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**Assessment maths**

1. Simplest form of 12:16

→ Divide both by 4:

12:16 = 3:4

2. Divide $120 in the ratio 2:3

→ Total parts = 2 + 3 = 5

→ Each part = $120 ÷ 5 = $24

→ Shares = 2 × $24 and 3 × $24 = $48 and $72

3. Cats to dogs is 4:7, with 28 dogs

→ 7 parts = 28 → 1 part = 4

→ Cats = 4 × 4 = 16 cats

4. $240 for 8 hours

→ Rate = $240 ÷ 8 = $30/hour

5. Are 6:9 and 8:12 proportional?

→ 6:9 = 2:3, 8:12 = 2:3

→ Yes, they are proportional.

6. 3 shirts cost $45, cost of 5 shirts?

→ 1 shirt = $45 ÷ 3 = $15

→ 5 shirts = $15 × 5 = $75

7. 5 pens cost $10, cost of 12 pens?

→ 1 pen = $10 ÷ 5 = $2

→ 12 pens = 12 × $2 = $24

8. Ratio of boys (18) to total students (18+12 = 30)

→ Ratio = 18:30 = 3:5

9. 25% of 480

→ = 0.25 × 480 = 120

10. Jacket sold for $150 after 20% discount

→ Let original price = x

→ x − 20%x = 150 → 0.8x = 150 → x = 150 ÷ 0.8 = $187.50

11. 5% commission on $2,000 sales

→ 0.05 × 2000 = $100

12. 60% of a number is 180

→ 0.6x = 180 → x = 180 ÷ 0.6 = 300

13. Simple interest on $1,200 at 5% for 3 years

→ SI = (P × R × T)/100 = (1200 × 5 × 3)/100 = $180

14. Compound interest: $2,000 at 10% for 3 years

→ A = P(1 + r)^t = 2000 × (1.1)^3 ≈ 2000 × 1.331 = $2,662

15. Loan of $2,000 for 2 years at 6% (Simple Interest)

→ SI = (2000 × 6 × 2)/100 = $240

→ Total = 2000 + 240 = $2,240