



ALPHA UNIVERSITY BORAMA

Assignment of math's methods

Name: Abdirisak Ahmed Ali **Faculty:** Social Work **ID:** 1013

The assignment

Individual assignment the assignment 30 marks

Submission date 05-05-2025

Express the ratio 12:16 in its simplest form.

Divide \$120 in the ratio 2:3.

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

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

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

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

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

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

Find 25% of 480.

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

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

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

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

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

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 SHEET

Question 1:

Express the ratio 12:16 in its simplest form.

Answer:

First, I look at the ratio given, which is 12 to 16.

To simplify it, I need to divide both numbers by their highest common factor.

The highest common factor of 12 and 16 is 4.

Now I divide both numbers by 4:

$$12 \div 4 = 3 \text{ and } 16 \div 4 = 4$$

So, the simplest form of the ratio 12:16 is:

=3:4

Question 2:

Divide \$120 in the ratio 2:3.

Answer:

First, I add the parts of the ratio together: $2 + 3 = 5$ parts.

Now I divide the total amount, which is \$120, by 5 to find the value of one part:

$$\$120 \div 5 = \$24 \text{ per part.}$$

Now I multiply to find each share:

$$\text{Person 1 gets 2 parts: } 2 \times \$24 = \$48$$

$$\text{Person 2 gets 3 parts: } 3 \times \$24 = \$72$$

So, \$120 divided in the ratio 2:3 is:

=\$48 and \$72

Question 3:

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

Answer:

We are given the ratio of cats to dogs is 4:7, and the number of dogs is 28.

Since the dogs represent the '7' in the ratio, we divide 28 by 7 to find the value of one part:

$$28 \div 7 = 4$$

Now we multiply the number of cat parts by 4:

$$4 \times 4 = 16$$

So, there are:

16 cats in the pet shop.

Question 4

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

$$\text{Rate} = \text{Total earnings} \div \text{Hours worked} = \$240 \div 8 = \$30$$

So, the rate of pay is:

\$30 per hour

Question 5:

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

Answer:

Simplify both ratios:

$$6:9 = 2:3$$

$$8:12 = 2:3$$

Since both ratios are equal:

Yes, the ratios are proportional

Question 6:

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

Answer:

$$\text{Cost per shirt} = \$45 \div 3 = \$15$$

$$\text{Cost for 5 shirts} = 5 \times \$15 = \$75$$

So, 5 shirts would cost:

\$75

Question 7:

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

Answer:

$$\text{Cost per pen} = \$10 \div 5 = \$2$$

$$\text{Cost for 12 pens} = 12 \times \$2 = \$24$$

So, 12 pens would cost:

\$24

Question 8

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

Total number of students = $18 + 12 = 30$

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

So, the ratio is:

3:5

Question 9:

Find 25% of 480.

Answer:

25% of 480 = $(25 \div 100) \times 480 = 0.25 \times 480 = 120$

So, the answer is:

=120

Question 10:

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

Answer:

Question 11:

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

Answer:

Question 12:

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

Answer:

Let the number be x .

$$60\% \text{ of } x = 180$$

$$0.6x = 180$$

$$x = 180 \div 0.6 = 300$$

So, the original number is:

= 300

Question 13

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

Answer:

$$\text{Simple Interest} = P \times R \times T \div 100$$

$$= 1200 \times 5 \times 3 \div 100 = \$180$$

So, the simple interest is:

= \$180

Question 14:

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

Answer:

Question 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:

