

Solve for the given unknown.

$$a + 19 = 45$$

$$-7n = 35$$

Solve for the given unknown.

$$2a - 7 = -23$$

$$\frac{n}{2} + 16 = 18$$

Find the missing value in the following proportions.

$$2 : 5 = x : 40$$

$$3 : 7 = x : 63$$

Find the missing value in the following proportions.

$$2.1 : 7.4 = x : 22.2$$

$$a : 8.68 = 31.5 : 21.7$$

Percent

Learning Goal:

By the end of today, I will be able to solve **percentage** type problems using

- (i) a multiplication strategy and a
- (ii) ratio strategy.

Percent

Percent is a combination of two root words, "per" and "cent". "Cent" is french for one hundred, so percent means "per one hundred".

The symbol for percent is the % sign, which looks like a rearranged 100.

Fifty percent can be written as 50% or as $\frac{50}{100}$

To solve percent problems, one method is to use a proportion (ratio) approach.

part : whole amount = percent : 100

$$\frac{\text{part}}{\text{whole amount}} = \frac{\text{percent}}{100}$$

Method 1

60% of 200 can be setup as follows.

$$n : 200 = 60 : 100$$

unknown values percent information

$$\frac{n}{200} = \frac{60}{100}$$

Method 2

To solve percent problems, a second method is to translate the sentence into an equation:

"60% of 200 is" can be setup as follows.

$$\frac{60}{100} \times 200 =$$

or

$$0.60 \times 200 =$$

where the 60% can be expressed as a fraction or decimal value, "of" is the operation of multiplying, and "is" represents the "equal" sign

Solve the following

75% of 160 is?

Ratio Approach

$$\frac{n}{160} = \frac{75}{100}$$

Word Equation

$$\frac{75}{100} \times 160 =$$

or

$$0.75 \times 160 =$$

Solve the following

5% of 462 is?

Ratio Approach

$$\frac{n}{462} = \frac{5}{100}$$

Word Equation

$$\frac{5}{100} \times 462 =$$

or

$$0.05 \times 462 =$$

What percent is 7 out of 10?

$$\frac{?}{100} = \frac{7}{10}$$

Match the words to the equation.

What percent is 45 out of 90?

$$\frac{?}{100} = \frac{45}{90}$$

Match the words to the equation.

What percent is 91 out of 70?

$$\frac{?}{100} = \frac{91}{70}$$

Match the words to the equation.

Percent to Decimal Review

Percent (out of 100 & lowest terms)	Fraction	Decimal
120% →		→
100% →		→
84% →	$\frac{84}{100} = \frac{42}{50} = \frac{21}{25}$	→ 0.84
50% →		→
30% →		→
12% →		→
3% →		→
1.5% →		→
0.6% →	$\frac{0.6}{100} = \frac{6}{1000} = \frac{3}{500}$	→ 0.006

Problem

Jim scored 36 out of 60 on his english test.

What mark (percent) did Jim earn?

What mark did Jim need to score to earn an 80% on his test?

The teacher made a mistake, oops, and the test was actually out of 52.
If his original score stayed the same but the "out of" (denominator) changed.
How much did Jim's percent mark increase?

Harmonized Sales Tax (HST) is 13% in Ontario. This is an extra charge you pay on items when you buy them (add it to the cost).

What would be the HST on the following items:

(a) a \$100.00 pair of jeans

(b) a \$20.00 CD

When an item is on sale, the price is said to be "40% OFF" of the regular price.

To calculate the new price, you must first determine the discount, then subtract it from the original price.

What would be the **discount** AND **new price** on the following:

a \$60.00 pair of jeans that is 30% OFF

A \$200.00 hard drive is on sale for "25% off".
What is the sale price?

A \$1500.00 computer is on sale for "40% off".
What is the sale price?

The TOTAL COST of an item is the final amount a person has to pay after the sales discount has been applied (subtracted) and the HST (sales tax) has been added.

Sales Price = Original Price - Discount

Total Cost = Sales Price + HST

What would be the total cost of the following:

An \$80.00 pair of jeans that is 40% OFF

Task - Percentage

Attachments

Math - quiz - ratio_eqn.doc