Substitution Word Problems

Example Problems

EXAMPLE 1: If the formula for calculating the number of paper plates (p) needed for a party, based on the number of guests (n), is $p = 3n$. How many paper plates will be needed for a party of 5 people?
EXAMPLE 1: The number of paper plates (p) needed to cater a party is determined by the number of guests who will attend (n). This is calculated using the formula $p = 3n$. How many paper plates will be needed for a party of 5 people?
SOLUTION: First, when confronting a word problem it is usefel to create a list of which pronumeral represents what part of the question. For example in the above question we have,

- n is the number of guests,
- p is the number of paper plates required.

Then we can extract from the question the important information. The most important part of any word problem is identifying what the question wants you to find. In this question

> How many paper plates will be needed

tells us we are looking for the number of paper plates, represented by p (recall the list we made at the start). In order to find the value of p using the formula,

$$p = 3n,$$

we will need to know the value of the other pronumerals in the formula, in this case we need to know the value of n. Thankfully, the phrase

> a party of 5 people

which tells us that the variable representing the number of guests (n) is 5. We could represent this as a simple equation

$$n = 5.$$

Once we have this information we can substitute it into the formula and find the appropriate value of p,

$$\begin{aligned} p &= 3n, \\ p &= 3 \times 5, \\ p &= 15. \end{aligned}$$

Finally we might write a short sentence to answer the question,

> 15 paper plates will be required.

EXAMPLE 2:
SOLUTION:

EXAMPLE 3:
SOLUTION:

Question Bank

NOTE: Any questions where you get a decimal as an answer can be rounded to 2 decimal places.

1. .

Answers

1. .