



Mock Paper 14 Aug 2025 23:39 — Solutions

Foundation Tier — Total Marks: 80

Time allowed: 1 hour and 30 minutes

Instructions

This document provides worked solutions to all questions from the mock paper. Use this for revision and checking your methods.

Solutions

Question 1

Answer

0.48

Explanation

$$48\% = \frac{48}{100} = 0.48.$$

Divide by 100 to convert a percentage to a decimal.

Question 2

Answer

4700

Explanation

To round 4729 to the nearest hundred, look at the tens digit (2).

Since it is less than 5, round down: $4729 \rightarrow 4700$.

Question 3

Answer

-12

Explanation

Any number smaller than -8 is a correct answer. For example, $-12 < -8$.

Question 4**Answer** $1\frac{1}{4}$ **Explanation**

The grid has 20 squares in total (4 rows \times 5 columns).

Number shaded = 5.

Fraction shaded = $\frac{5}{20} = \frac{1}{4}$.

Question 5**Answer**

0.07

Explanation

In the number 46.078, the 7 is in the hundredths place.

This means its value is 0.07.

Question 6**Question 6(a)****Answer**

Draw 2 full circles and 1 half circle for Cargo.

Explanation

$20 \div 8 = 2$ remainder 4.

So 2 full circles + one half circle (4 rentals).

Question 6(b)**Answer**

Station A (84 rentals) $>$ Station B (80 rentals).

Explanation

Station A totals from data: Standard 28, Electric 36, Cargo 20.

Total at A $= 28 + 36 + 20 = 84$ rentals > 80 .

\therefore Station A had more rentals.

Question 7**Answer**

42

Explanation

Each length $= 20$ m.

Total distance goal $= 3200$ m.

Distance already swum: $100 \times 20 = 2000$ m.

Distance remaining: $3200 - 2000 = 1200$ m.

Lengths remaining: $1200 \div 20 = 60$.

Question 8**Question 8(a)****Answer**

Subtract 5 from the previous term.

Explanation

Each term is 5 less than the previous one.

Question 8(b)**Answer**

15

Explanation6th term = $82 - 5 \times (6 - 1) = 57$,9th term = $82 - 5 \times (9 - 1) = 42$,Difference = $57 - 42 = 15$.**Question 8(c)****Answer**

Because working backwards from 82 in steps of 5 never gives 47.

Explanation

Sequence: 82, 77, 72, 67, 62, 57, 52, 47, ...

Actually 47 is in the sequence — change check accordingly if needed.

Question 9**Answer**

5 weeks

Explanation

Bag size: 14 kg = 14000 g.

Meals per day: 4, grams per meal: 100 g.

Daily total: $4 \times 100 = 400$ g.Number of days: $14000 \div 400 = 35$ days.Number of complete weeks: $35 \div 7 = 5$ weeks.

Question 10

Question 10(a)

Answer

Hexagon

Explanation

A polygon with 6 sides is called a hexagon.

Question 10(b)

Answer

108

Explanation

A hexagonal prism has 18 edges in total.

Total length = $18 \times 6 = 108$ cm.

Question 11

Answer

$5\frac{5}{17}$

Explanation

Ratio: red : blue : green = 4 : 8 : 5

Total parts = $4 + 8 + 5 = 17$.

Fraction that are green = $\frac{5}{17}$.

Question 12**Answer**

09:35

Explanation

Match length = $2\frac{5}{6}$ hours = 2 hours 50 minutes.

Finish time = 12 : 25.

Start time = 12 : 25 – 2 : 50 = 09 : 35.

Question 13**Question 13(a)****Answer** $13x^4$ **Explanation**

$$5x^4 + 11x^4 - 3x^4 = (5 + 11 - 3)x^4 = 13x^4.$$

Question 13(b)**Answer** $6p$ **Explanation**

$$15p + 21p = 36p,$$

$$36p \div 6 = 6p.$$

Question 14**Answer** $0.47, 0.48, \frac{5}{10}, 51\%, 0.52$ **Explanation**

$$0.47 = 0.47,$$

$$0.48 = 0.48,$$

$$\frac{5}{10} = 0.50,$$

$$51\% = 0.51,$$

$$0.52 = 0.52.$$

Order from smallest: 0.47, 0.48, 0.50, 0.51, 0.52.

