

September 21, 2015:

Bell Ringer:

find the value of x that makes the equation true

$$3x(x^2 + 4x + 5) - 8 = 6x^2\left(\frac{1}{2}x + 2\right) - (-3 + 7x)$$

$$3x^3 + 12x^2 + 15x - 8 = \frac{6}{2}x^3 + 12x^2 + 3 - 7x$$

$$\begin{array}{r} 3x^3 + 12x^2 + 15x - 8 = 3x^3 + 12x^2 + 3 - 7x \\ -3x^3 \quad -12x^2 \quad \quad \quad -3x^3 \quad -12x^2 \end{array}$$

$$\begin{array}{r} 15x - 8 = 3 - 7x \\ +7x \quad \quad \quad +7x \end{array}$$

$$\begin{array}{r} 22x - 8 = 3 + 8 \\ +8 \end{array}$$

$$\frac{22x}{22} = \frac{11}{22} \Rightarrow x = \frac{1}{2}$$

Consider the expressions $2x+1$ and $6x+3$

Find the value of both expressions when $x = 2$

$$\begin{array}{r} 2(2)+1 \\ 4+1 \\ 5 \end{array}$$

$$\begin{array}{r} 6(2)+3 \\ 12+3 \\ 15 \end{array}$$

What is the ratio of the larger outcome to the smaller?

Why did the ratio turn out this way?

$$3(2x+1) = 6x+3$$

$$15:5, 3:1$$

The expression $3x+2$ is equal to 7 for some value of x (don't solve for it!).

Determine the values of each of the following expressions for the same value of x .

(a) $6x+4$

$$2(3x+2)$$

$$\checkmark 6x+4 \checkmark$$

$$x=14$$

(b) $3x+5$

$$(3x+2)3 - (6x+1)$$

$$x=10$$

The expression $2x+5$ has a value of 10 for some value of x (don't solve for it).

find the values of these expressions for this same value of x .

$$2x+20$$

$$(2x+5)4-6x$$

$$x=25$$

$$10x+25$$

$$(2x+5)5$$

$$x=50$$

$$4x+10$$

$$(2x+5)2$$

$$x=20$$

Challenge: Find the value of $6x + 20$
(when $2x + 5 = 10$)

$$(2x + 5)4 - 2x$$

If the expression $3x - 4$ has a value of -3 for some value of x , then what is the value of the expression $(3x - 4)^2 + 6x - 8$ for the same value of x ?