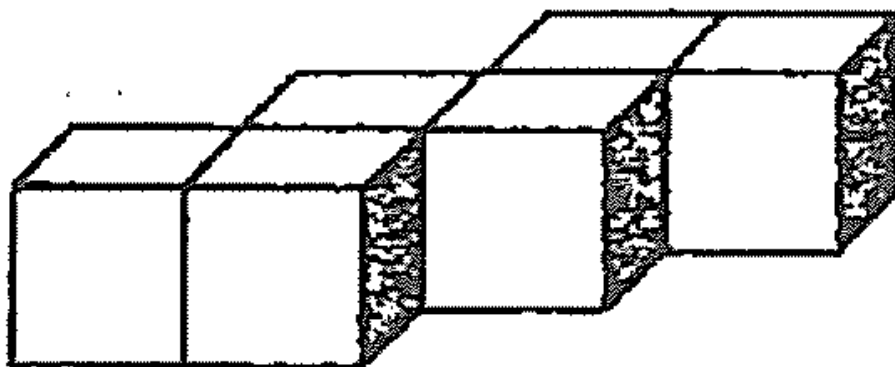


1. (1)	2. (3)	3. (4)	4. (3)	5. (2)	6. (4)
7. (3)	8. (4)	9. (3)	10. (1)	11. (4)	12. (2)
13. (2)	14. (2)	15. (1)	16. (3)	17. (3)	18. (3)

PAPER 1 BOOKLET A, QUESTION 6 (1 MARK)

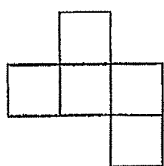


(4) 48 cm^3

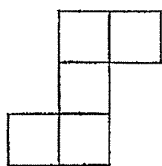
Volume of one cube $= 2 \times 2 \times 2 = 8 \text{ cm}^3$.

The solid is built from 6 such cubes, so its volume $= 6 \times 8 = 48 \text{ cm}^3$.

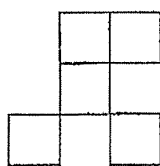
PAPER 1 BOOKLET A, QUESTION 8 (1 MARK)



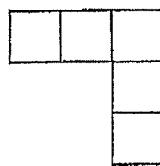
(1)



(2)



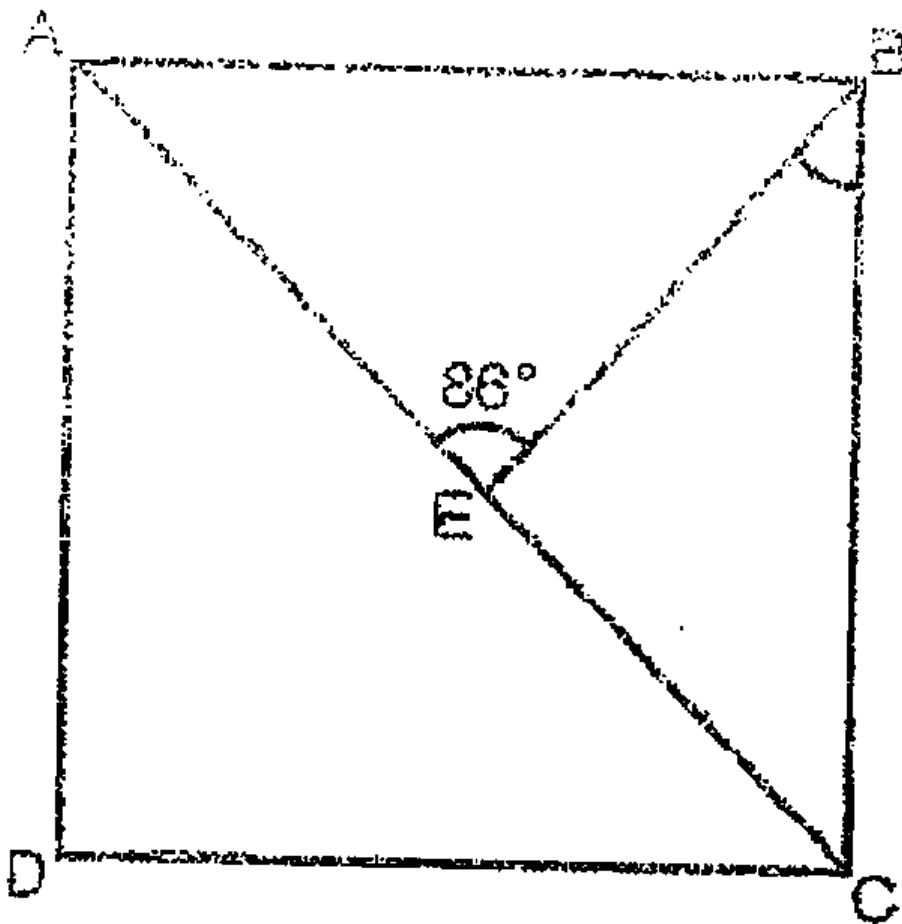
(3)



