Answer **all** questions in the spaces provided.

1 (a) . Write down the value of $\sqrt{49}$

[1 mark]

Answer ___7___ ✓

$(\pm$ yes, only $-$ no$)$

1 (b) Work out the value of 3^3

[1 mark]

$3 \times 3 \times 3$

Answer ___27___ ✓

1 (c) Write 10 000 as a power of 10

[1 mark]

$= 10 \times 10 \times 10 \times 10$

Answer ___10^4___ ✓

2 1 pound = 16 ounces

Work out the number of ounces in 3 pounds.

[2 marks]

$\begin{array}{r} 16 \\ \times\, 3 \\ \hline 48 \end{array}$ ✓

Answer ___48___ ✓ ounces

3 (a) Write $\frac{3}{2}$ as a mixed number.

[1 mark]

$3 \div 2 = 1 r 1$

Answer $\quad 1\frac{1}{2}$ ✓

3 (b) Work out $\frac{1}{5} + \frac{1}{5}$

[1 mark]

Answer $\quad \frac{2}{5}$ ✓

$(0.4 = ✓)$

4 (a) Write down **all** the factors of 20

[2 marks]

$1 \times 20 \qquad 4 \times 5$

2×10

Answer $\quad 1, 2, 4, 5, 10, 20$ ✓✓

4 (b) Mica says,

"When two multiples of 5 are added, the answer is always a multiple of 10"

Give **one** example to show that he is wrong.

[1 mark]

(eg) $5 + 10 = 15 =$ not a multiple of 10 ✓

10

5 Put these values in order of size, starting with the smallest.

80%   0.7 $\frac{3}{4}$

$= 70\%$ $= 75\%$ **[2 marks]**

$\boxed{\checkmark = 1 \text{ correct conversion}}$

Answer   0.7 $\frac{3}{4}$ 80% w

6 Sally buys (two hats) and three scarves.

The **total** cost is £28.50

Each hat costs £4.50

Work out the cost of each scarf.

[4 marks]

$\checkmark$

```
  4.50
×    2
 9.00
```

$\checkmark$

```
 28.50
-  9.00
 19.50
```

```
      6.50
3) 19.50
```
$\checkmark$

