**ALPHA UNIVERSITY BORAMA**

**Assignment of math’s methods**

**Name: Sagal Mohamed Abdi**

**Faculty..Social worker …. ID.. 469**

**The assignment**

**Individual assailment the assignment 30marks**

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1. Express the ratio 12:16 in its simplest form.
2. Divide $120 in the ratio 2:3.
3. The ratio of cats to dogs in a pet shop is 4:7. If there are 28 dogs, how many cats are there?
4. If a person earns $240 for working 8 hours, what is the rate of pay per hour?
5. Are the ratios 6:9 and 8:12 proportional?
6. If 3 shirts cost $45, how much would 5 shirts cost at the same rate?
7. If 5 pens cost $10, how much do 12 pens cost?
8. A class has 18 boys and 12 girls. What is the ratio of boys to the total number of students?
9. Find 25% of 480.
10. A jacket is sold for $150 after a 20% discount. What was the original price?
11. A salesperson earns a 5% commission on sales. If they sell goods worth $2,000, how much commission do they earn?
12. If 60% of a number is 180, what is the original number?
13. Find the simple interest on $1,200 at a rate of 5% per annum for 3 years.
14. A sum of $2,000 is invested at 10% per annum for 3 years compounded annually. Find the total amount.
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?

**Answer**

1. 12:16 in simplest form

= 3:4

1. Divide $120 in the ratio 2:3

Total parts = 2 + 3 = 5

$120 ÷ 5 = $24

→ 2 parts = $48, 3 parts = $72

Answer: $48 and $72

1. Cats to dogs = 4:7, dogs = 28

1 part = 28 ÷ 7 = 4

Cats = 4 × 4 = 16 cats

1. $240 for 8 hours

240 ÷ 8 = $30/hour

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

6:9 = 2:3 and 8:12 = 2:3

→ Yes, proportional

1. 3 shirts = $45 → 1 shirt = $15 → 5 shirts = 5 × 15 = $75
2. 5 pens = $10 → 1 pen = $2 → 12 pens = 12 × $2 = $24
3. 18 boys + 12 girls = 30 students

Ratio of boys to total = 18:30 = 3:5

1. 25% of 480 = 0.25 × 480 = 120
2. Sold for $150 after 20% discount → 80% of price = $150

Original price = $150 ÷ 0.8 = $187.50

1. 5% of $2000 = 0.05 × 2000 = $100
2. 60% of number = 180 → 0.6x = 180

x = 180 ÷ 0.6 = 300

1. Simple Interest = (P × R × T)/100

= (1200 × 5 × 3)/100 = $180

1. Compound Interest

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

= 2000(1 + 0.10)^3

= 2000 × 1.331 = $2662

1. Simple Interest for 2 years at 6% per annum

SI = (2000 × 6 × 2)/100 = $240

Total = 2000 + 240 = $2240