SOLUTIONS - PRACTICE TEST PAPER - 2026

Subject: Mathematics **Class:** 7

Chapter: Ratio and Proportion

Q1. Given:

$$a : b = 2 : 3, \quad b : c = 4 : 5, \quad c : d = 6 : 7$$

To find $a : d$, we combine the ratios step-by-step:

1. Combine $a : b$ and $b : c$:

$$a : b : c = 2 \times 4 : 3 \times 4 : 3 \times 5 = 8 : 12 : 15$$

2. Combine $a : b : c$ with $c : d$:

$$a : b : c : d = 8 \times 6 : 12 \times 6 : 15 \times 6 : 15 \times 7 = 48 : 72 : 90 : 105$$

3. Simplify $a : d$:

$$a : d = 48 : 105$$

Thus, the ratio $a : d$ is $\boxed{48 : 105}$.

—

Q2. The third proportional x to 9 and 12 satisfies:

$$9 : 12 = 12 : x$$

Cross-multiplying:

$$9x = 144 \implies x = 16$$

Thus, the third proportional is $\boxed{16}$.

—

Q3. Given $x \propto \frac{1}{y}$, we have:

$$x \times y = k \quad \text{(constant)}$$

When $x = 10$ and $y = 6$:

$$k = 10 \times 6 = 60$$

When $y = 15$:

$$x \times 15 = 60 \implies x = 4$$

Thus, the value of x is $\boxed{4}$.

—

Q4. Let the number of Rs. 1, 50 paise, and 25 paise coins be $2x$, $3x$, and $4x$ respectively. The total amount:

$$2x \times 1 + 3x \times 0.5 + 4x \times 0.25 = 510$$

Simplifying:

$$2x + 1.5x + 1x = 510 \implies 4.5x = 510 \implies x = 113.\overline{3}$$

The number of 50 paise coins:

$$3x = 3 \times 113.\overline{3} = 340$$

Thus, the number of 50 paise coins is $\boxed{340}$.

—

Q5. Let the numbers be $5x$ and $8x$. After adding 9:

$$\frac{5x+9}{8x+9} = \frac{8}{11}$$

Cross-multiplying:

$$11(5x+9) = 8(8x+9) \implies 55x + 99 = 64x + 72$$

Solving:

$$9x = 27 \implies x = 3$$

Thus, the numbers are $5 \times 3 = 15$ and $8 \times 3 = 24$, so the answer is $\boxed{15, 24}$.

—

Q6. The speed of the car:

$$\text{Speed} = \frac{180 \text{ km}}{3 \text{ hours}} = 60 \text{ km/h}$$

Time to cover 120 km:

$$\text{Time} = \frac{120 \text{ km}}{60 \text{ km/h}} = 2 \text{ hours} = 120 \text{ minutes}$$

Thus, it will take $\boxed{120 \text{ minutes}}$.

—

Q7. Given $(x+2) : 3 = (2x+1) : 5$, we have:

$$\frac{x+2}{3} = \frac{2x+1}{5}$$

Cross-multiplying:

$$5(x+2) = 3(2x+1) \implies 5x + 10 = 6x + 3$$

Solving:

$$x = 7$$

Thus, the value of x is $\boxed{7}$.

—

Q8. Given the ratio of pole length to shadow is $4 : 3$, for a shadow of 45 m:

$$\frac{\text{Height}}{\text{Shadow}} = \frac{4}{3} \implies \text{Height} = \frac{4}{3} \times 45 = 60 \text{ m}$$

Thus, the height of the tower is $\boxed{60 \text{ m}}$.

—

Q9. Given the ratio of Copper to Zinc is $9:5$, and Copper is 22.5 kg:

$$\frac{9}{14} \times \text{Total weight} = 22.5 \implies \text{Total weight} = \frac{22.5 \times 14}{9} = 35 \text{ kg}$$

Thus, the total weight of the alloy is $\boxed{35 \text{ kg}}$.

—

Q10. Let $x = 5k$ and $y = 2k$. Then:

$$(8x + 9y) : (8x + 2y) = (40k + 18k) : (40k + 4k) = 58k : 44k = 29 : 22$$

Thus, the ratio is $\boxed{29 : 22}$.

—

Q11. The total work is $15 \times 48 = 720$ worker-hours. For 30 hours:

$$\text{Workers} = \frac{720}{30} = 24$$

Thus, $\boxed{24}$ workers are required.

—

Q12. The rate of pumping:

$$\text{Rate} = \frac{164000 \text{ litres}}{8 \text{ hours}} = 20500 \text{ litres/hour}$$

In 12 hours:

$$\text{Water pumped} = 20500 \times 12 = 246000 \text{ litres}$$

Thus, it will pump $\boxed{246000 \text{ litres}}$.

—

Q13. Let the present ages be $5x$ and $7x$. Eight years ago:

$$\frac{5x - 8}{7x - 8} = \frac{7}{13}$$

Cross-multiplying:

$$13(5x - 8) = 7(7x - 8) \implies 65x - 104 = 49x - 56$$

Solving:

$$16x = 48 \implies x = 3$$

Thus, the present age of A is $5 \times 3 = \boxed{15 \text{ years}}$.

—

Q14. Given $0.6A = 0.75B$, we have:

$$\frac{A}{B} = \frac{0.75}{0.6} = \frac{75}{60} = \frac{5}{4}$$

Thus, the ratio $A : B$ is $\boxed{5 : 4}$.

—

Q15. The work done is constant, so:

$$4 \text{ pumps} \times 42 \text{ minutes} = 6 \text{ pumps} \times t \text{ minutes}$$

Solving for t:

$$t = \frac{4 \times 42}{6} = 28 \text{ minutes}$$

Thus, it will take $\boxed{28 \text{ minutes}}$.