

Answer Key

Quiz Review Sheet

Rational Expressions & Equations

Simplifying Rational Expressions

1. $\frac{16xy^5}{42x^2y^3}$

$$\boxed{\frac{8y^2}{21x}}$$

2. $\frac{x^2+2x}{5x+10}$

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

$$\boxed{\frac{x}{5}}$$

Monomials

- **Simplify coefficients**
What goes into 16 & 42? $\boxed{\div 2}$
- **Simplify variables**
subtract exponents
put variable where biggest exponent was (x on the bottom and y on top)

Polynomials

- **Factor!**
GCF First****
Then use other methods (AM, DOTS, Slip & Slide)
- **Simplify coefficients/variables**
- **Cancel out factors**

3. $\frac{x^3-x}{x^3+8x^2-9x} = \frac{x(x^2-1) \text{ DOTS}}{x(x^2+8x-9) \text{ AM}}$
 $= \frac{x(x+1)(x-1)}{x(x+9)(x-1)}$
 $= \boxed{\frac{x+1}{x+9}}$

multiply straight across

4. $\frac{5x^3}{7x^2} \cdot \frac{21x^2}{20x} = \frac{105x^5}{140x^3}$
 $= \boxed{\frac{3x^2}{4}}$

5. $\frac{x^2+x-6}{x^2-x-2} \cdot \frac{x^2+5x+4}{x^2+2x-3} \text{ AM!}$
 $\frac{(x+3)(x-2)}{(x-2)(x+1)} \cdot \frac{(x+4)(x+1)}{(x+3)(x-1)}$
 $= \boxed{\frac{x+4}{x-1}}$

6. $\frac{10x+10}{8x^2+12x} \cdot \frac{2x^2+x-3}{x^2-1} \text{ slip a slide -}$
 $\frac{10(x+1)}{4x(2x+3)} \cdot \frac{(2x+3)(x-1)}{(x+1)(x-1)}$
 $\frac{10}{4x} \div 2 = \boxed{\frac{5}{2x}}$

7. $\frac{6x^5}{8x^5} \div \frac{9x}{8x^2} \rightarrow \frac{6x^5}{8x^5} \times \frac{8x^2}{9x} = \frac{48x^7}{72x^6}$
 $= \boxed{\frac{2x}{3}}$

8. $\frac{x^2-6x+8}{x^2-2x} \div \frac{(3x-12)}{1}$
 $\frac{(x-4)(x-2)}{x(x-2)} \times \frac{1}{3(x-4)} = \boxed{\frac{1}{3x}}$

9. $\frac{x^2-36}{2x^2+3x+1} \div \frac{4x-24}{8x+4}$
 $\frac{(x+6)(x-6)}{(x+1)(2x+1)} \times \frac{4(2x+1)}{4(x-6)} = \boxed{\frac{x+6}{x+1}}$

EVERY TIME YOU DO THIS, 10 POINTS OFF!

$$= \frac{x^2+2x+1}{x^2+3}$$

$$= \frac{2x+1}{3}$$

Keep, change, Flip!

slip a slide

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