

- 1 Write two hundred thousand and seventeen in figures.

**R**

..... [1]

- 2 Insert one pair of brackets to make this calculation correct.

**R**

$$7 - 5 - 3 + 4 = 9 \quad [1]$$

- 3 Solve the equation.

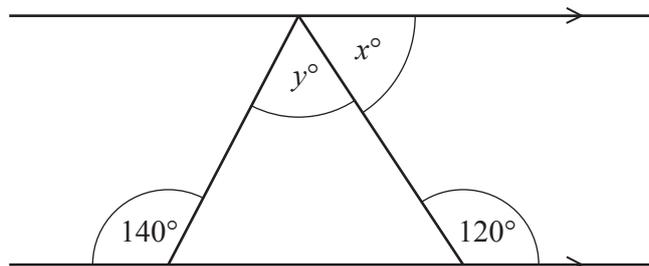
**R**

$$6 - 2x = 3x$$

$x =$  ..... [2]

4

**R**



NOT TO  
SCALE

The diagram shows a triangle drawn between a pair of parallel lines.

Find the value of  $x$  and the value of  $y$ .

$x =$  .....

$y =$  ..... [3]

- 5 Increase 42 by 16%.

**R**

..... [2]

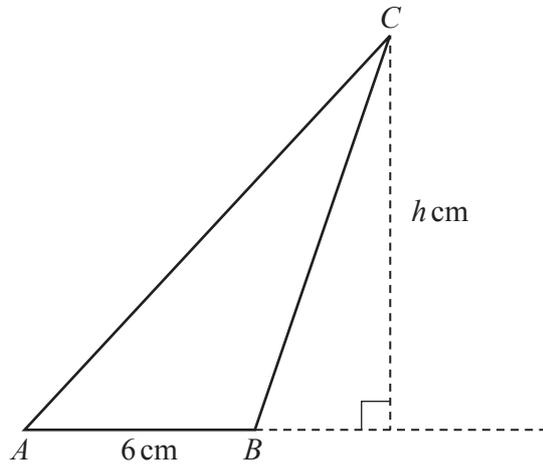
6 Factorise completely.



$$4 - 8x$$

..... [1]

7



NOT TO  
SCALE

The area of triangle  $ABC$  is  $27 \text{ cm}^2$  and  $AB = 6 \text{ cm}$ .

Calculate the value of  $h$ .

$h =$  ..... [2]

8 Calculate the size of one interior angle of a regular polygon with 40 sides.



..... [2]

9 Solve the simultaneous equations.



$$2x + y = 7$$

$$3x - y = 8$$

$$x = \dots\dots\dots$$

$$y = \dots\dots\dots [2]$$

10 Without using a calculator, work out  $\frac{5}{6} \div 1\frac{1}{3}$ .



You must show all your working and give your answer as a fraction in its simplest form.

$$\dots\dots\dots [3]$$

11 Simplify.



$$2x^2 \times 5x^5$$

$$\dots\dots\dots [2]$$

12 Alex and Chris share sweets in the ratio Alex : Chris = 7 : 3.

 Alex receives 20 more sweets than Chris.

Work out the number of sweets Chris receives.

..... [2]

13 The length of one side of a rectangle is 12 cm.

 The length of the diagonal of the rectangle is 13 cm.

Calculate the area of the rectangle.

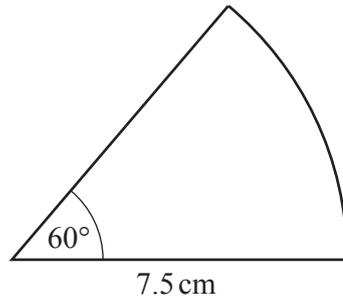
..... cm<sup>2</sup> [3]

14 Work out  $(3 \times 10^{199}) + (2 \times 10^{201})$ .

 Give your answer in standard form.

..... [2]

15



NOT TO  
SCALE

Calculate the area of this sector of a circle.

.....  $\text{cm}^2$  [2]

16 The selling price of a shirt is \$26.50 .

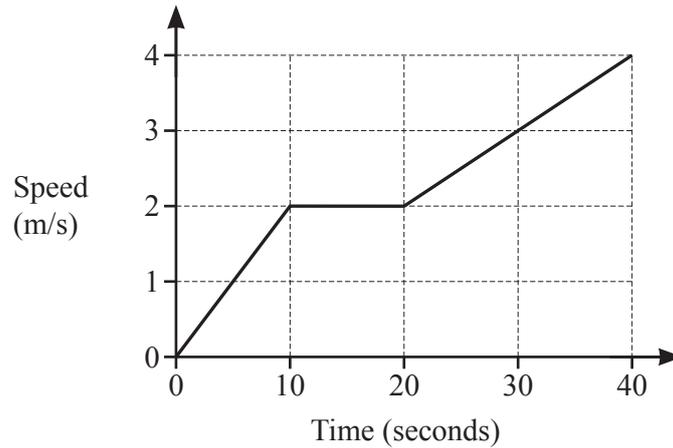


This includes a tax of 6%.

