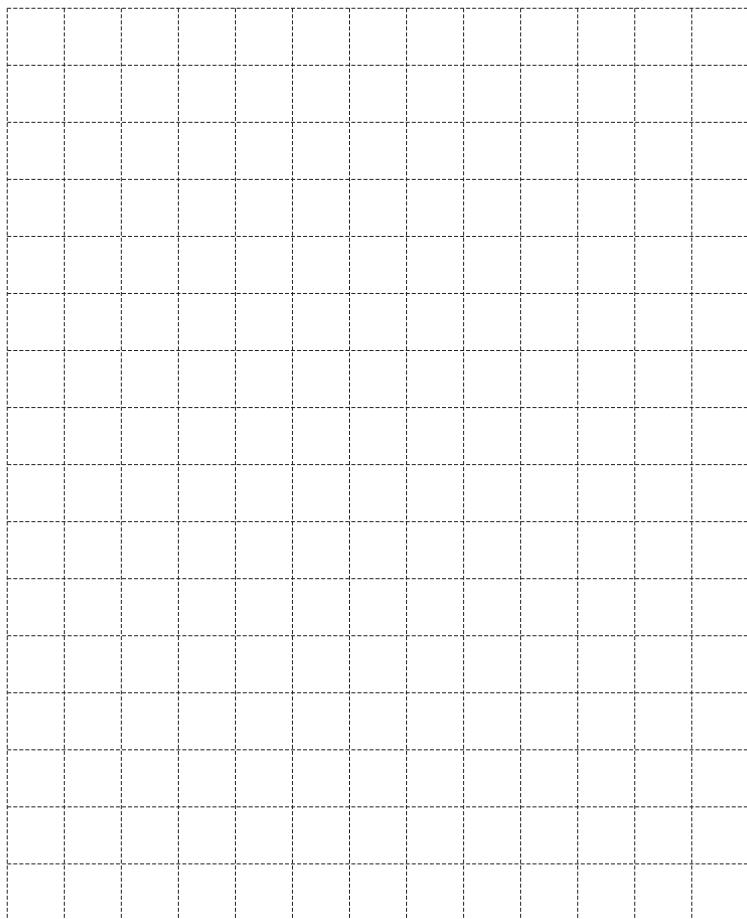
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Work out angle BCA .

Angle BCA = [2]

10 A cuboid has length 5 cm, width 2 cm and height 3 cm.

(a) Draw a net of the cuboid on the 1 cm² grid.

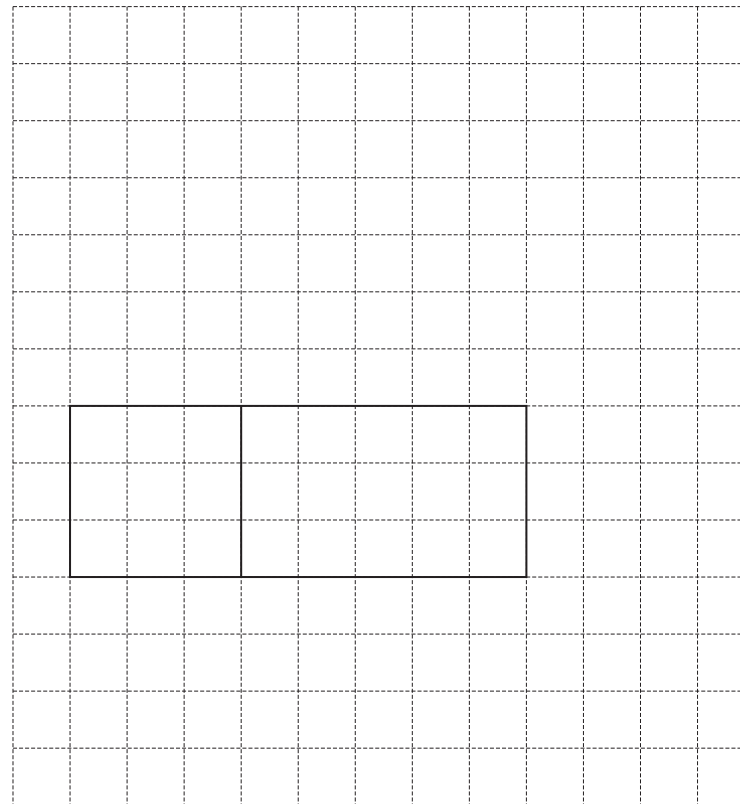


(b) Work out the volume of the cuboid.
Give the units of your answer.

..... [2]

[3]

8 The diagram shows two faces of a net of a cuboid on a 1 cm² grid.



(a) Complete the statement.

The dimensions of the cuboid are cm by cm by cm. [1]

(b) On the grid, complete a net of the cuboid. [3]

(c) Work out the volume of the cuboid.

..... cm³ [2]