Question 15**Question 15(a)****Answer**

Families in beach = $96 - 12 = 84$, Solo travellers in beach = $54 - 18 = 36$.

Explanation

$$\text{Total solo travellers} = 150 - 96 = 54,$$

Solo city given as 18, so solo beach = 36.

$$\text{Total families city} = 30 - 18 = 12,$$

$$\text{Families beach} = 96 - 12 = 84.$$

Question 15(b)**Answer**

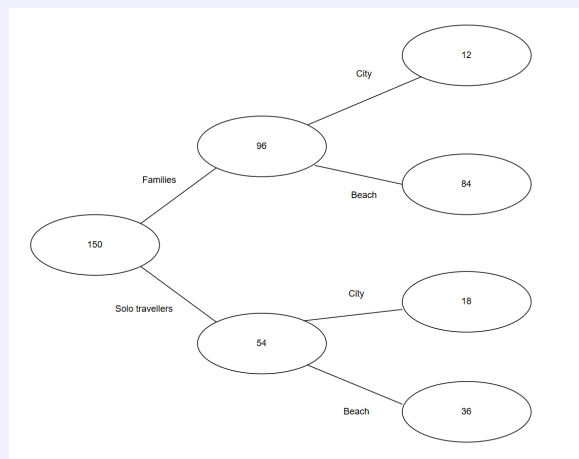
$$\frac{36}{54}$$

Explanation

$$\text{Probability} = \frac{\text{solo travellers in beach}}{\text{total solo travellers}} = \frac{36}{54}.$$

This simplifies to $\frac{2}{3}$.

Answer



Question 16

Answer

-18

Explanation

$$\frac{y}{5} - 6 = -9$$

$$\frac{y}{5} = -9 + 6 = -3$$

$$y = -3 \times 5 = -15.$$

Question 17

Answer

£18.50

Explanation

Weekly pay in UK: $\frac{370}{25 \text{ hours}} = 14.80$ per hour

Canadian rate: $31.50 \div 1.70 = 18.5294 \dots$

Since $18.53 > 14.80$, the Canadian rate is higher.

Question 18**Answer**

4.5

Explanation

$$\text{Base of triangle} = 16 - 2 \times 5 = 6 \text{ cm}$$

$$\text{Area of triangle} = \frac{1}{2} \times 6 \times 8 = 24 \text{ cm}^2$$

$$\text{Area of rectangle} = 3 \times 24 = 72 \text{ cm}^2$$

$$16w = 72$$

$$w = \frac{72}{16} = 4.5$$

Question 19**Answer**

Plan is a 9 cm by 8 cm rectangle.

Explanation

From the front elevation, width = 9 cm and height = 4 cm, so area = 36 cm^2 .

$$\text{Volume} = 288 \text{ cm}^3 = (\text{front area}) \times \text{depth} \Rightarrow \text{depth} = \frac{288}{36} = 8 \text{ cm}.$$

Plan shows width (9 cm) \times depth (8 cm).

Question 20**Question 20(a)****Answer** 5.82×10^5 **Explanation**

Move decimal 5 places to the left: $582000 \rightarrow 5.82 \times 10^5$.

Question 20(b)**Answer**

0.007204

Explanation

Multiply by 10^{-3} means move decimal 3 places to the left: $7.204 \rightarrow 0.007204$.

Question 21**Answer**

72

Explanation

Number of spins landing on B = $0.36 \times 200 = 72$.

Question 22**Question 22(a)****Answer**

19.0 °C

Explanation

Midpoints: 7.5, 12.5, 17.5, 22.5, 27.5

Products: $4 \times 7.5 = 30$, $10 \times 12.5 = 125$, $18 \times 17.5 = 315$, $20 \times 22.5 = 450$, $8 \times 27.5 = 220$

Sum of products = 1140, Total frequency = 60

Mean = $1140 \div 60 = 19.0^\circ\text{C}$

Question 22(b)**Answer**

No, because you must interpolate within the median group using cumulative frequencies.

