ALPHA UNIVERSITY BORAMA

Assignment of Mathematical Methods

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Individual Assignment — 30 Marks

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

A: 12:16 = 3:4

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

A: Total parts = 5 ? $120 ÷ 5 = $24 ? 2 parts = $48, 3 parts = $72

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

A: 7 parts = 28 ? 1 part = 4 ? 4 parts = 16 cats

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

A: $240 ÷ 8 = $30/hour

Q: Are the ratios 6:9 and 8:12 proportional?

A: 6/9 = 2/3 and 8/12 = 2/3 ? Yes, they are proportional

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

A: $45 ÷ 3 = $15/shirt ? 5 shirts = $75

Q: If 5 pens cost $10, how much do 12 pens cost?

A: $10 ÷ 5 = $2/pen ? 12 pens = $24

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

A: Total = 30 ? 18:30 = 3:5

Q: Find 25% of 480.

A: $0.25 \times 480 = 120$

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

A: 80% = $150 ? 100% = $187.50

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

A: $0.05 \times \$2,000 = \$100$

Q: If 60% of a number is 180, what is the original number?

A: 0.6x = 180 ? x = 300

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

A: SI = (1200 × 5 × 3) / 100 = $180

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

A: Amount = 2000 × (1 + 0.10)^3 = $2,662

Q: 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?

A: Interest = (2000 × 6 × 2) / 100 = $240 ? Total = $2,240