**ALPHA UNIVERSITY BORAMA**

**Assignment of math’s methods**

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**The assignment: math’s methods**

**Individual assailment the assignment 30 marks**

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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?

1. Simplified ratio of 12:16

We divide both numbers by their greatest common divisor (GCD), which is 4:

12 ÷ 4 = 3

16 ÷ 4 = 4

So the simplified ratio is: 3:4

2. Divide 120 in the ratio 2:3

Total parts = 2 + 3 = 5

Value of one part =120 ÷ 5 = 24

Shares:

2 parts: 2 ×24 = 48

3 parts: 3 ×24 = 72

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

7 parts = 28 dogs → 1 part = 28 ÷ 7 = 4

Cats = 4 parts × 4 = 16 cats

The cats equals =16

4. 240 for 8 hours; rate per hour?

240 ÷ 8 hours =30/hour

The pay rate per hour =30/hour

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

6 ÷ 9 = 0.666..., 8 ÷ 12 = 0.666...

Yes, they are proportional.

6. If 3 shirts cost 45; cost of 5 shirts is:

Cost per shirt =45 ÷ 3 = 15

5 shirts = 5 ×15 = 75

5 shirts =75

7. If 5 pens cost 10; cost of 12 pens is:

Cost per pen = 10 ÷ 5 =2

12 pens = 12 × 2 =24

12 pens costs = 24

8. Class has 18 boys and 12 girls; ratio of boys to total students is:

Total students = 18 + 12 = 30

Ratio = 18:30 = 3:5

Ratio = 3:5

9. Find 25% of 480

25% = 0.25

0.25 × 480 = 120

10. Jacket sold for 150 after 20

The original price will be x.

x - 0.20x =150 → 0.80x = 150

x =150 ÷ 0.80 = 187.50

The original price was =187.50

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

Commission earned will be:

0.05 × 2,000 =100

Commission earned = 100

12. 60% of a number is 180; original number?

0.60 × x = 180 → x = 180 ÷ 0.60 = 300

The original number is = 300

13. Simple interest on 1,200 at 5

SI = (P × R × T) ÷ 100 = (1,200 × 5 × 3) ÷ 100 = 180

Simple interest =180

14. Compound interest on 2,000 at 10% per annum for 3 years

A = P(1 + r) ^t = 2,000 × (1 + 0.10)^3 =2,000 × 1.331 = 2,662

Compound interest = 2662

15. Loan of 2,000 for 2 years at 6% per annum; total repayment?

SI = (2,000 × 6 × 2) ÷ 100 =240

Total repayment = 2,000 +240 = $2,240

Total repayment = 2,240