

OBJECTIVE 2: Multiplying Rational Expressions

- KCF: Keep the first fraction, Change the \cdot to \div , and then Flip the second fraction.
- GCF second!
- Factor numerator & denominator
- You always multiply straight across.
- Then simplify common factors.

TASK 1: Divide. Leave your answer in simplest form.

$$a) \frac{3x^3y^7}{40} \div \frac{4x^3}{y^2}$$

$$\frac{3x^3y^7}{40} \cdot \frac{y^2}{4x^3} = \frac{3x^3y^9}{160x^3}$$

$$\boxed{\frac{3y^9}{160}}$$

$$b) \frac{5a^3b^2}{24} \div \frac{10a^5}{6}$$

$$\frac{5a^3b^2}{24} \cdot \frac{6}{10a^5a^2}$$

$$\boxed{\frac{b^2}{8a^2}}$$

Common Mistakes:

TASK 2: Divide. Leave your answer in simplest form.

a) $\frac{(x+2)^2}{10} \div \frac{2x+4}{5}$

$\frac{\cancel{2}(\cancel{x+2})\cancel{2}}{\cancel{2} \cancel{10}} \cdot \frac{\cancel{5}}{\cancel{2}(\cancel{x+2})}$

$\frac{(x+2)}{4}$

b) $\frac{(x-5)^2}{3} \div \frac{4x-20}{9}$

$\frac{\cancel{3}(x-5)\cancel{3}}{\cancel{3} \cancel{10}} \cdot \frac{\cancel{9} \cancel{3}}{\cancel{4}(x-5)}$

$\frac{3(x-5)}{4}$

TASK 3: Divide. Leave your answer in simplest form.

a) $\frac{6x+2}{x^2-1} \div \frac{3x^2+x}{x-1}$

$\frac{\cancel{2}(3x+1)}{(x+1)\cancel{(x-1)}} \cdot \frac{\cancel{(x-1)}}{x(3x+1)}$

$\frac{2}{x(x+1)}$

b) $\frac{10x-2}{x^2-9} \div \frac{5x^2-x}{x+3}$

$\frac{2(\cancel{5x-1})}{(x+3)\cancel{(x-3)}} \cdot \frac{\cancel{(x+3)}}{x(\cancel{5x-1})}$

$\frac{2}{x(x-3)}$

Still need help with:

all or nothing with \pm \neq \downarrow or \leftarrow never \leftrightarrow when canceling!