Answer £   6.50 $\checkmark$

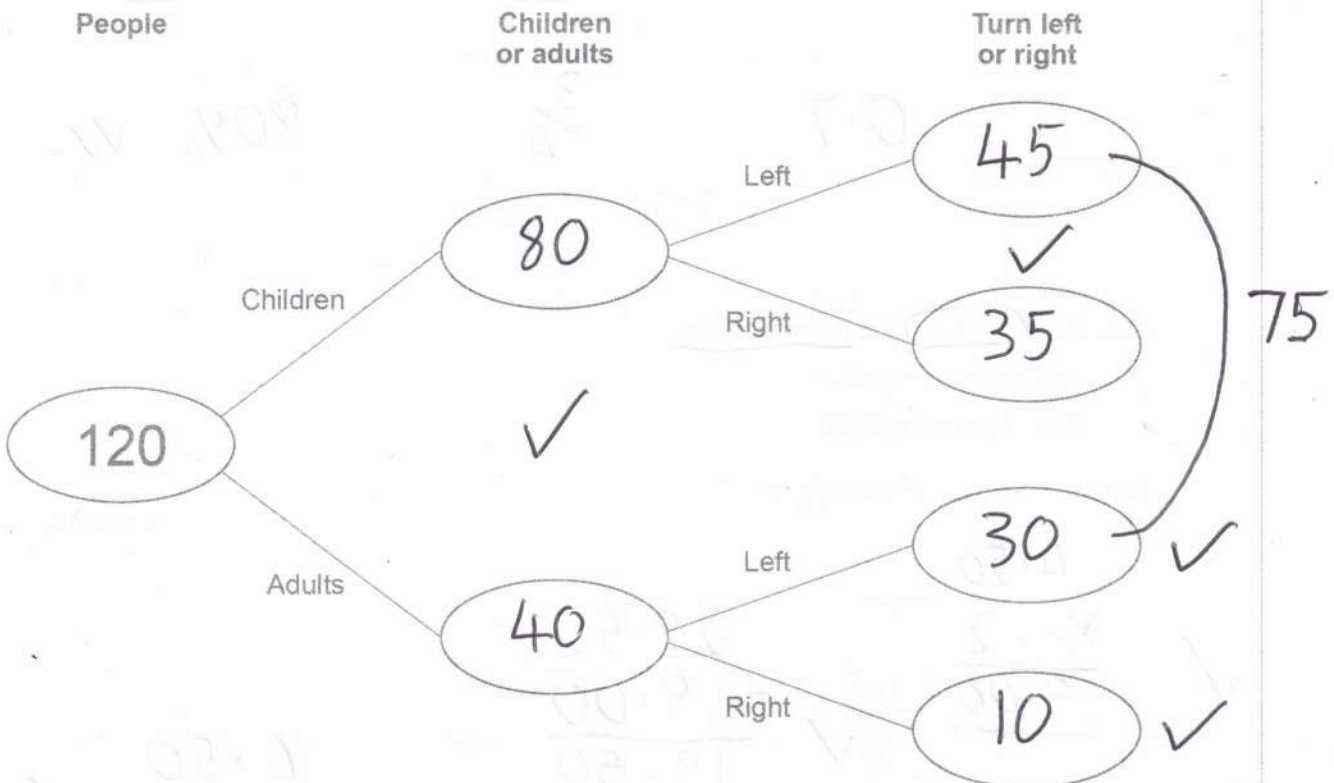**7** 120 people visit a maze.

80 are children, the rest are adults. ✓

At the start of the maze you can turn left or right.

45 children turn left.

75 people in total turn left.

7 (a) Complete the frequency tree.

[4 marks]

People	Children or adults	Turn left or right

Left

45 ✓

80

Children

Right **35**

120 ✓

75

Adults

40

Left **30** ✓

Right **10** ✓

7 (b) What fraction of the (children) turn left?

Give your answer in its simplest form.

[2 marks]

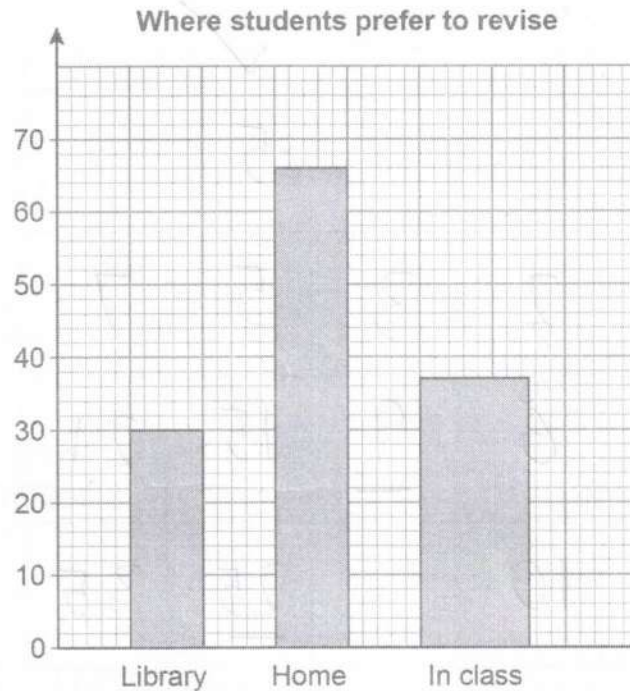✓ $\frac{45}{80}$ $\frac{\div 5}{\div 5}$

$\frac{9}{16}$ ✓

Answer _____

12

8   The table shows information about where students prefer to revise.

Library	Home	In class
30	68	37

Ed draws this bar chart to represent the data.