(4)

(4)

Only the fourth arrangement can be folded along a line so that the two halves match exactly, so it is the one with a line of symmetry.

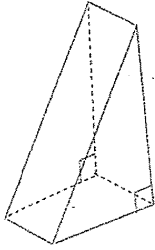


(1)

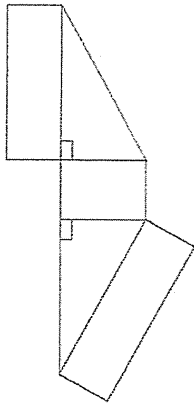
$\angle BEC = 180^\circ - 86^\circ = 94^\circ$ (angles on a straight line AEC).

The diagonal AC bisects the right angle at C , so $\angle BCE = 90^\circ \div 2 = 45^\circ$.

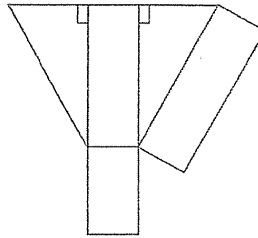
In triangle BEC , $\angle CBE = 180^\circ - 94^\circ - 45^\circ = 41^\circ$.



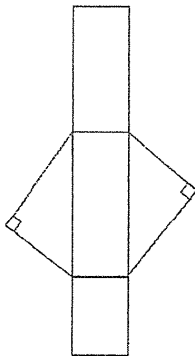
(1)



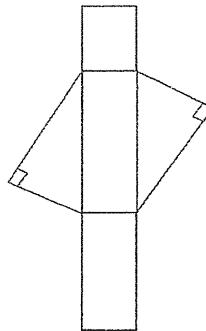
(2)



(3)



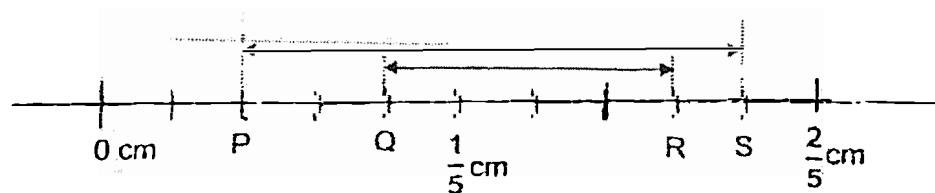
(4)



(1)

The solid is a prism whose two ends are identical right-angled triangles joined by three rectangles. Only net (1) has exactly two right-angled triangles together with three rectangles arranged so that they fold up to close the solid.

