**ALPHA UNIVERSITY BORAMA**

**DIPLOMA PROGRAM**

**FACULTY OF BUSINESS AND MANAGEMENT SCIENCE DEPARTMENT OF {SOCIAL WORK}**

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**Assignment of math’s methods**

**Answers**

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

Divide both terms by their GCD (4):= 3:4

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

Total parts = 2 + 3 = 5

Each part = $120 ÷ 5 = $24

First share = 2 × 24 = $48

Second share = 3 × 24 = $72

Answer will be: $48 and $72

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

7 parts = 28 dogs → 1 part = 4

Cats = 4 × 4 = 16

Answer: 16 cats

**4.** If a person earns $240 for 8 hours, rate per hour:

$240 ÷ 8 = $30/hour

Answer: $30 per hour

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

6 ÷ 9 = 2/3, 8 ÷ 12 = 2/3 → Same ratio

Answer: Yes, they are proportional

**6.** If 3 shirts cost $45, how much for 5 shirts?

Cost per shirt = $45 ÷ 3 = $15

5 shirts = 5 × $15 = $75

Answer: $75

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

Cost per pen = $10 ÷ 5 = $2

12 pens = 12 × $2 = $24

Answer: $24

**8.** 18 boys and 12 girls, ratio of boys to total:

Total = 18 + 12 = 30

Ratio = 18:30 → Simplify (÷6): 3:5

Answer: 3:5

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

25% = ¼

¼ of 480 = 480 ÷ 4 = 120

Answer: 120

**10.** A jacket is sold for $150 after a 20% discount. Original price?

Let original price = x

After 20% discount: 80% of x = $150 →

0.8x = 150 → x = 150 ÷ 0.8 = $187.50

Answer: $187.50

**11.** 5% commission on $2,000:

5% of $2,000 = (5/100) × 2000 = $100

Answer: $100

**12.** 60% of a number is 180. Find the number:

60% = 0.6 → 0.6x = 180 → x = 180 ÷ 0.6 = 300

Answer: 300

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

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

Answer: $180

**14.** Compound interest on $2,000 at 10% for 3 years:

A = P(1 + r)^t = 2000 × (1.1)^3 = 2000 × 1.331 = $2,662

Answer: $2,662

**15.** Loan of $2,000 for 2 years at 6% simple interest:

SI = (2000 × 6 × 2)/100 = $240

Total = 2000 + 240 = $2,240

Answer: $2,240

**THANKS TO YOU ALL**

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