warm up

Simplify the rational expression AND find the excluded values.

① $\frac{4x+4}{x^2+4x+3}$ GCF

$\frac{4(x+1)}{(x+1)(x+3)}$ FACTOR FIRST

Before cross out find e.v. $-1, -3$

$x+1=0 \quad x+3=0$

$\frac{4}{x+3}$

② $\frac{x^2-x-6}{x^2-10x+21} = \frac{(x-3)(x+2)}{(x-7)(x-3)}$

e.v. $7, 3$

$\frac{x+2}{x-7}$

Notes #2 Multiplying Rational Expressions

Monomials not factoring.

Exponent Rules

P
E
M D
A S

① $\frac{5x \cdot 2}{8x^2 \cdot 3x^1}$ multiply across $\frac{10x}{24x^3}$

Simplify: reduce the fraction $\frac{\#}{\#}$

Where are there more Xs? how many more? 3-1

$\frac{5}{12x^2}$

② $\frac{4x \cdot 2x^3}{5x^2 \cdot 8x} = \frac{8x^4}{40x^3} = \frac{1x}{5}$

$\frac{xxxx}{xxx}$

try this:

$\frac{7x \cdot 2x^2}{2x^2 \cdot 5x} = \frac{14x^3}{10x^3} = \frac{7}{5}$

Polynomials

FACTOR FIRST

Find Matches
top
bottom

① $\frac{x^2+12x+27}{3} \cdot \frac{2x+8}{x^2+7x+12}$

$\frac{(x+9)(x+3)}{3} \quad \frac{2(x+4)}{(x+3)(x+4)} = \frac{2(x+9)}{3}$

② $\frac{x-1}{x^2-5x+4} \cdot \frac{x^2+3x-28}{x+4}$

$\frac{x-1}{(x-1)(x-4)} \quad \frac{(x-4)(x+7)}{x+4} = \frac{x+7}{x+4}$

Try these:

① $\frac{5x-15}{x^2-4} \cdot \frac{x^2+5x+6}{3x+9} = \frac{5(x-3)(x+2)(x+3)}{(x+2)(x-2)\,3(x+3)} = \frac{5(x-3)}{3(x-2)}$

② $\frac{x^2+11x+10}{x^2-1} \cdot \frac{9}{9x+90} = \frac{1}{x-1}$

③ $\frac{2}{3x} \cdot \frac{5x^2}{2x^2} = \frac{10x^2}{6x^3} = \frac{5}{3x}$