Where students prefer to revise

Write down **three** mistakes he has made.

[3 marks]

Mistake 1   Home's height is 66 and should be at 68

Mistake 2   Missing label on the y-axis (also x-axis)

Mistake 3   3rd bar is too wide

9 A number is picked at random from the first three positive odd numbers.

A number is picked at random from the first four prime numbers.

The two numbers are **multiplied** to get a score.

9 (a) Complete the table.

[4 marks]

prime ✓

×	2	3	5	7
1	2	3	5	7
odd ✓ 3	6	9	15	21
5	10	15	25	35

✓✓

✓ (3→10 correct)

9 (b) What is the probability that the score is a square number?

Give your answer as a fraction.

[2 marks]

Answer $\dfrac{2}{12}$ or $\dfrac{1}{6}$ ✓✓

9

10 (a) Simplify fully $8m + 4 - 2m + 7$

[2 marks]

Answer $6m + 11$

✓ ✓ (any order)

10 (b) Simplify fully $\frac{1}{2}c \times 6d$

[2 marks]

Answer $3cd$ or $3dc$ ✓✓

$\left[cd3 = \checkmark \right]$

11

Multipack –
6 bags
of crisps

Crisps
55p

The multipack costs 10% **less than** 6 single bags.

Work out the cost of the multipack.

[4 marks]

$$55$$
$$\times 36$$
$$\overline{330p} \checkmark \qquad 10\% = 330 \div 10 = 33p \checkmark$$

$$\begin{array}{r} 2\,{}^{12}\!3\,{}^{1}0 \\ -\ 33 \\ \hline 297 \end{array} \checkmark$$

Answer £ ____2·97____ $\checkmark$

8

$\div 2$

12 Write the ratio 6 : 2 in the form n : 1

[1 mark]

Answer _____3_____ : 1

13 x and y are two **different positive** numbers.

For each statement, tick the correct box.

[2 marks]

	Always true	Sometimes true	Never true
$x + y$ is positive	✓	☐	☐
$x - y$ is negative	☐	✓	☐

✓

✓

14 (a) On the grid, draw a shape **congruent** to triangle A.

[1 mark]
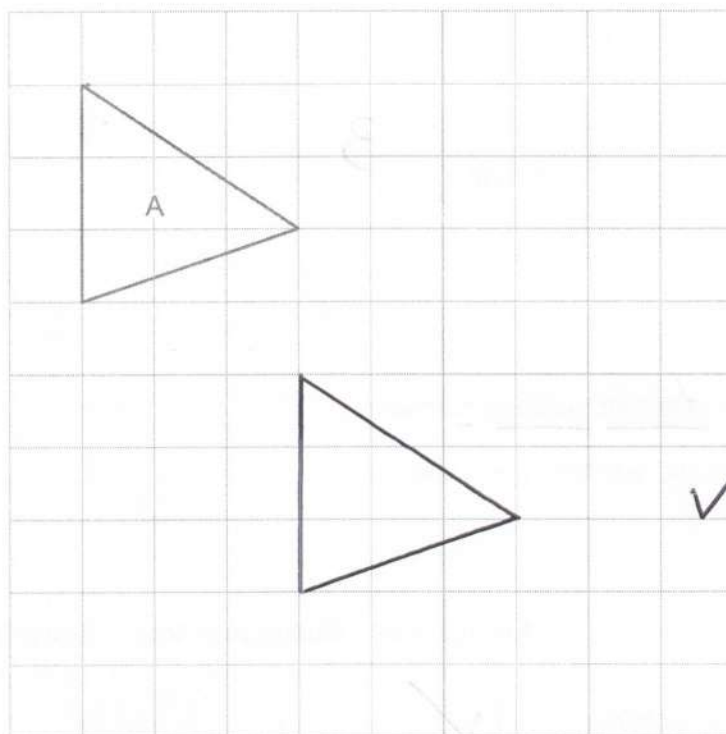
✓ Any orientation

14 (b) On the grid, **enlarge** shape B by scale factor $\frac{1}{3}$

[2 marks]

