



Example: Simplify

$$(3^{2(1+5)} - 5^{2-(1+1)}) 3 - 1$$

$$\rightarrow (3^{2(6)} - 5^{2-(2)}) 3 - 1$$

$$\rightarrow (3^{12} - 5^{2-(2)}) 3 - 1$$

$$\rightarrow (3^{12} - 5^0) 3 - 1$$

$$\rightarrow (531441 - 1) 3 - 1$$

$$\rightarrow (531440) \cdot 3 - 1$$

$$\rightarrow 1594320 - 1$$

$$\rightarrow 1594319$$

$$5 - 3(x - 1) \quad \text{when } x = -2$$

$$\rightarrow 5 - 3(\underline{-2 - 1}) = 5 - 3(-3)$$
$$= 5 + -3(-3)$$

put a
⊕ sign in front of a
negative #

Simplify

$$\frac{(1+2)^3 - 4 \cdot 6 \times 5}{5}$$

$$\rightarrow \frac{(3)^3 - 4 \cdot 6 \times 5}{5}$$

$$\begin{aligned} \rightarrow & \frac{[27 - 4 \cdot 6 \cdot 5]}{[5]} = \frac{[27 + -4 \cdot 6 \cdot 5]}{[5]} \\ & = \frac{[27 + -24 \cdot 5]}{[5]} \\ & = \frac{27 + -120}{5} \\ & = \frac{-93}{5} \end{aligned}$$

Solve for $x \leftarrow$ use reverse PEMDAS

Solve for x :

$$2x + ? = 2022?$$

$$\frac{-3}{\cancel{2x}} = \frac{-3}{\frac{2020}{2}}$$

$$x = 1010$$

$$2(3x + 5) = (x - 1)5$$

$$\hookrightarrow \begin{array}{r} 6x + 10 \\ + 5 \end{array} = \begin{array}{r} 5x - 5 \\ + 5 \end{array}$$

$$\begin{array}{r} 6x + 15 \\ - 5x \end{array} = \begin{array}{r} 5x \\ - 5x \end{array}$$

$$1x + 15 = 0$$

$$x = -15$$

$$(d) \quad \frac{2}{3} - \frac{3}{4}x = \frac{1}{2}(2x-1)$$

$$\Rightarrow \frac{2}{3} - \frac{3}{4}x = |x - \frac{1}{2}$$

$$\begin{array}{r} +\frac{1}{2} + \frac{3}{4}x \\ \hline \end{array} \quad \begin{array}{r} \frac{3}{4}x + \frac{1}{2} \\ \hline \end{array}$$

$$\left(\frac{2}{3}\right) + \frac{1}{2} + 0 = \frac{3}{4}x + 0$$

$$\downarrow \quad \frac{4}{6} + \frac{3}{6} = \frac{7}{6}x \rightarrow \left(\frac{4}{6} + \frac{3}{6} \right) \frac{4}{7}$$

(e)

$$\frac{3x-4}{2} = 8$$

$$\frac{(3x-4)}{2} = 2 \cdot 8$$

\updownarrow

$$2 \cdot \frac{1}{2}(3x-4) = 2 \cdot 8$$

$$3x-4 = 16$$

$$x = \frac{4}{7}$$

$$\frac{4}{6} \cdot \frac{4}{7} = \frac{28}{42}$$

$$3x = 20$$

$$x = 20/3$$

