

Worksheet: PRACTICE MATHS SET 1 G

$$\text{Area of Parallelogram} = b \times h \quad \text{Volume of Cube} = s^3 \quad x^a \times x^b = x^{a+b}$$

Question 1**(Total for question 1 is 1 mark)**

A triangle has vertices plotted on a coordinate grid at (2, 2), (5, 2), and (2, 6). A second triangle is drawn with vertices at (-2, -2), (-5, -2), and (-2, -6). What single change moves the first triangle exactly onto the second triangle?

- A) A rotation of 180 degrees about the center (0,0)
- B) A reflection in the horizontal x-axis
- C) A reflection in the vertical y-axis
- D) A slide of 4 units down and 4 units left

Question 2**(Total for question 2 is 1 mark)**

A factory warehouse holds boxes that are brown, white, or grey. One-quarter of the boxes are brown and three-fifths are white. If there are exactly 24 grey boxes, how many white boxes are inside the warehouse?

- A) 40
- B) 96
- C) 60
- D) 16

Question 3**(Total for question 3 is 1 mark)**

A stadium counts its weekend ticket sales. Because of bad weather, the number of tickets sold this weekend was 45% lower than last weekend. If 110 tickets were sold this weekend, how many tickets were sold last weekend?

- A) 155
- B) 180
- C) 200
- D) 240

Question 4**(Total for question 4 is 1 mark)**

If $6^3 \times 6^5 = 6^n$, what is the matching number for n ?

- A) 15
 - B) 2
 - C) 18
 - D) 8
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Question 5**(Total for question 5 is 1 mark)**

A designer cuts a parallelogram out from a flat rectangular sheet of cardboard. The large sheet measures 40 cm by 15 cm. The parallelogram cutout features a base of 12 cm and a height of 6 cm. Find the area of the cardboard sheet that is left over.

- A) 528 cm²
- B) 600 cm²
- C) 72 cm²
- D) 480 cm²

Question 6**(Total for question 6 is 1 mark)**

Look at these two math rules: $4A + 4B = M$ and $4A + 4B + 3M = 64$. Find the value of M .

- A) 16
- B) 12
- C) 8
- D) 21

Question 7**(Total for question 7 is 1 mark)**

A storage container is built perfectly in the shape of a cube. If you add up the lengths of all 12 straight edges of the container, the total is 120 cm. What is the total volume space inside this cube container?

- A) 1200 cm³
- B) 100 cm³
- C) 1000 cm³
- D) 1728 cm³

Question 8**(Total for question 8 is 1 mark)**

Look at this number pattern: 7, 10, 15, 22, 31, ... What number should come next in the pattern?

- A) 40
 - B) 44
 - C) 38
 - D) 42
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Question 9**(Total for question 9 is 1 mark)**

What number must go into the blank line to make this correct: $(4.25 + \text{---})^2 = 0.5 \times 0.5 \times 100$?

- A) 0.75
- B) 1.75
- C) 5.00
- D) 2.25

Question 10**(Total for question 10 is 1 mark)**

A security terminal creates a 4-digit code using different odd digits. The numbers must be written in order from largest to smallest. If the whole 4-digit code can be divided exactly by 9, what is the code?

- A) 9753
- B) 9531
- C) 7531
- D) 9351

Question 11**(Total for question 11 is 1 mark)**

Three children are collecting marbles. Arthur has m marbles. Beatrice has 4 more marbles than Arthur. Charles has three times as many marbles as Beatrice. Find the formula for the total number of marbles they have altogether.

- A) $4m + 12$
- B) $5m + 4$
- C) $5m + 16$
- D) $3m + 12$

Question 12**(Total for question 12 is 1 mark)**

A rectangular playground has an area of 600 m^2 and a width of 20 m. A paved area shares a full side with the length of the playground and has a width of 8 m. What is the total perimeter around the outside of the combined area?

- A) 132 m
 - B) 104 m
 - C) 120 m
 - D) 116 m
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Question 13**(Total for question 13 is 1 mark)**

A chef mixes a special seasoning blend using 2 parts salt, 3 parts pepper, and 5 parts garlic powder by weight. If the recipe uses 30 grams of garlic powder, what is the total weight of the whole completed seasoning mix?

- A) 60 grams
- B) 50 grams
- C) 90 grams
- D) 75 grams

Question 14**(Total for question 14 is 1 mark)**

Look at the algebra equation: $6k + d = 3k + 24$. If $k = 5$, what is the value of d ?

- A) 14
- B) 9
- C) 6
- D) 11

Question 15**(Total for question 15 is 1 mark)**

A teacher has 36 individual unit cubes that each measure $1\text{ cm} \times 1\text{ cm} \times 1\text{ cm}$. How many completely different rectangular prism shapes can be built using all 36 cubes each time?