6

B

3

3

✓✓
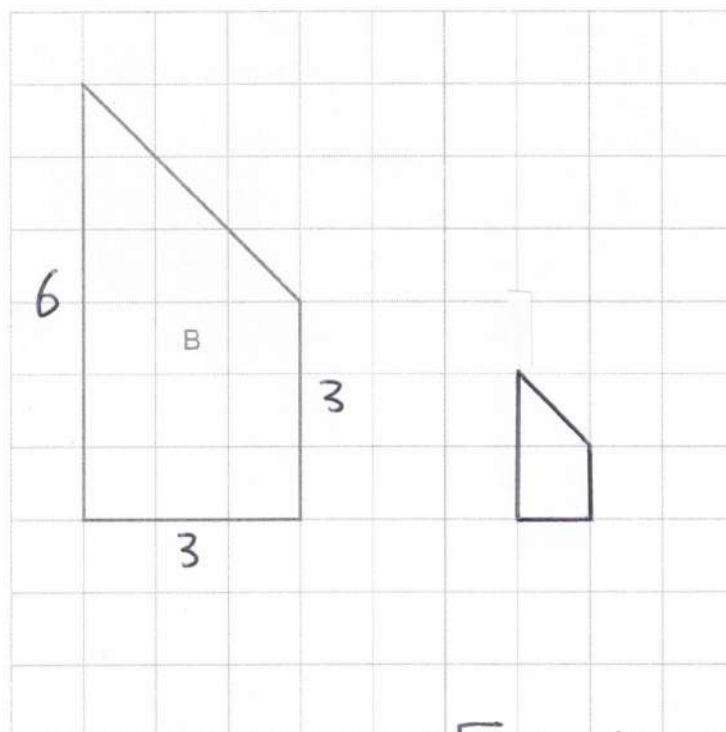
[✓ 2/3 correct sides] $\overline{6}$

Turn over ▶

15   35 books are either for adults or for children.

> number for adults : number for children = 6 : 1

How many **more** books are for adults than for children?

[3 marks]

$\checkmark$ $\dfrac{1}{7} = 5$ $6 \times 5 = 30$ $\checkmark$

$30 - 5$

Answer   25 $\checkmark$

16 This shape is made from a semicircle and a square.

Not drawn accurately

3

6

6 cm
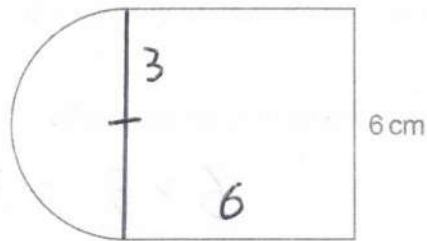
On the centimetre grid below, make an accurate drawing of the shape.

[2 marks]

