

Section 1.1 Variables in Algebra

Variable? A variable is a letter that is used to represent one or more numbers.

Why is it called a variable? We call them variables because they represent numbers that are allowed to change depending on the situation.

What letters can we use for a variable? We can use any letter. The most common ones are x, y, and z but it is often handy to use other letters to represent specific things.

Variable Expressions are collections of variables, numbers and mathematical operations. Examples of variable expressions are provided below. Note we do not use an X for multiply because it can be confused with the variable x.

$7x$ means 7 times x (multiply)

$3z$ means 3 times z (multiply)

$3/x$ or $\frac{3}{x}$ means 3 divided by x (divide)

$3 + w$ means 3 plus w (add)

$p - 3$ means p minus 3 (subtract)

Example: Find the value of the variable expression when $x = 2$ (plug it in)

$$3x = 3(2) = 6$$

$$18/x = 18/(2) = 9$$

Average Speed is calculated by the following formula:

$$\text{Average Speed} = \frac{d}{t} \text{ where } d = \text{the distance traveled and } t = \text{time.}$$

Example: Find your average speed if you drove 240 miles in 4 hours.

$$\text{Average speed} = \frac{d}{t} = \frac{240 \text{ miles}}{4 \text{ hours}} = 60 \text{ miles per hour.}$$

Notice how I showed the units and that the resulting units are appropriate for speed.