- A) 4
- B) 6
- C) 8
- D) 5

Question 16**(Total for question 16 is 1 mark)**

A shipping port contains a total of 20 vehicles made up only of 2-wheeled motorcycles and 6-wheeled transport trucks. If there are 72 wheels on the ground in total, how many trucks are in the port?

- A) 12
- B) 10
- C) 6
- D) 8

Question 17**(Total for question 17 is 1 mark)**

In a youth club, 60% of the members play football, 50% play basketball, and 30% play both sports. If there are 8 members who play neither sport, how many total members are in the youth club?

- A) 40
- B) 60
- C) 50
- D) 80

Question 18**(Total for question 18 is 1 mark)**

Cyclist A and Cyclist B leave a station at the same moment. Cyclist A travels a direct lane that is 12 km long at a steady speed of 10 km per hour. Cyclist B travels a longer trail that is 18 km long and finishes at the exact same time as Cyclist A. What was the speed of Cyclist B?

- A) 12 km/h
- B) 15 km/h
- C) 14 km/h
- D) 16 km/h

Question 19**(Total for question 19 is 1 mark)**

A multiple-choice math contest has 25 questions. A correct answer scores +4 points, an incorrect answer scores -1 point, and an unanswered question scores 0 points. What is the total gap between the lowest possible score and the highest possible score you could get?

- A) 100
- B) 75
- C) 125
- D) 150

Question 20**(Total for question 20 is 1 mark)**

A puppy is one-fifth the age of its mother dog. In 12 months' time, the mother dog will be exactly three times as old as the puppy. How old is the puppy right now?

- A) 6 months
- B) 8 months
- C) 4 months
- D) 12 months

Solutions

1. **A** — A rotation of 180 degrees about the origin maps grid coordinates $(x, y) \rightarrow (-x, -y)$.
2. **B** — Fractions: $1 - \frac{1}{4} - \frac{3}{5} = \frac{3}{20}$ grey items. Total inventory = 160 $\implies$ white = $\frac{3}{5} \times 160 = 96$.
3. **C** — Equation: $0.55x = 110 \implies x = 110 \div 0.55 = 200$ tickets.
4. **D** — Adding indices exponent rule: $3 + 5 = 8$.
5. **A** — Base composite math steps: $(40 \times 15) - (12 \times 6) = 600 - 72 = 528 \text{ cm}^2$.
6. **B** — Substitute terms: $M + 3M = 64 \implies 4M = 64 \implies M = 16$.
7. **C** — Cube edge metrics: $120 \div 12 = 10 \text{ cm per side} \implies 10^3 = 1000 \text{ cm}^3$.
8. **D** — Sequence pattern gaps grow constantly by $+3, +5, +7, +9 \implies +11 \implies 31 + 11 = 42$.
9. **A** — Math expression logic: $(4.25 + x)^2 = 25 \implies 4.25 + x = 5 \implies x = 0.75$.
10. **B** — Token code constraints: Digits 9, 5, 3, 1 sum to 18 (divisible by 9) in strict descending order.
11. **C** — Linear formula grouping: $m + (m + 4) + 3(m + 4) = 5m + 16$.
12. **D** — Playground length = $600 \div 20 = 30\text{m}$. Combined plan width = $20 + 8 = 28\text{m}$. Perimeter = $2 \times (30 + 28) = 116\text{m}$.
13. **A** — Proportion fractions: 5 parts = 30 g $\implies$ 1 part = 6 g $\implies$ Total parts = $10 \times 6 = 60$ grams.
14. **B** — Linear algebra balancing: $6(5) + d = 3(5) + 24 \implies 30 + d = 39 \implies d = 9$.
15. **C** — 3D geometry factor groupings: $1 \times 1 \times 36, 1 \times 2 \times 18, 1 \times 3 \times 12, 1 \times 4 \times 9, 1 \times 6 \times 6, 2 \times 2 \times 9, 2 \times 3 \times 6, 3 \times 3 \times 4$ (yields 8 unique configurations).
16. **D** — Linear system equations: $m + t = 20, 2m + 6t = 72 \implies 4t = 32 \implies t = 8$ trucks.
17. **A** — Overlapping union sets: $60\% + 50\% - 30\% = 80\% \implies 20\% \text{ neither} = 8 \implies \text{Total} = 40$.
18. **B** — Compound speed parameters: Time = $12 \div 10 = 1.2$ hours $\implies$ Speed B = $18 \div 1.2 = 15 \text{ km/h}$.
19. **C** — Test scoring bounds: Max score = +100, Min score = -25 $\implies$ Interval Gap = $100 - (-25) = 125$.
20. **D** — Ratio timeline tracking: Let puppy age be p , mother's age $5p$. In 12 months: $5p + 12 = 3(p + 12) \implies 5p + 12 = 3p + 36 \implies 2p = 24 \implies p = 12$ months.