5

Turn over ▶

1 3
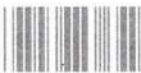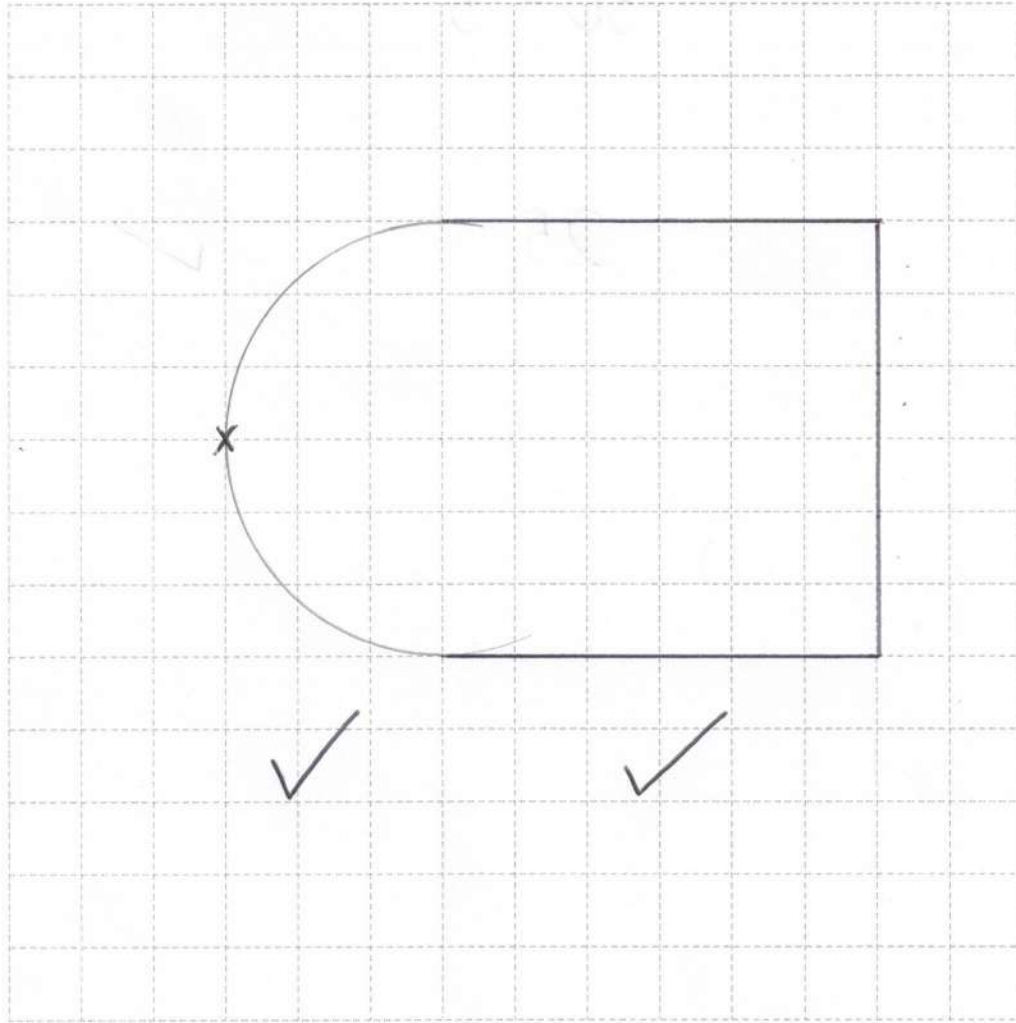
17 A car travels 4 miles in 5 minutes.

Work out the average speed in miles per hour.

[3 marks]

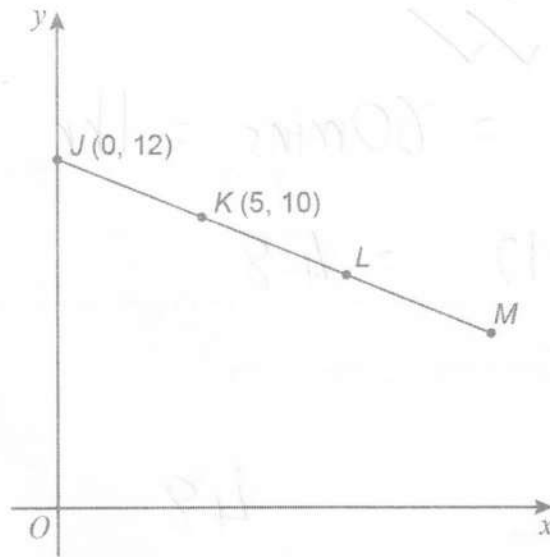$5 \times 12 = 60 \text{mins} = 1\text{hr}$

$4 \times 12 = 48$

Answer _____ 48 _____ mph

18   J (0, 12) and K (5, 10) are points on the straight line *JKLM*.

Not drawn accurately

J (0, 12)

K (5, 10)

L

M

y

O

x

JK = KL = LM

Work out the coordinates of *M*.

