

**ALPHA UNIVERSITY BORAMA**   
*Assignment of Math’s Methods*

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**The assignment**: Individual assailment - Total Marks: 30

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

Solution:   
GCD of 12 and 16 is 4.

12 ÷ 4 = 3, 16 ÷ 4 = 4   
 the simplest form is 3:4

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

Solution:   
Total parts = 2 + 3 = 5   
2 parts = (2/5) × 120 = $48   
3 parts = (3/5) × 120 = $72

**3. The ratio of cats to dogs is 4:7. If there are 28 dogs, how many cats are there?**

Solution:   
Let the number of cats be x: (x / 28) = 4 / 7   
Cross-multiplying: 7x = 112 → x = 16   
 16 cats

**4. A person earns $240 for working 8 hours, what is the rate of pay per hour?**

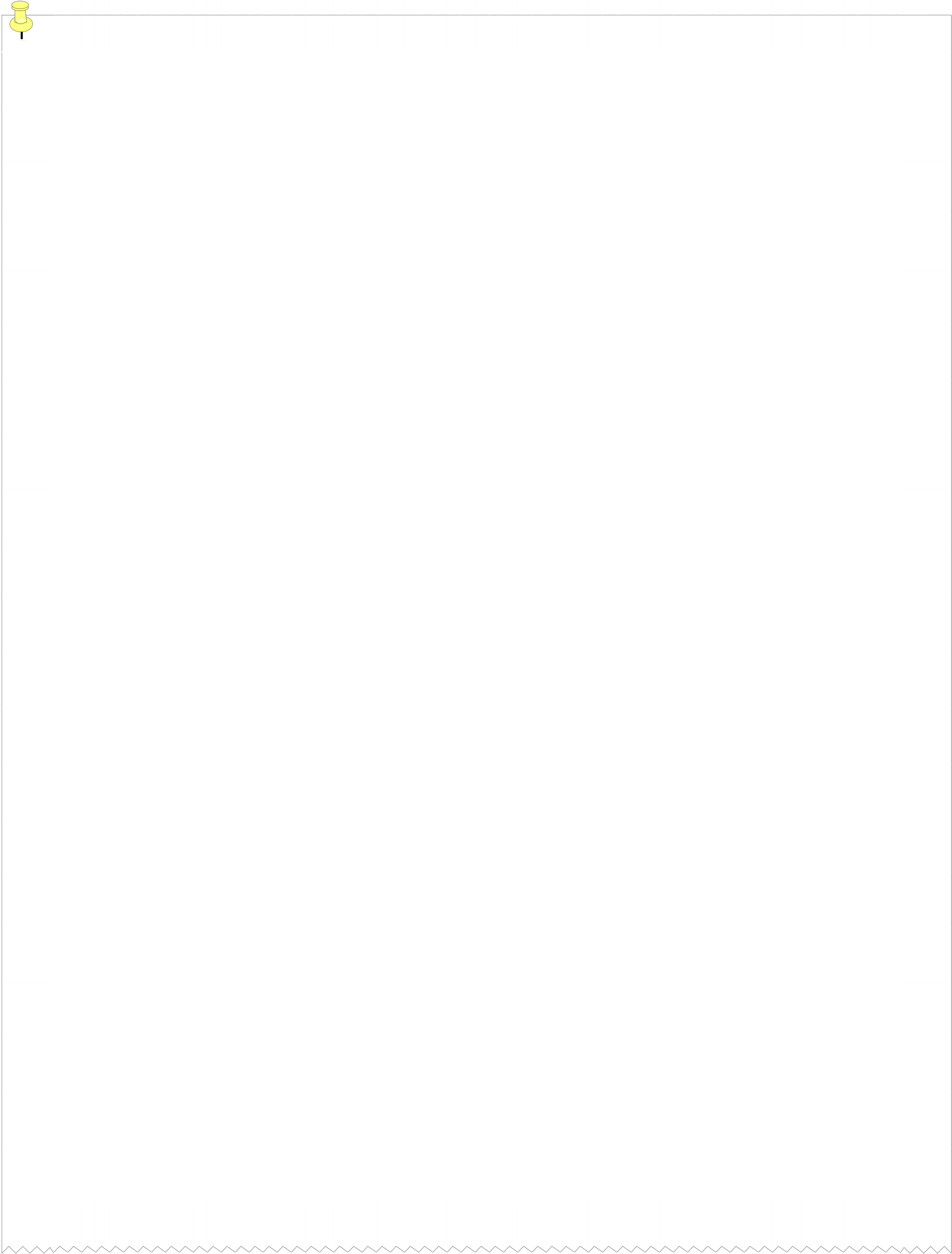
Solution:   
Rate per hour = 240 ÷ 8 = $30 per hour

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

Solution:   
6/9 = 2/3, 8/12 = 2/3 → Since both are equal, the ratios are proportional

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

Solution:   
One shirt = 45 ÷ 3 = $15   
So, 5 shirts = 5 × 15 = $75



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

Solution:   
One pen = 10 ÷ 5 = $2   
12 pens = 12 × 2 = $24

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

Solution:   
Total students = 18 + 12 = 30   
Ratio = 18:30 = 3:5

**9. Find 25% of 480.**

Solution:   
25% = 25 ÷ 100 = 0.25   
0.25 × 480 = 120

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

Solution:   
Let original price be x: x − 0.2x = 150 → 0.8x = 150 x = 150 ÷ 0.8 = $187.50

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

Solution:   
Commission = (5 ÷ 100) × 2000 = $100

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

Solution:   
Let the number be x: 0.6x = 180 → x = 180 ÷ 0.6 = 300

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

Solution:   
SI = (P × R × T)/100 = (1200 × 5 × 3)/100 = 180

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

Solution:   
A = P(1 + r)^t = 2000(1 + 0.10)^3 = 2000 × 1.331 = $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?**

Solution:   
SI = (2000 × 6 × 2)/100 = 240   
Total = 2000 + 240 = $2,240