PAPER 1 BOOKLET A, QUESTION 17 (2 MARKS)



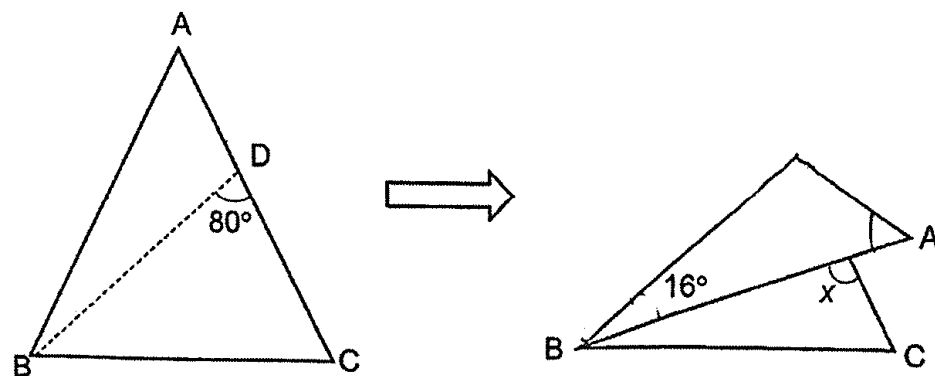
(3) 0.12 cm

The number line runs from 0 cm to $\frac{2}{5}$ cm, that is 0.4 cm, in 10 equal intervals, so each interval is $0.4 \div 10 = 0.04$ cm.

PS and QR overlap along QR, so the difference is $PQ + RS$, which is 3 intervals.

Difference = $3 \times 0.04 = 0.12$ cm.

PAPER 1 BOOKLET A, QUESTION 18 (2 MARKS)



(3) 96°

Let $\angle ABC = \angle ACB = b$, so $\angle BAC = 180^\circ - 2b$.

In triangle ABD, $\angle ADB = 80^\circ$, so $\angle ABD = 180^\circ - 80^\circ - (180^\circ - 2b) = 2b - 80^\circ$, and $\angle DBC = b - (2b - 80^\circ) = 80^\circ - b$.

Folding along BD keeps $\angle DBA$ the same, so the angle left over between the folded edge and BC is $(80^\circ - b) - (2b - 80^\circ) = 160^\circ - 3b = 16^\circ$, giving $b = 48^\circ$.

So $\angle BAC = 180^\circ - 96^\circ = 84^\circ$, and since x is the angle next to the folded vertex on a straight line, $x = 180^\circ - 84^\circ = 96^\circ$.

PAPER 1 BOOKLET B, QUESTION 19 (2 MARKS)

(a) $270 \div 30 = 9$ km on 1 litre.

(b) $180 \div 9 = 20$ litres.

PAPER 1 BOOKLET B, QUESTION 20 (2 MARKS)

Factors of 12: 1, 2, 3, 4, 6, 12. Factors of 20: 1, 2, 4, 5, 10, 20.

Common factors: 1, 2 and 4.

$$1 + 2 + 4 = 7$$

Ans: 7

PAPER 1 BOOKLET B, QUESTION 21 (2 MARKS)

01 15

Together the machines pack $5 + 2 = 7$ boxes each minute.

Time needed = $175 \div 7 = 25$ minutes.

12.50 a.m. + 25 min = 1.15 a.m., which is 01 15 in the 24-hour clock.

PAPER 1 BOOKLET B, QUESTION 22 (2 MARKS)

$\frac{21}{5} = 4.2$ and $2\frac{1}{5} = 2.2$. Comparing 4.2, 2.15 and 2.2, the order from smallest to greatest is $2.15, 2\frac{1}{5}, \frac{21}{5}$.

PAPER 1 BOOKLET B, QUESTION 23 (2 MARKS)

Students with more than 1 device are those in groups C and D: $10 + 5 = 15$ per cent.

1 per cent stands for $80 \div 40 = 2$ students.

Number of students = $15 \times 2 = 30$

PAPER 1 BOOKLET B, QUESTION 24 (2 MARKS)

The total is unchanged. Before: $3 : 2$, that is $9 : 6$ out of 15 parts. After: $4 : 11$ out of 15 parts.

Gabby's share fell from 9 parts to 4 parts, a drop of 5 parts, which equals \$20.

1 part = $20 \div 5 = \$4$.