Calculate the price of the shirt before the tax was added.

\$ ..... [2]

17



The diagram shows the speed–time graph for the first 40 seconds of a cycle ride.

(a) Find the acceleration between 20 and 40 seconds.

.....  $\text{m/s}^2$  [1]

(b) Find the total distance travelled.

..... m [3]

18 The sides of an isosceles triangle are measured correct to the nearest millimetre.

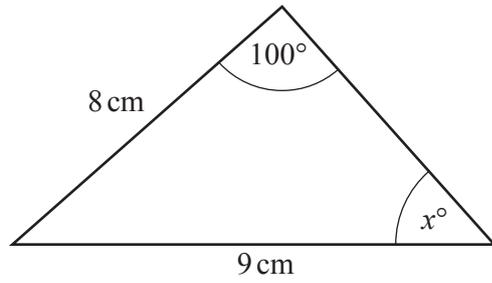


One side has a length of 8.2 cm and another has a length of 9.4 cm.

Find the largest possible value of the perimeter of this triangle.

..... cm [3]

19

NOT TO  
SCALE

- (a) Calculate the value of  $x$ .

$$x = \dots\dots\dots [3]$$

- (b) Calculate the area of the triangle.

$$\dots\dots\dots \text{ cm}^2 [3]$$

- 20 A model of a statue has a height of  $4\text{ cm}$ .  
The volume of the model is  $12\text{ cm}^3$ .  
The volume of the statue is  $40\,500\text{ cm}^3$ .



Calculate the height of the statue.

$$\dots\dots\dots \text{ cm} [3]$$

21 (a) Differentiate  $6 + 4x - x^2$ .

7

..... [2]

(b) Find the coordinates of the turning point of the graph of  $y = 6 + 4x - x^2$ .

(....., ..... ) [2]

25 Solve the equation  $\tan x = 2$  for  $0^\circ \leq x \leq 360^\circ$ .

7

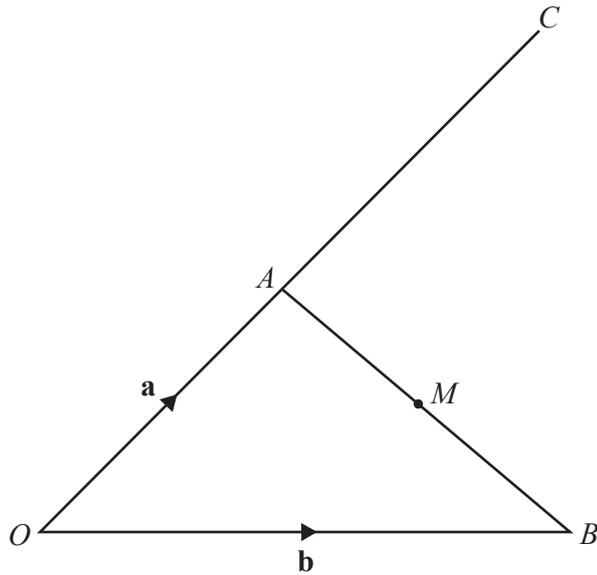
$x = \dots\dots\dots$  or  $x = \dots\dots\dots$  [2]

26 Simplify.

7

$$\frac{ux - 2u - x + 2}{u^2 - 1}$$

..... [4]



NOT TO SCALE

The diagram shows a triangle  $OAB$  and a straight line  $OAC$ .  
 $OA : OC = 2 : 5$  and  $M$  is the midpoint of  $AB$ .  
 $\vec{OA} = \mathbf{a}$  and  $\vec{OB} = \mathbf{b}$ .

Find, in terms of  $\mathbf{a}$  and  $\mathbf{b}$ , in its simplest form

(a)  $\vec{AB}$ ,

$$\vec{AB} = \dots\dots\dots [1]$$

(b)  $\vec{MC}$ .

$$\vec{MC} = \dots\dots\dots [3]$$

23 Write as a single fraction in its simplest form.



$$2 - \frac{2x-1}{x+1}$$

..... [3]

24 A line from the point  $(2, 3)$  is perpendicular to the line  $y = \frac{1}{3}x + 1$ .



The two lines meet at the point  $P$ .

Find the coordinates of  $P$ .

(..... , ..... ) [5]