11.) $\dfrac{m^2+7m-30}{3m^2+21m-90} \rightarrow 3(m^2+7m-30)$

$$\frac{\cancel{(m+10)}\cancel{(m-3)}}{3\cancel{(m+10)}\cancel{(m-3)}}$$

$$\frac{1}{3}$$

12.) $\dfrac{x^2-2x-3}{9x^2+18x+9} \rightarrow 9(x^2+2x+1)$

$$\frac{(x-3)\cancel{(x+1)}}{9(x+1)\cancel{(x+1)}}$$

$x \neq -1$

$$\frac{x-3}{9(x+1)}$$

8.) $$\frac{r^2 - 17r + 72}{6r - 48}$$

$$\frac{\cancel{(r-8)}(r-9)}{6\cancel{(r-8)}}$$

$$\frac{(r-9)}{6}$$

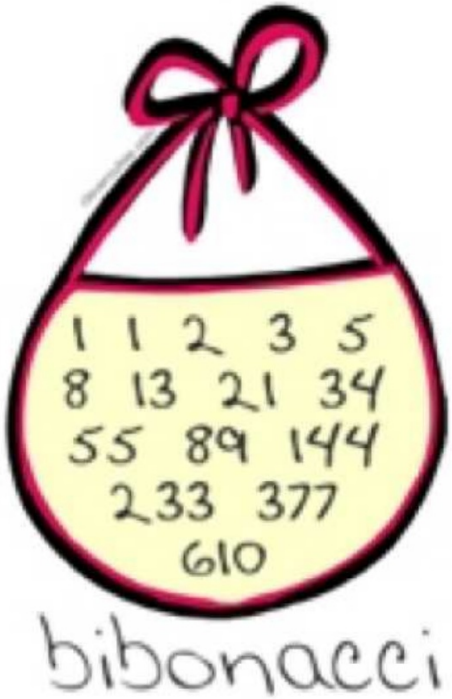
$$\frac{r \cdot \cancel{9}^{3}}{\cancel{6}\,2}$$

13.) $$\frac{n^2 - 12n + 32}{n^3 + n^2 - 20n} \rightarrow n(n^2 + n - 20)$$

$$\frac{(n-8)\cancel{(n-4)}}{n(n+5)\cancel{(n-4)}}$$

$$\frac{n-8}{n(n+5)}$$

Rational Expression Operations - Multiplying and Dividing



HW:

REVIEW: Peform the indicated operation.

a) $\frac{1}{\cancel{2}_{1}} \cdot \frac{\cancel{4}^{2}}{5}$

$\frac{4}{10} = \frac{2}{5}$

multiply th numerator
and denominator
then simplify

REVIEW: Peform the indicated operation.

b) $\frac{1}{2} \div \frac{4}{5}$

$\frac{1}{2} \cdot \frac{5}{4} = \frac{5}{8}$

Keep, change, flip

The rules for multiplying, dividing, adding and subtracting fractions are the SAME for rational expressions!

ex: Perform the indicated operation. Express your answer in simplest form.

a) $\dfrac{x^2-6x-16}{x^2-11x+24}\cdot\dfrac{x-8}{x^2+5x+6}$

$$\frac{\cancel{(x-8)}\cancel{(x+2)}(x-8)}{\cancel{(x-8)}(x-3)\cancel{(x+2)}(x+3)}$$

$$\frac{(x-8)}{(x-3)(x+3)}$$

$$\frac{\cancel{2}^{1}}{\cancel{3}}\cdot\frac{\cancel{12}^{4}}{\cancel{4}_{2}}$$

2

ex: Perform the indicated operation. Express your answer in simplest form.

b) $\dfrac{x^2-5x-36}{x^2-49}\cdot\dfrac{(x^2-11x+28)}{1}$

$$\frac{(x-9)(x+4)\cancel{(x-7)}(x-4)}{\cancel{(x-7)}(x+7)}$$

$$\frac{(x-9)(x+4)(x-4)}{x+7}$$

ex: Perform the indicated operation. Express your answer in simplest form.

c) $\dfrac{8x-20}{x^2+2x-35} \div \dfrac{4x^2-16}{x^2-7x+10} = \dfrac{8x-20}{x^2+2x-35} \cdot \dfrac{x^2-7x+10}{4x^2-16}$

$4(x^2-4)$

$$\frac{\cancel{4}(2x-5)\cancel{(x-5)}\cancel{(x-2)}}{(x+7)\cancel{(x-5)}\cancel{4}(x+2)\cancel{(x-2)}}$$

$$\frac{2x-5}{(x+7)(x+2)}$$

ex: Perform the indicated operation. Express your answer in simplest form.

d) $\dfrac{x^3-3x^2-9x+27}{3x^2+10x+8} \div \dfrac{x^2-6x+9}{3x^2+x-4}$

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

ex: Perform the indicated operation. Express your answer in simplest form.

e) $\dfrac{\dfrac{x^3-8}{x-1}}{\dfrac{x^2+2x+4}{x^2-1}} = \dfrac{x^3-8}{x-1} \div \dfrac{x^2+2x+4}{x^2-1}$

$\div$

$(x-2)(x+1)$

ex: Perform the indicated operation. Express your answer in simplest form.

f) $\dfrac{\dfrac{4x}{x+6}}{\dfrac{x^2+3x-18}{1}} \div$ $= \dfrac{4x}{x+6} \div (x^2+3x-18)$

$\dfrac{4x}{x+6} \cdot \dfrac{1}{x^2+3x-18}$

$\dfrac{4x}{(x+6)^2(x-3)}$

ex: Perform the indicated operation. Express your answer in simplest form.

g) $\dfrac{x-3}{x+2} \div \dfrac{5x^2-45}{x^2-2x-8} \cdot \dfrac{5}{x-4}$

$$\frac{x-3}{x+2} \cdot \frac{x^2-2x-8}{5x^2-45} \cdot \frac{5}{x-4}$$

$$\frac{1}{x+3}$$