Gabby had $9 \times 4 = \$36$ at first.

PAPER 1 BOOKLET B, QUESTION 25 (2 MARKS)

Remainder after the red beads: $1 - \frac{1}{3} = \frac{2}{3}$.

Blue: $\frac{2}{7} \times \frac{2}{3} = \frac{4}{21}$.

Yellow and orange together: $\frac{2}{3} - \frac{4}{21} = \frac{14}{21} - \frac{4}{21} = \frac{10}{21}$.

There were equal numbers of yellow and orange beads, so the yellow beads were $\frac{1}{2} \times \frac{10}{21} = \frac{5}{21}$ of the beads.

PAPER 1 BOOKLET B, QUESTION 26 (2 MARKS)

Let $AB = 1$ unit, so $BC = 2$ units and $AC = 3$ units.

$ABEF$ is a square, so $AF = AB = 1$ unit.

Perimeter of $ACDF = 2 \times (3 + 1) = 8$ units = 160 cm, so 1 unit = 20 cm.

Area of square $ABEF = 20 \times 20 = 400 \text{ cm}^2$.

Ans: 400 cm^2

PAPER 1 BOOKLET B, QUESTION 27 (2 MARKS)

Tuesday = $(p + 4) + 2p = 3p + 4$

Total = $(p + 4) + (3p + 4) = 4p + 8$

$4p + 8 = 240$, so $4p = 232$ and $p = 58$.

PAPER 1 BOOKLET B, QUESTION 28 (2 MARKS)

15 lamp posts leave $15 - 1 = 14$ equal gaps, so $PQ = 26.6 \times 14 = 372.4$ m.

With $15 + 5 = 20$ lamp posts there are $20 - 1 = 19$ gaps.

New distance = $372.4 \div 19 = 19.6$ m

PAPER 1 BOOKLET B, QUESTION 29 (2 MARKS)

$\frac{9}{10} \div \frac{1}{4} = \frac{9}{10} \times 4 = \frac{36}{10} = 3\frac{3}{5}$, so 3 whole pieces of $\frac{1}{4}$ m can be cut. Those 3 pieces use $3 \times \frac{1}{4} = \frac{3}{4}$ m.

Last piece = $\frac{9}{10} - \frac{3}{4} = \frac{18}{20} - \frac{15}{20} = \frac{3}{20}$ m.

PAPER 1 BOOKLET B, QUESTION 30 (2 MARKS)

$$\text{Volume of water} = 10 \times 8 \times 20 = 1600 \text{ cm}^3.$$

Let the new level in Tank X be u cm, so the level in Tank Y is $2u$ cm.

$$10 \times 8 \times u + 20 \times 3 \times 2u = 80u + 120u = 200u = 1600$$

$$u = 1600 \div 200 = 8 \text{ cm.}$$

PAPER 2, QUESTION 1 (2 MARKS)

$$75\% \rightarrow 36, \text{ so } 25\% \rightarrow 36 \div 3 = 12.$$

$$100\% \rightarrow 12 \times 4 = 48$$

Ans: 48

PAPER 2, QUESTION 2 (2 MARKS)

$$145 - 8 = 137 \text{ cm}$$

$$137 \text{ cm} = 1.37 \text{ m}$$

PAPER 2, QUESTION 3 (2 MARKS)

Children = 8 units, and boys : girls = 1 : 3, so the children split into 4 equal shares.

