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

Both 12 and 16 are divisible by 4.

12 ÷ 4 = 3

16 ÷ 4 = 4

Therefore, the simplest form of the ratio 12:16 is 3:4

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

Total parts of the ratio = 2 + 3 = 5

Value of one part = $120 / 5 = $24

First part (2 parts) = 2 \* $24 = $48

Second part (3 parts) = 3 \* $24 = $72

The division is $48 and $72

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

The ratio of dogs is 7 parts, and this corresponds to 28 dogs.

Value of one part = 28 dogs / 7 = 4

Number of cats (4 parts) = 4 \* 4 = 16

There are 16 cats

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

Rate of pay per hour = $240 / 8 hours = $30 per hour

The rate of pay is $30 per hour

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

Simplify 6:9 by dividing both sides by 3: 6/3 : 9/3 = 2:3

Simplify 8:12 by dividing both sides by 4: 8/4 : 12/4 = 2:3

Since both ratios simplify to 2:3, they are proportional

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

Cost of one shirt = $45 / 3 = $15

Cost of 5 shirts = 5 \* $15 = $75

5 shirts would cost $75

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

Cost of one pen = $10 / 5 = $2

Cost of 12 pens = 12 \* $2 = $24

12 pens cost $24

1. **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 boys + 12 girls = 30 students

Ratio of boys to total students = 18:30

Simplify by dividing both sides by 6: 18/6: 30/6 = 3:5

The ratio of boys to the total number of students is 3:5

1. **Find 25% of 480.**

25% is equivalent to ¼

(1/4) \* 480 = 120

25% of 480 is 120

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

Let the original price be x.

The selling price is 100% - 20% = 80% of the original price.

0.80 \* x = $150

x = $150 / 0.80 = $187.50

The original price was $187.50

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

Commission = 5% of $2,000

Commission = (5/100) \* $2,000 = $100

The commission earned is $100

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

Let the original number be y.

0.60 \* y = 180

y = 180 / 0.60 = 300

The original number is 300

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

Simple Interest (SI) = Principal \* Rate \* Time

SI = $1,200 \* 0.05 \* 3 = $180

The simple interest is $180

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

Amount = Principal \* (1 + Rate) ^Time

Amount = $2,000 \* (1 + 0.10) ^3

Amount = $2,000 \* (1.10) ^3

Amount = $2,000 \* 1.331 = $2,662

The total amount is $2,662

1. **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?**

Since the type of interest isn’t specified, we’ll assume simple interest.

Simple Interest = $2,000 \* 0.06 \* 2 = $240

Total amount to be repaid = Principal + Simple Interest

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

The total amount to be repaid is $2,240