

11-3

Simplifying Rational Expressions

Simplify

$$\frac{32n^2p}{2n^4p}$$

$$= \frac{16n^{-2}}{1} = \frac{16}{n^2}$$

$$\frac{(4t^3)(2t)}{20t^2}$$

$$= \frac{8t^4}{20t^2} = \frac{2t^2}{5}$$

Which expression is equivalent to

$$\frac{(-3x^2)(4x^5)}{9x^6} = \frac{-12x^7}{9x^6} = \frac{-4x^1}{3}$$

a.) $\frac{4}{3}x$

b.) $\frac{4}{3x}$

c.) $-\frac{4}{3x}$

d.) $-\frac{4}{3}x$

$$\frac{16c^2b^4}{8c^3b^1}$$

$$= 2c^{-1}b^3 = \frac{2b^3}{c}$$

I'm
Awful sorry

a.) $\frac{2b^3}{c}$

b.) $\frac{b^3}{2c}$

c.) $\frac{1}{2b^3c}$

d.) $2b^3c$

Simplify

$$\frac{2r+18}{r^2+8r-9} = \frac{2(r+9)}{(r-1)(r+9)} = \frac{2}{r-1}$$

Diagram illustrating the simplification of the rational expression $\frac{2r+18}{r^2+8r-9}$. The denominator r^2+8r-9 is factored into $(r-1)(r+9)$ using a box method. The box contains the numbers -1 and 9 , with -9 below -1 and 1 below 9 . The sum of -1 and 9 is 8 . The original expression is shown as $\frac{2r+18}{r^2+8r-9}$, with $2r+18$ factored to $2(r+9)$. The $(r+9)$ terms in the numerator and denominator are crossed out, leaving the simplified expression $\frac{2}{r-1}$.

What are the excluded values?

$$\begin{aligned} r-1 &= 0 & r+9 &= 0 \\ r &\neq 1 & r &\neq -9 \end{aligned}$$

Simplify

$$\frac{t^2 - 36}{5t - 30} = \frac{(t+6)(t-6)}{5(t-6)}$$

$$\frac{t+6}{5}$$

$$\begin{array}{cc} t^2 - 36 \\ \wedge \quad \wedge \\ t \cdot t \quad 6 \cdot 6 \\ (t+6)(t-6) \end{array}$$

What are the excluded values?

$$t \neq 6$$

Classwork
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