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Faculty: Project management

Assignment (Mathematics)

1. Simplify the ratio 12:16

Divide both numbers by their greatest common divisor, which is 4:

$$12 \div 4 = 3, 16 \div 4 = 4$$

Answer: 3:4

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

$$\text{Total parts} = 2 + 3 = 5$$

$$\text{Each part} = \$120 \div 5 = \$24$$

$$\text{First share} = 2 \times \$24 = \$48$$

$$\text{Second share} = 3 \times \$24 = \$72$$

Answer: \$48 and \$72

3. Cats to dogs ratio is 4:7; if there are 28 dogs, how many cats?

Let the number of cats be x.

$$\text{Then, } x / 28 = 4 / 7$$

$$\text{Cross-multiplying: } 7x = 4 \times 28 = 112$$

$$x = 112 \div 7 = 16$$

Answer: 16 cats

4. If a person earns \$240 for 8 hours, what is the rate per hour?

$$\text{Rate} = \$240 \div 8 = \$30/\text{hour}$$

Answer: \$30 per hour

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

Simplify both ratios:

$$6:9 = 2:3$$

$$8:12 = 2:3$$

Since both simplify to the same ratio, they are proportional.

Answer: Yes, they are proportional.

6. If 3 shirts cost \$45, how much would 5 shirts cost?

$$\text{Cost per shirt} = \$45 \div 3 = \$15$$

$$\text{Cost for 5 shirts} = 5 \times \$15 = \$75$$

Answer: \$75

7. If 5 pens cost \$10, how much do 12 pens cost?

$$\text{Cost per pen} = \$10 \div 5 = \$2$$

$$\text{Cost for 12 pens} = 12 \times \$2 = \$24$$

Answer: \$24

8. A class has 18 boys and 12 girls. What is the ratio of boys to total students?

$$\text{Total students} = 18 + 12 = 30$$

$$\text{Ratio} = 18:30 = 3:5 \text{ (after simplifying)}$$

Answer: 3:5

9. Find 25% of 480

$$25\% \text{ of } 480 = 0.25 \times 480 = 120$$

Answer: 120

10. A jacket is sold for \$150 after a 20% discount. What was the original price?

Let the original price be x .

After a 20% discount, the price is 80% of x :

$$0.8x = \$150$$

$$x = \$150 \div 0.8 = \$187.50$$

Answer: \$187.50

11. A salesperson earns a 5% commission on sales. If they sell goods worth \$2,000, how much commission do they earn?

$$\text{Commission} = 5\% \text{ of } \$2,000 = 0.05 \times \$2,000 = \$100$$

Answer: \$100

12. If 60% of a number is 180, what is the original number?

Let the number be x .

$$60\% \text{ of } x = 180 \quad ? \quad 0.6x = 180$$

$$x = 180 \div 0.6 = 300$$

Answer: 300

13. Find the simple interest on \$1,200 at a rate of 5% per annum for 3 years

$$\text{Simple Interest} = \text{Principal} \times \text{Rate} \times \text{Time}$$

$$= \$1,200 \times 0.05 \times 3 = \$180$$

Answer: \$180

14. A sum of \$2,000 is invested at 10% per annum for 3 years compounded annually. Find the total amount.

$$\text{Amount} = \text{Principal} \times (1 + \text{Rate})^{\text{Time}}$$

$$= \$2,000 \times (1 + 0.10)^3$$

$$= \$2,000 \times (1.1)^3$$

$$= \$2,000 \times 1.331 = \$2,662$$

Answer: \$2,662

15. A loan of \$2,000 is given for 2 years at a rate of 6% per annum. What is the total amount to be repaid at the end of the period?

$$\text{Simple Interest} = \$2,000 \times 0.06 \times 2 = \$240$$

$$\text{Total repayment} = \text{Principal} + \text{Interest} = \$2,000 + \$240 = \$2,240$$

Answer: \$2,240