$$8 \div 4 = 2, \text{ so boys} = 2 \text{ units and girls} = 3 \times 2 = 6 \text{ units.}$$

$$\text{Adults : boys : girls} = 3 : 2 : 6$$

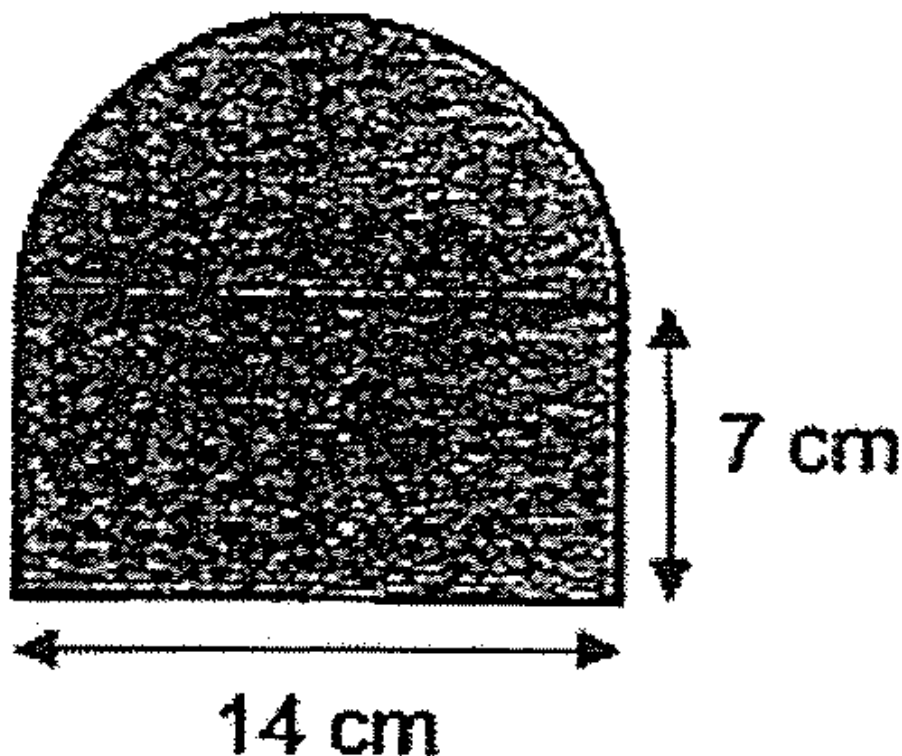
PAPER 2, QUESTION 4 (2 MARKS)

To make one number as large as possible, the other two must be as small as possible and still be different 3-digit numbers: 100 and 101.

$$100 + 101 = 201$$

$$\text{Largest possible number} = 405 - 201 = 204$$

Answer: **204**



$$\text{Area of rectangle} = 14 \times 7 = 98 \text{ cm}^2.$$

$$\text{Radius of semicircle} = 14 \div 2 = 7 \text{ cm.}$$

$$\text{Area of semicircle} = \frac{1}{2} \times \frac{22}{7} \times 7 \times 7 = 77 \text{ cm}^2.$$

$$\text{Total area} = 98 + 77 = 175 \text{ cm}^2.$$

PAPER 2, QUESTION 6 (5 MARKS)

(a) At 16 00 there are 40 laptops at the counter, so $48 - 40 = 8$ are still loaned out.

$$40 : 8 = 5 : 1$$

(b) Decrease = $40 - 24 = 16$

$$\text{Percentage decrease} = \frac{16}{40} \times 100 = 40\%$$

(c) Laptops returned = $48 - 24 = 24$ over 1.5 hours.

$$24 \div 1.5 = 16 \text{ laptops per hour}$$

PAPER 2, QUESTION 7 (3 MARKS)

(a) $Bella = 8x + 12$; $Charlene = 2(8x + 12) = 16x + 24$.

(b) $Total = 8x + (8x + 12) + (16x + 24) + 7 = 32x + 43$.

When $x = 15$: $32 \times 15 + 43 = 480 + 43 = 523$ points.

PAPER 2, QUESTION 8 (4 MARKS)

(a) $0.60 \times 20 = \$12$, plus the bonus $\$4.50$, giving $\$16.50$.

(b) Nine blocks of 20 cards give $16.50 \times 9 = \$148.50$ from $9 \times 20 = 180$ cards.

He still needs $150 - 148.50 = \$1.50$, which takes 3 more cards at $\$0.60$ each ($\$1.80$).