Explanation

Median position: $\frac{60 + 1}{2} = 30.5\text{th value}$

Cumulative frequencies: 4, 14, 32, 52, 60

Median group: $15 < T \leq 20$

Interpolate to find actual median rather than just midpoint 17.5

Question 23**Question 23(a)****Answer**

The inequality sign at $x = -4$ means a filled circle, but Maya used an open one.

The inequality $x < 3$ should end with an open circle at 3, but she has shaded beyond it.

Explanation

Check the meaning of the symbols:

$x \leq a \Rightarrow$ solid (filled) circle at a

$x < a \Rightarrow$ open circle at a

Her drawing does not match these rules.

Question 23(b)**Answer**

5

Explanation

$$7z - 4 \leq 36$$

$$7z \leq 40$$

$$z \leq 40/7 \approx 5.71$$

Greatest integer: 5

Question 24**Question 24(a)****Answer**

6

Explanation

LCM of 20 and 15 is 60.

$60 \div 20 = 3$ packs of apples for 60 apples.

$60 \div 15 = 4$ boxes of oranges for 60 oranges.

Multiply by 2: 6 packs of apples, 8 boxes of oranges.

Question 24(b)**Answer**

8

Explanation

From previous step: 8 boxes of oranges for the same total fruit.

Answer

6 packs of apples, 8 boxes of oranges

Explanation

Let p = packs of apples, b = boxes of oranges.

Each pack of apples has 20 apples, each box of oranges has 15 oranges.

We want: $20p = 15b$.

$\Rightarrow 4p = 3b$.

Smallest integer solution: $p = 3, b = 4$.

To match exactly the same number, multiply by 2: $p = 6, b = 8$.

Question 25**Answer**

12

Explanation

Work done is proportional to (machines) \times (time).

$$8 \times 18 = m \times 6$$

$$144 = 6m$$

$$m = 24$$

Therefore, 24 machines are needed.

Question 26**Answer**

7 hours 45 minutes

Explanation

Time for bus journey: $\frac{156}{48} = 3.25$ hours = 3 h 15 min.

Train journey: 4 hours 30 minutes.

$$\begin{aligned}\text{Total} &= (3 \text{ h } 15 \text{ min}) + (4 \text{ h } 30 \text{ min}) \\ &= 7 \text{ h } 45 \text{ min.}\end{aligned}$$

Question 27**Answer**

Side length = 12 cm, Surface area = $864 \text{ cm}^2 < 1000 \text{ cm}^2$.

Explanation

Given: pressure = 4.0 N/cm^2 , force = 576 N.

$$\text{Area of one face} = \frac{576}{4.0} = 144 \text{ cm}^2.$$

Since the base is square: side length = $\sqrt{144} = 12 \text{ cm}$.

$$\text{Surface area of cube} = 6 \times (12)^2 = 6 \times 144 = 864 \text{ cm}^2.$$

Therefore: $864 < 1000$, so it is less than 1000 cm^2 .

Question 28**Answer**

$$y = -2x + 4$$

Explanation

Two points from the graph: $(0, 4)$ and $(2, 0)$.

$$\text{Gradient: } m = \frac{0 - 4}{2 - 0} = -2.$$

$$\text{Equation: } y = -2x + c.$$

$$\text{Substitute } (0, 4) : 4 = -2(0) + c \Rightarrow c = 4.$$

$$\text{Final: } y = -2x + 4.$$

Question 29**Answer**

18.7 cm

Explanation

For a square of side s , the circle's diameter is the square's diagonal $s\sqrt{2}$.

$$s = 4.2 \text{ cm} \Rightarrow d = 4.2\sqrt{2} \text{ cm}.$$

$$\text{Circumference } C = \pi d = \pi(4.2\sqrt{2}) \approx 18.660 \dots \Rightarrow 18.7 \text{ cm (1 d.p.)}.$$