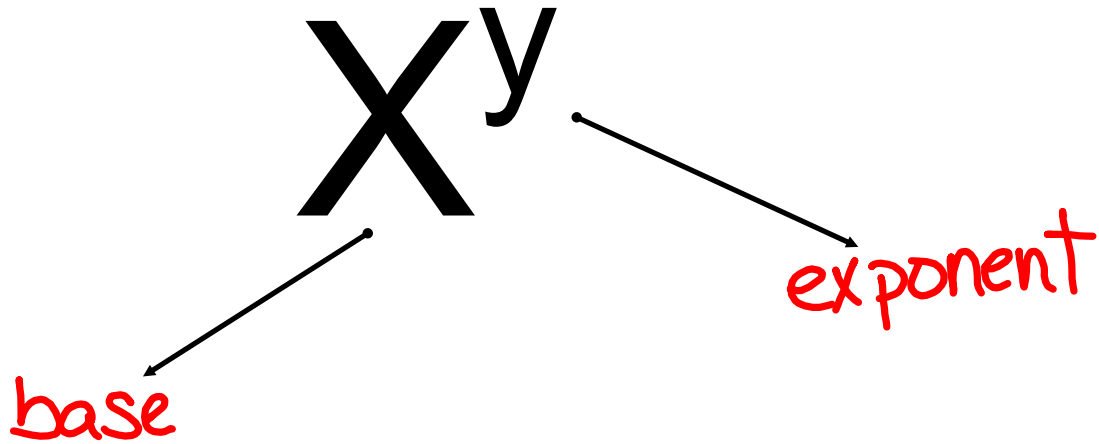


Solve for x:

$$\begin{array}{r} 7 - x = -22 \\ -7 \downarrow \quad -7 \\ \hline -x = -29 \\ \hline -1 \quad -1 \\ \hline x = 29 \end{array}$$

$$\begin{array}{r} -11 = \underline{4x} + \underline{5} - \underline{2x} - \underline{10} \\ -11 = 2x - 5 \\ +5 \quad \quad +5 \\ \hline -6 = 2x \\ \hline \frac{-6}{2} = \frac{2x}{2} \\ -3 = x \end{array}$$

# Exponent Rules



-\*exponent must have the same base to use the rule



Quotient Rule:

$$\frac{x^a}{x^b} = x^{a-b}$$

$$\frac{3^6}{3^3} = 3^{6-3}$$

$$\frac{5^5}{5} = 5^{5-1}$$

$$\frac{\cancel{3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3}}{\cancel{3 \cdot 3 \cdot 3}}$$

$$\frac{4^6}{3^3} = 151.7037$$

Power of a power rule:

$$(X^a)^b = X^{ab}$$

$$(5^2)^5 = 5^{2 \cdot 5}$$
$$5^2 \cdot 5^2 \cdot 5^2 \cdot 5^2 \cdot 5^2$$
$$5 \cdot 5 \cdot 5 \cdot 5 \cdot 5 \cdot 5 \cdot 5 \cdot 5 \cdot 5 \cdot 5$$

$$(8^3)^4$$
$$8^{3 \cdot 4}$$
$$8^{12}$$
$$8$$

Zero Exponent Rule:

Thousands  
hundreds  
tens  
ones

$$x^0 = 1$$

$10^3$	$10^2$	$10^1$	$10^0$	$10^{-1}$	$10^{-2}$
1000	100	10	1		

$$3^0 = 1$$

$$500^0 = 1$$

Practice:

$$4^8 \cdot 4^9 = 4^{17}$$

$$3^7 \cdot 3^5 = 3^{12}$$

$$\frac{6^7}{6^3} = 6^4$$

$$\frac{9^{10}}{9^3} = 9^7$$

$$(5^4)^3 = 5^{12}$$

$$(7^3)^3 = 7^9$$



$$213^0 = 1$$

$$\frac{10^4 \cdot 4^{10}}{4^5} = 10^4 \cdot 4^{10-5} = 10^4 \cdot 4^5$$

$$(5^3)^9 \div 5^{12} = \frac{5^{27}}{5^{12}} = 5^{27-12} = 5^{15}$$

Let's do our own music video of the exponent rules. You are to choose a group of no more than 4 by tomorrow.