

$$6-4[-s(3-7)-4(s-2)]$$

$$6-4[-s(-4) - 4(3)]$$

$$6-4[20 - 12]$$

$$6-4[8] \quad 6-32 = -26$$

9.2 exponents

$$2^{15} \rightarrow 2^{15} = 32768$$

X^{15} vs $15X$

Rules

$$\textcircled{1} X^a \cdot X^b = X^{a+b}$$

$$X^2 \cdot X^3$$

$$XXXXX$$

$$X^5$$

$$3^4 \cdot 3^5$$

$$333333333$$

$$3^9$$

②

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

$$\frac{X^6}{X^2} = \frac{\cancel{X^4} X^2}{\cancel{X^2}} = X^4$$

$$\frac{10}{10} = 1$$

$$\frac{2}{2} = 1$$

$$0/0$$

$$\frac{0}{0} = \underline{\underline{\text{undef}}}$$

$$\frac{10}{10} = 1$$

$$\frac{0}{10} = 0$$

$$\frac{3}{0} = \underline{\underline{\text{und.}}}$$

$$\frac{10}{2} = 5$$

$$\frac{X^{12}}{X^{12}} = 1$$

$$X^0 = 1$$

$$X^{12-12} = X^0$$

$$\frac{0^0}{0^0} = 0^0 = \underline{\underline{und}}$$

$$\frac{7}{7^5} = 7^0 = 1$$

$$\frac{X^7}{X^{12}} = X^{7-12} = X^{-5}$$

The diagram illustrates the simplification of the fraction $\frac{X^7}{X^{12}}$. The numerator is represented by a horizontal line with 7 'X' characters above it. The denominator is represented by a horizontal line with 12 'X' characters below it. A pink oval highlights the first 7 'X' characters in the denominator, which are crossed out with pink diagonal lines. A pink arrow points from the top-left 'X' of the numerator to the first 'X' in the denominator. Another pink arrow points from the top-right 'X' of the numerator to the 7th 'X' in the denominator. The remaining 5 'X' characters in the denominator are not crossed out. To the right of the diagram, the simplified expression $\frac{1}{X^5}$ is written, with a pink arrow pointing from the top-right 'X' of the original fraction to the '5' in the denominator of the simplified fraction.

$$\frac{3 \cdot X^{-5}}{1 \cdot 1} = \frac{3}{X^5}$$

$$\frac{1}{X^{-2}} \rightarrow \frac{1X^2}{1}$$

④

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

$$(X^4)^3 =$$

⑤

$$(X \cdot Y)^a = X^a \cdot Y^a$$

$$X^4 \cdot X^4 \cdot X^4 = X^{12}$$

$$(2 \cdot X^2)^3 \rightarrow 2^3 \cdot (X^2)^3$$

$$\rightarrow 8X^6$$

$$(x+y)$$

$$(x+y)(x+y)$$

$$x^2 + 2xy + y^2$$

$$\frac{x+5}{25}$$

$$(x \cdot y)^2$$

$$x^2 \cdot y^2$$

$$\sqrt{\frac{3 \cdot 2}{2}} = 3$$

$$\frac{3+2}{2} = \frac{5}{2}$$

$$\textcircled{3^{-2}} = \frac{1}{3^2} = \frac{1}{9}$$

$$\cancel{1/6} = \frac{1}{16}$$

Simplify

$$\left(\frac{4x^{-2}y^3}{1 \cdot 1} \right)^{-2}$$

$$\left(\frac{4y^3}{x^2} \right)^{-2}$$

$$\left(\frac{x^2}{4y^3} \right)^{+2}$$

$$\textcircled{\frac{1x^4}{16y^6}}$$

Simplify

$$\left(\frac{6x^{-1}y^3}{2x^{-4}y^{-2}} \right)^{-2}$$

$$\left(\frac{3x^4y^3}{x} \right)^{-2}$$

$$\left(\frac{3x^3y^5}{10} \right)^{-2}$$

$$\left(\frac{1}{3x^3y^5} \right)^2$$

$$\frac{1}{9x^6y^{10}}$$

$$\left(\begin{array}{c} X^1 \quad X^5 \\ \hline 3 \quad X^{-5} \quad y^{-7} \end{array} \right)^{-2}$$

→

$$\left(\begin{array}{c} 1X^6 \quad y^7 \\ \hline 3 \quad y \end{array} \right)^{-2}$$

$$(-5)^2$$

$$-5^2 = -25$$

$$\left(\begin{array}{c} 3 \\ \hline X \quad y^7 \end{array} \right)^2$$

$$\left(\begin{array}{c} 9 \\ \hline X^{12} \quad y^{14} \end{array} \right)$$