

M1.(Diameter or side of square =) $\sqrt{36}$ or 6 or (radius =) 3

$$6 \times 6 (= 36)$$

M1

$$\pi \times 6$$

$$\text{or } 2 \times \pi \times 3$$

M1dep

[18.8, 18.9] or 6π *Accept 19 with working shown*

A1

Additional GuidanceAccept [3.14, 3.142] for π Ignore further working after 6π , that is if they incorrectly work 6π out award full marksDo not accept $\pi 6$ for the A mark

6 or 3 may be on diagram but must be correct, e.g. radius must be 3, not 6

[3]**M2.****Alternative method 1**

$$10 \times 12 \text{ or } 120$$

$$\text{or } \frac{1}{2} \times 10 \times (18 - 12) \text{ or } 30$$

oe

M1

$$10 \times 12 \text{ or } 120$$

$$\text{and } \frac{1}{2} \times 10 \times (18 - 12) \text{ or } 30$$

oe

M1

$$150$$

A1

Alternative method 2

$$10 \times 18 \text{ or } 180$$

$$\text{or } \frac{1}{2} \times 5 \times (18 - 12) \text{ or } 15$$

$$\text{or } \frac{1}{2} \times 5 \times (18 - 12) \times 2 \text{ or } 30$$

oe

M1

$$10 \times 18 \text{ or } 180$$

$$\text{and } \frac{1}{2} \times 5 \times (18 - 12) \times 2 \text{ or } 30$$

oe

M1

$$150$$

A1

Alternative method 3

$$\frac{1}{2}(12 + 18) \times 5$$

oe

M1

$$\frac{1}{2}(12 + 18) \times 5 \times 2 \text{ or } 75$$

oe

M1

$$150$$

A1

[3]**M3.**

1 gallon = 4.5 litres stated or implied
e.g. their $144 \div 4.5$

B1

$$40 \times 40 \times 90 \text{ or } 144\,000$$

M1

$$\text{their } 144\,000 \div 1000 \text{ or } 144$$

M1dep

$$32$$

A1

Additional Guidance

Note: use of 1 litre = 1.75 pints implies answer 31.5

B1M1M1A1

[4]

M4.

12

B1

their 12×1000 or 12 000

or 1.25×60 ($\times 60$) or 75 or 4500

or their $12 \div 1.25$ or 9.6

or $1000 \div 1.25$ or 800

or $1.25 \div 1000$ or 0.001 25

oe

M1

their $12\ 000 \div$ their 75

or their $12\ 000 \div 1.25$

or their $12 \div$ their 0.001 25

or their 9.6×1000

or their $12 \times$ their 800 or 9600

or their $800 \div 60$ ($\div 60$)

or 13.3(...) or 0.2(...)

or their 12×1000 and 1.25×60 ($\times 60$)

or their 12×1000 and their 75 ($\times 60$)

or their 12 000 and their 4500

oe

M1dep

or 2.66(...) or 2.67
oe

A1

2 hours 40 minutes

A1

Additional Guidance

160 or 2.66(...) or 2.67 implies 4 marks

B1M1M1A1A0

2 hours 66 minutes implies 2.66

B1M1M1A1A0

their 12 is their volume

[5]

M5.(a) Either correct rectangle drawn

A, B, (7, 2) and (3, 2)

or A, B, (7, 8) and (3, 8)

(ignore labels)

B1 for (7, 2) and (3, 2) plotted

or for (7, 8) and (3, 8) plotted

B1 for any rectangle with area 12 cm²

B1 for any rectangle with vertices A and B.

