

# Section 6.2 - Multiplying and Dividing Rational Expressions

$$12. \frac{\overset{1}{\cancel{5}}}{\underset{2}{\cancel{6}}} \cdot \frac{\overset{1}{\cancel{3}}}{\underset{2}{\cancel{10}}} = \frac{1}{4}$$

$$22. \frac{10}{9} \div \frac{5}{3} = \frac{\overset{2}{\cancel{10}}}{\underset{3}{\cancel{9}}} \cdot \frac{\overset{1}{\cancel{3}}}{\underset{1}{\cancel{5}}} = \frac{2}{3}$$

$$24. \frac{\overset{3}{\cancel{18}} t^{\overset{2}{\cancel{3}}}}{\underset{1}{\cancel{6}} t} = 3t^2$$

$$32. \frac{\cancel{(x+2)}(x-5)}{(x+10)\cancel{(x+2)}} = \frac{(x-5)}{(x+10)} = \boxed{\frac{x-5}{x+10}}$$

cannot cancel across an addition or subtraction

$$42. \frac{30x^2 - 7x - 15}{6x^2 + 7x - 10}$$

$ac = -450$

$ac = -60$

Home Screen  
F2 Algebra  
2: Factor

$$= \frac{(5x+3)\cancel{(6x-5)}}{(x+2)\cancel{(6x-5)}} = \frac{5x+3}{x+2}$$

factor  $(30x^2 - 7x - 15)$

supplement:  
communicate hidden domain restrictions

$$= \frac{5x+3}{x+2}, x \neq \frac{5}{6}$$

$$6x-5 \neq 0$$

$$\frac{6x}{6} \neq \frac{5}{6}$$

$$x \neq \frac{5}{6}$$

$$90. \quad \frac{n+1}{n+3} \div \frac{n+1}{n+3}$$

$$= \frac{\cancel{(n+1)}}{\cancel{(n+3)}} \cdot \frac{\cancel{(n+3)}}{\cancel{(n+1)}}$$

$$= 1$$

$$96. \quad \frac{x^2+x-12}{2x^2-9x-5} \div \frac{x^2+7x+12}{2x^2-7x-4}$$

$$= \frac{(x+4)(x-3)}{(x-5)(2x+1)} \div \frac{(x+3)(x+4)}{(x-4)(2x+1)} \text{ factor}$$

$$= \frac{\cancel{(x+4)}(x-3)}{(x-5)\cancel{(2x+1)}} \cdot \frac{(x-4)\cancel{(2x+1)}}{(x+3)\cancel{(x+4)}}$$

then flip the second and multiply

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

Leave it in factored form because it's clear that nothing else can cancel.