**Answers**

1. Simplify 12:16:

Divide both by 4 →

= 3:4

2. Divide $120 in the ratio 2:3:

Total parts = 2 + 3 = 5

First share = (2/5) × 120 = $48

Second share = (3/5) × 120 = $72

3. Ratio cats:dogs = 4:7 and dogs = 28

Each part = 28 ÷ 7 = 4

Cats = 4 × 4 = 16 cats

4. $240 for 8 hours:

Rate = 240 ÷ 8 = $30 per hour

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

Simplify both:

6:9 = 2:3

8:12 = 2:3

Yes, they are proportional.

6. 3 shirts cost $45 → cost per shirt = 45 ÷ 3 = $15

So, 5 shirts = 5 × 15 = $75

7. 5 pens cost $10 → 1 pen = $2

12 pens = 12 × 2 = $24

8. Boys = 18, Girls = 12 → Total students = 30

Ratio of boys to total = 18:30 = Simplify by 6 →

= 3:5

9. 25% of 480 = (25/100) × 480 = 120

10. Let original price be x.

After 20% discount: x - 0.20x = 150 →

0.80x = 150 → x = 150 ÷ 0.80 = $187.50

11. 5% of $2,000 = (5/100) × 2000 = $100

12. 60% of number = 180 →

(60/100) × x = 180 →

x = 180 ÷ 0.6 = 300

13. Simple Interest (SI) = (P × R × T)/100

= (1200 × 5 × 3)/100 = $180

14. Compound Interest:

Formula: A = P(1 + r/100)^t

A = 2000 × (1 + 10/100)^3

= 2000 × (1.1)^3 = 2000 × 1.331 = $2,662

15. Simple Interest = (2000 × 6 × 2)/100 = 240

Total = Principal + Interest = 2000 + 240 = $2,240