B2

(b) *C(7, 2) and D(3, 2)*

or C(7, 8) and D(3, 8)

B1 for correct coordinates with incorrect order ie D and C reversed

ft their rectangle or square ABCD

for up to B2

ft their rectangle or square ABDC

for up to B1

B2ft

[4]

M6.(a) $26 \div 4$ or 6.5

or $26 \times 20 \times \frac{1}{4}$ or 130

M1

26 – their 6.5

or $26 \div 4 \times 3$

or $(520 - 130) \div 20$ or $390 \div 20$

or $(520 - \text{their } 130) \div 20$

or their $390 \div 20$

oe

M1dep

19.5

A1

(b) Any trial with correct factors giving 168 except 1×168

or any correctly evaluated product

such that $10 \leq \text{rows} \leq 13$ and

$10 \leq \text{seats} \leq 16$

2 (x) 84 or $168 \div 2 = 84$

3 (x) 56 or $168 \div 3 = 56$

4 (x) 42 or $168 \div 4 = 42$

6 (x) 28 or $168 \div 6 = 28$

7 (x) 24 or $168 \div 7 = 24$

8 (x) 21 or $168 \div 8 = 21$

12 (x) 14 or $168 \div 12 = 14$

oe

M1

A different trial with correct factors giving 168 except 1×168

or a different correctly evaluated

product such that $10 \leq \text{rows} \leq 13$ and

$10 \leq \text{seats} \leq 16$

M1dep

12 rows

SC2 for 12 seats and 14 rows

14 seats

SC2 for 12 and 14 as final working

A1

[6]

M7. $\sqrt{64}$ or 8 seen

B1

$5x - 2 = \text{their } 8$

or $9 - y = \text{their } 8$

M1

$x = 2$

A1ft

$y = 1$

SC2 for $x = 13.2$ and $y = -55$

SC1 for $x = 13.2$ or $y = -55$

A1ft

Alternative Method

$(5x - 2)(9 - y) = 64$

B1

$$5x - 2 = 9 - y$$

$$\text{or } y = 9 - (5x - 2)$$

oe

M1

$$(5x - 2)(9 - (5x - 2)) = 64$$

$$\text{or } (5x - 2)^2 = 64$$

$$\text{or } 25x^2 - 20x - 60 = 0$$

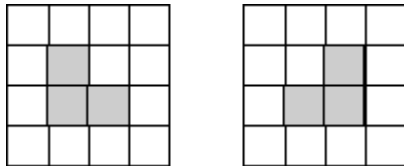
$$\text{or } x = 2$$

oe

M1

$$x = 2 \text{ and } y = 1$$

A1

[4]**M8.(a)**

*Drawings can be anywhere on the grids
B1 for shapes reversed
or B1 for one correct*

B2

$$(b) \quad 6 \times 2 + 3$$

$$\text{or } 4 + 7 + 4$$

$$\text{or } 2 + 2 + 2 + 2 + 7$$

$$\text{or } 28$$

$$\text{or } 13$$

M1

15

*SC1 for 17*A1
[4]**M9.** 6 by 4 rectangle*B1 for a rectangle with perimeter 20 cm**B1 for a rectangle with area 24 cm²*B2
[2]

M10.(a) $\frac{15+30}{2} \times 20$
oe

M1

450

A1

(b) their 450 × 95

M1

42750

*ft their 450*A1ft
[4]**M11.**

Area of rectangle = 24 squares

Can be on diagram

B1

Evidence of counting whole and part squares for irregular shape or area of B [34, 39] stated or clear indication of 24 whole squares plus parts e.g. rectangle drawn
'24+' is not sufficient.

B1

Correct conclusion that shape B is larger and a statement that area of B is larger than 24 either implicitly or explicitly,

Strand (iii)

ft if B1 awarded, 2 areas stated and a correct conclusion for those areas.

Q1ft

[3]

M12.

(a) 3, × 3, 'times 3', '1:3'

Ignore units

B1

(b) **Alternative method 1**

2 and 18 seen

Can be seen in a subtraction or on diagram

M1

9

A1

Alternative method 2

3^2

ft their sf 3 × 3

M1

9

A1ft

[3]

M13.

4 × 5 rectangle

*B1 for a rectangle with perimeter 18 cm**B1 for a rectangle with area 20 cm²*

B2

[2]**M14.**

(a) 6 × 12 × 9

oe

M1

648

A1

cm³

A1

(b) Finds 3 as the HCF or 3 × 4, 3 × 3, 3 × 2

M1

2 × 4 × 3

Their 648 ÷ 3³ or their 648 ÷ 27

M1

24

SC2 81 if 2 × 2 × 2 cube used, could be implied by 648 ÷ 8

A1

[6]