Total = $180 + 3 = 183$ cards.

Ans: (a) $\$16.50$ (b) 183

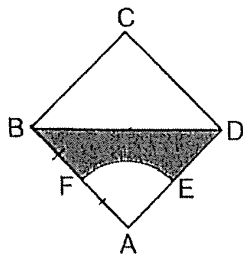


Figure X

ed area in Figure Y.

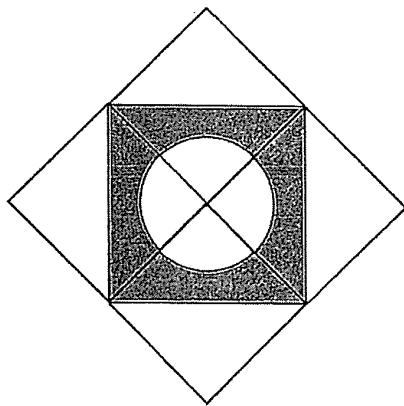


Figure Y

(a) Triangle BCD is half of square ABCD, so the square has area $32 \times 2 = 64 \text{ cm}^2$ and each side is $\sqrt{64} = 8$ cm. The radius $AF = \frac{1}{2} \times 8 = 4$ cm.

(b) The four tiles put together give a shaded region equal to four half squares less one full circle of radius 4 cm.

$$\text{Total shaded area} = 32 \times 4 - 3.14 \times 4 \times 4 = 128 - 50.24 = 77.76 \text{ cm}^2$$

PAPER 2, QUESTION 10 (4 MARKS)

(a) He sold $\frac{3}{5}$ of the bowls, so $\frac{2}{5}$ were left.

Bowls sold : bowls left = 3 : 2

(b) Let the number of bowls at first be 5 units, so the bowls left are 2 units and the plates at first are $600 - 5$ units.

Plates left = $600 - 5 \text{ units} - 124 = 476 - 5 \text{ units}$.

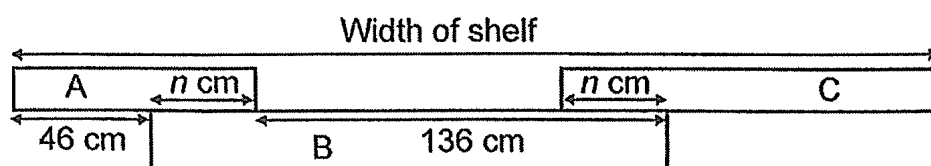
Bowls left are thrice the plates left: $2 \text{ units} = 3(476 - 5 \text{ units})$

$2 \text{ units} = 1428 - 15 \text{ units}$, so $17 \text{ units} = 1428$ and $1 \text{ unit} = 84$.

Bowls at first = $5 \times 84 = 420$, so bowls sold = $3 \times 84 = 252$.

Total sold = $252 + 124 = 376$

PAPER 2, QUESTION 11 (5 MARKS)