[3 marks]

⟶ 5   ↓ 2

L (10, 8) ✓✓

Answer (__15__ , __6__) ✓

6

Turn over ▶

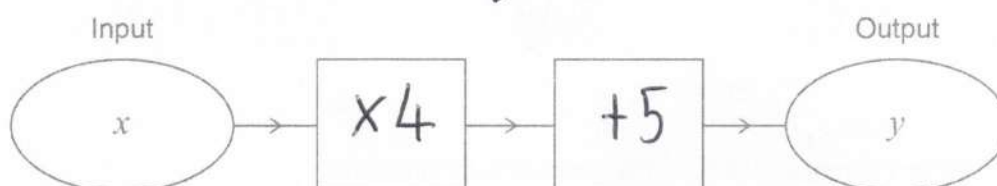**19**   Work out the value of 1.5^2

[2 marks]

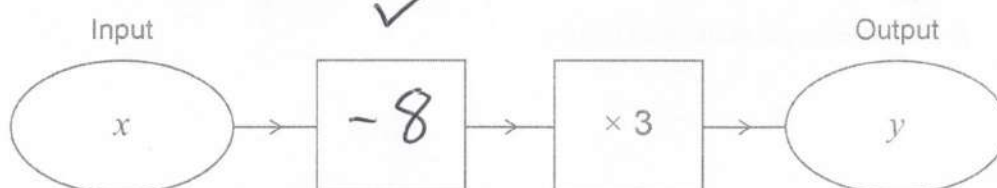$$\begin{array}{r} 15 \\ \times\,15 \\ \hline 225 \end{array}$$ ✓

Answer 2.25 ✓

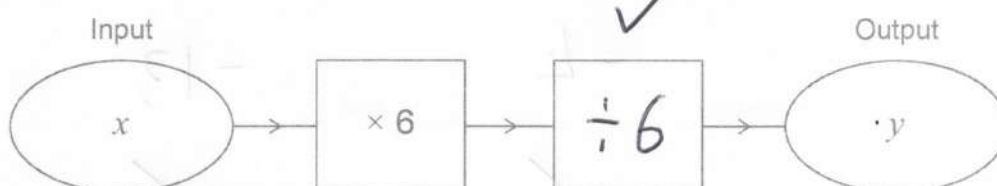**20 (a)**   Complete this number machine so that $y = 4x + 5$

[1 mark]

✓

Input   Output

x → $\times 4$ → $+5$ → y

20 (b)   Complete this number machine so that $y = 3x - 24$

[1 mark]

✓

Input   Output

x → -8 → $\times 3$ → y

20 (c)   Complete this number machine so that $y = x$

[1 mark]

✓

Input   Output

x → $\times 6$ → $\div 6$ → y

$\left(\text{or } \times \frac{1}{6}\right)$

21 Each number in a list is increased by 10

Tick **one** box for each statement.

[3 marks]

	True	False	Cannot tell
The mode is increased by 10	✓		
The median is increased by 10	✓		
The range is increased by 10		✓	

22 (a) Write the missing term in the geometric progression.

[1 mark]

1   4   16   _64_   256

×4 ×4

22 (b) A Fibonacci-type sequence begins

5   −9

The sequence is continued by adding the previous two terms.

Work out the next **two** terms.

