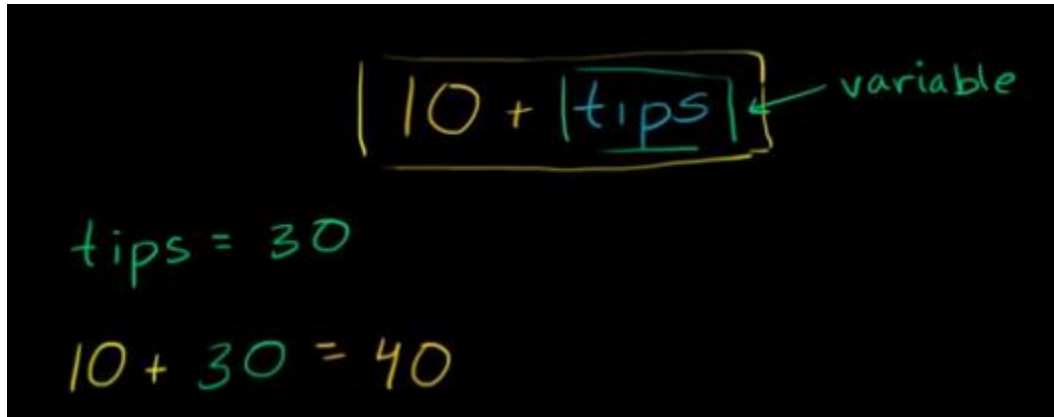


VARIABLES:

I work at a restaurant making \$10 an hour.

I also make tips... the amount for tips can vary; hence "tips" is the **variable**.



Handwritten math on a blackboard:

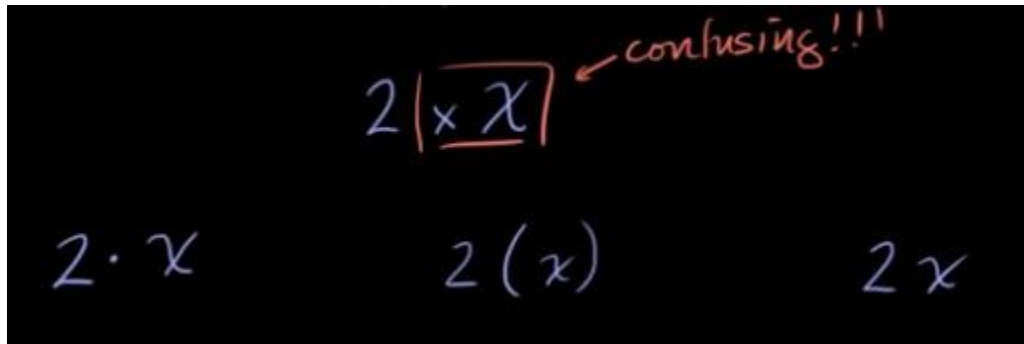
$$10 + \boxed{\text{tips}} \leftarrow \text{variable}$$

tips = 30

$$10 + 30 = 40$$

Why don't we use Multiplication signs? It is redundant and potentially confusing.

For example, 2 times X:



Substituting and Evaluating an Expression with one Variable:

A local hospital is holding a raffle as a fundraiser. The individual cost of participating in the raffle is given by the following expression:

$$5t + 3$$

Where t represents the number of tickets someone purchases. Evaluate the expression when $t=1$, $t=8$, and $t=10$.

$$\begin{array}{l} t=1 \quad 5 \cdot (1) + 3 \\ \quad \quad 5 + 3 = 8 \end{array}$$

$$\begin{array}{l} t=8 \quad 5 \cdot 8 + 3 \\ \quad \quad 40 + 3 = 43 \end{array}$$

$$\begin{array}{l} 5 \cdot 10 + 3 \\ 50 + 3 = 53 \end{array}$$

Substituting and Evaluating an Expression with two Variables:

$$a + b$$
$$a = 7 \quad 7 + 2 = 9$$
$$b = 2$$

$$xy - y + 3x$$

$$x = 3$$
$$y = 2$$

$$\overset{6}{\cancel{3}}2 - 2 + \overset{9}{\cancel{3}}3 = 13$$

Combining Like Terms:

$$7y + 2x + 3x + 2y$$

$$(7y) + (2x + 3x) + (2y)$$

$$= 5x + 9y$$

Simplifying Expressions with Decimal Coefficients:

$$-5.55 - 8.55c + 4.35c$$

$$-5.55 + (-8.55 + 4.35)c$$

$$-5.55 + \cancel{(-8.55 + 4.35)}c$$

-4.2

$$-5.55 - 4.2c$$

Simplifying Expressions with Rational Coefficients:

$$\frac{2}{5}m - \frac{4}{5} - \frac{3}{5}m$$

$$\frac{2}{5}m - \frac{3}{5}m - \frac{4}{5}$$

$$\left(\frac{2}{5} - \frac{3}{5}\right)m - \frac{4}{5}$$

$$-\frac{1}{5}m - \frac{4}{5}$$

Equivalent Expressions:

Which expressions are equivalent to $x + 2y + x + 2$?

Select all that apply.

☐ $2(x + y + 1)$

☐ $2x + 4y + 4$

☐ None of the above

... let's combine the like terms of the example expression:

$$\boxed{x} + 2y + \boxed{x} + 2$$
$$\underline{\underline{x + x}} + 2y + 2$$
$$2x + 2y + 2$$

... so the right answer is:

Select all that apply.

☒ $2(x + y + 1)$

☐ $2x + 4y + 4$

☐ None of the above