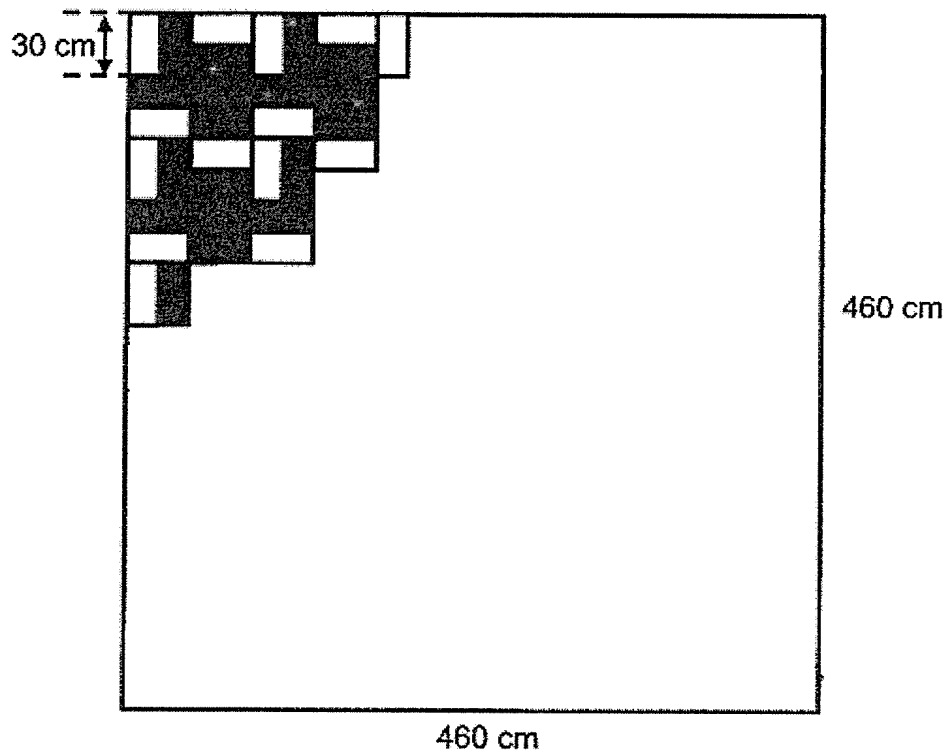
(a) Length of plank A = $(46 + n)$ cm and length of plank B = $(136 + n)$ cm.

Since A is $\frac{5}{11}$ of B, $11 \times (46 + n) = 5 \times (136 + n)$, so $506 + 11n = 680 + 5n$ and $6n = 174$, giving $n = 29$ cm.

(b) Length of A = $46 + 29 = 75$ cm and length of B = $136 + 29 = 165$ cm, so A and B together measure $75 + 165 = 240$ cm. Length of plank C = $\frac{1}{2} \times 240 = 120$ cm.

Across the shelf the overlaps are counted once, so the width = $46 + n + 136 + 120 - n = 46 + 136 + 120 = 302$ cm.

PAPER 2, QUESTION 12 (4 MARKS)



(a) Each tile measures 30 cm by 15 cm.

Along one direction $460 \div 30 = 15$ with 10 cm left over, and along the other $460 \div 15 = 30$ with 10 cm left over.

Greatest number of tiles = $15 \times 30 = 450$.

(b) Counting the grey tiles in the repeating pattern across the 450 tiles laid gives 274 grey tiles.

PAPER 2, QUESTION 13 (3 MARKS)

Pineapple share of the tarts sold = $100\% - 75\% = 25\%$.

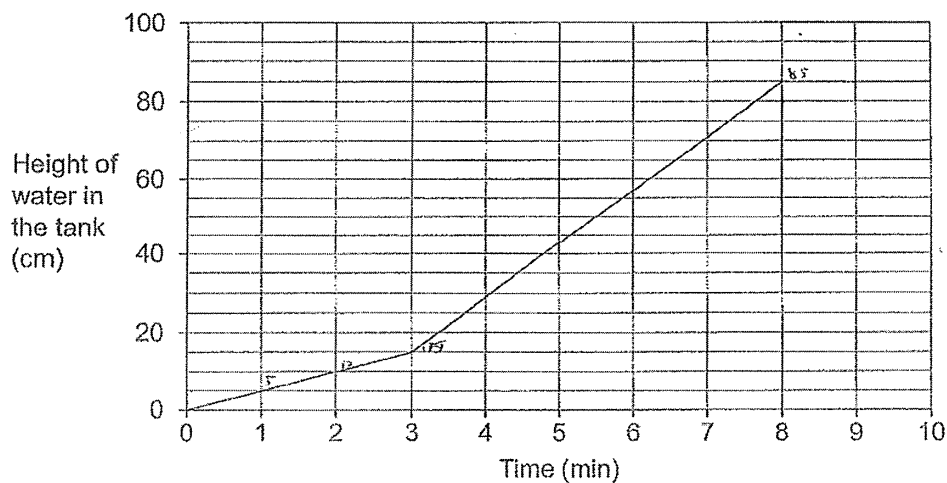
Pineapple tarts sold = $\frac{7}{10} \times \frac{25}{100} = \frac{7}{40}$ of all the tarts, and this equals 350.