[2 marks]

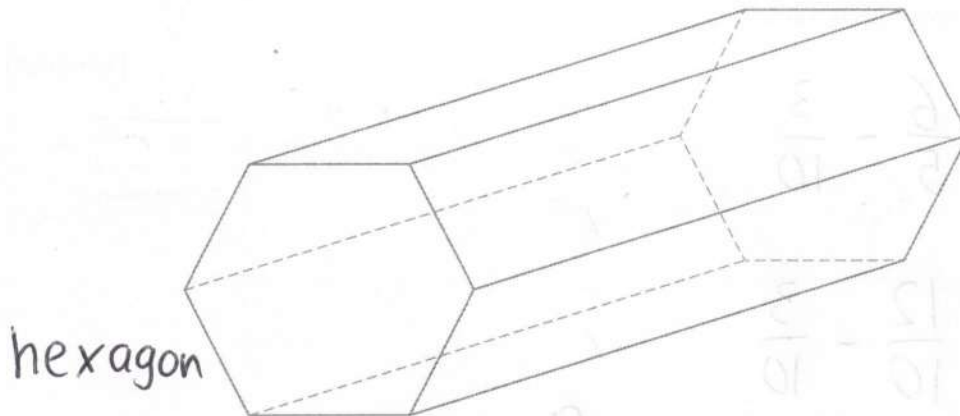$5 + 9 = -4$, $-9 - 4 = -13$

Answer _−4_ ✓ and _−13_ ✓

11

1 7

23 Here is a solid prism.

hexagon

23 (a) How many faces does the prism have?

[1 mark]

$6+2$

8 ✓

Answer _____ 8 _____

23 (b) The prism has

volume = 3500 cm^3

and

length = 20 cm

Work out the area of the cross-section of the prism.

[2 marks]

✓ $3500 \div 20$

$= 350 \div 2$

$\begin{array}{r} 175 \\ 2\overline{)3^15^10} \end{array}$

✓

Answer _____ 175 _____ cm^2

24 Work out $1\frac{1}{5} - \frac{3}{10}$

Give your answer as a fraction.

[2 marks]

$$\checkmark \quad = \frac{6}{5} - \frac{3}{10}$$

$$= \frac{12}{10} - \frac{3}{10}$$

Answer $\quad \frac{9}{10} \quad \checkmark$

25 Write down the value of sin 90°

[1 mark]

Answer $\quad 1$

Turn over for the next question
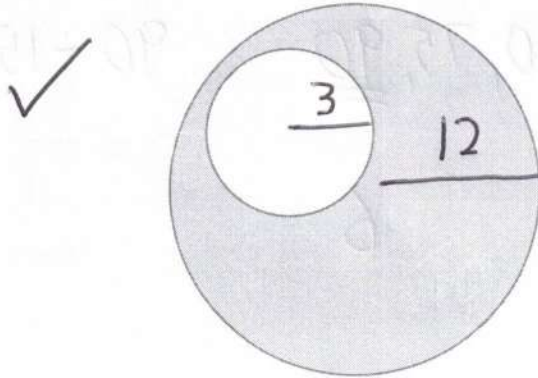
6

Turn over ▶

26 A large circle and a small circle are shown.

The radius of the large circle is 12 cm

| radius of large circle : radius of small circle = 4 : 1 |

✓

3

12

Not drawn
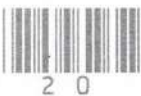accurately

Work out the shaded area.

Give your answer in terms of π

[4 marks]

✓
Either

$\pi \times 12^2 - \pi \times 3^2$

✓

$144\pi - 9\pi$

Answer _____ 135π _____ cm²

27 (a) In this part, assume that each person works at the same rate.

10 people can complete a job in 9 hours.

If 15 people work on the same job, how many hours will it take to complete the job?

[2 marks]

✓ 10 × 9 = 90 hrs to complete

15, 30, 45, 60, 75, 90   90 ÷ 15 = 6

✓

Answer _____ 6 _____ hours

27 (b) In fact, of the 15 people

6 work at a slower rate

9 work at a faster rate.

What does this mean about the number of hours it will take to complete the job?

Tick **one** box.

[1 mark]

☐ It is greater than the answer to (a)

☐ It is the same as the answer to (a)

☐ It is less than the answer to (a)

☑ It is not possible to say

END OF QUESTIONS

7