**ALPHA UNIVERSITY BORAMA**

**Assignment of math’s methods**

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**The assignment**

**Individual assailment the assignment 30 marks**

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1. Express the ratio 12:16 in its simplest form.

Simplest form of 12:16

**Divide both by their GCD (4):**

**3:4**

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

**Divide $120 in ratio 2:3**

**Total parts = 5, each part = $24**

**$48 and $72**

1. The ratio of cats to dogs in a pet shop is 4:7. If there are 28 dogs, how many cats are there?

**Cats if 28 dogs (ratio 4:7)**

**Proportion: \( \frac{4}{7} = \frac{x}{28} \) → \( x = 16 \)**

**16 cats**

1. If a person earns $240 for working 8 hours, what is the rate of pay per hour?

**Hourly rate for $240 in 8 hours**

**\( \frac{240}{8} = 30 \)**

**$30/hour**

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

**Proportional ratios 6:9 and 8:12**

**Both simplify to 2:3 → Yes**

1. If 3 shirts cost $45, how much would 5 shirts cost at the same rate?

**Cost of 5 shirts (3 shirts = $45)**

**Per shirt: $15 → 5 shirts: \( 5 \times 15 = 75 \)**

**$75**

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

**Cost of 12 pens (5 pens = $10)**

**Per pen: $2 → 12 pens: \( 12 \times 2 = 24 \)**

**$24**

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

**Ratio of boys (18) to total (30)**

**Simplify 18:30 → 3:5**

1. Find 25% of 480.

**25% of 480**

**\( 0.25 \times 480 = 120 \)**

**120**

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

**Original price after 20% discount ($150)**

**\( 0.8x = 150 \) → \( x = 187.5 \)**

**$187.50**

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

**5% commission on $2,000 sales**

**\( 0.05 \times 2000 = 100 \)**

**$100**

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

**Original number if 60% is 180**

**\( 0.6x = 180 \) → \( x = 300 \)**

**300**

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

**Simple interest: $1,200 at 5% for 3 years**

**\( 1200 \times 0.05 \times 3 = 180 \)**

**$180**

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

**Compound amount: $2,000 at 10% for 3 years**

**\( 2000 \times (1.1)^3 = 2662 \)**

**$2,662**

1. 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?

**Total loan repayment: $2,000 at 6% for 2 years (simple interest)**

**\( 2000 + (2000 \times 0.06 \times 2) = 2240 \)**

**$2,240**