Total tarts = $350 \div \frac{7}{40} = 2000$.

Unsold tarts = $\frac{3}{10} \times 2000 = 600$.

Pineapple tarts not sold = $\frac{30}{100} \times 600 = 180$.

PAPER 2, QUESTION 14 (4 MARKS)



(a) The tank is full at a water height of 85 cm.

$$\text{Volume} = 125 \times 80 \times 85 = 850\,000 \text{ cm}^3$$

Ans: $850\,000 \text{ cm}^3$

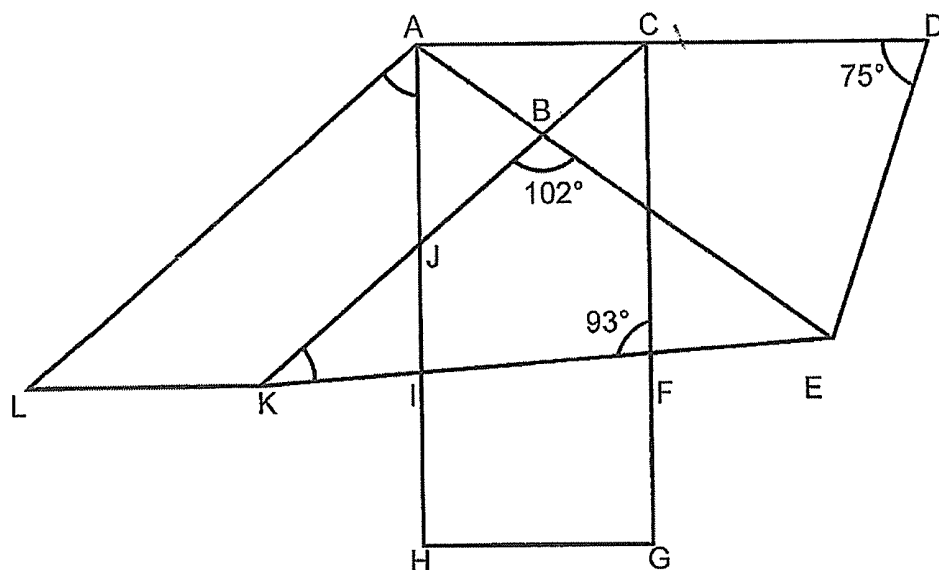
(b) Tap A alone raised the level 15 cm in 3 min, that is 5 cm/min.

From 3 min to 8 min both taps raised the level from 15 cm to 85 cm, that is 70 cm in 5 min, or 14 cm/min.

Tap B alone raises the level $14 - 5 = 9$ cm/min.

$$\text{Volume from Tap B in 1 min} = 125 \times 80 \times 9 = 90\,000 \text{ cm}^3 = 90 \text{ litres}$$

Ans: 90 litres



(a) In triangle ADE, $AD = AE$ so $\angle AED = \angle ADE = 75^\circ$ and $\angle DAE = 180^\circ - 75^\circ - 75^\circ = 30^\circ$.

At B the angle ABC is vertically opposite $\angle EBK$, so $\angle ABC = 102^\circ$.

In triangle ABC , $\angle ACB = 180^\circ - 102^\circ - 30^\circ = 48^\circ$.

Since $ACGH$ is a rectangle, $\angle ACG = 90^\circ$ and AJ lies along AH , so $\angle LAJ = 180^\circ - 48^\circ - 90^\circ = 42^\circ$.

(b) KIFE is a straight line, so along it $\angle JKI = 180^\circ - \angle CFK - \angle LAJ = 180^\circ - 93^\circ - 42^\circ = 45^\circ$.