

Activity 22

Name: \_\_\_\_\_

	A	B	C	D	E	F
1	$\frac{3(x-3)}{x-4}$	$3x$	$\frac{2}{x}$	<del>shaded</del>	<del>shaded</del>	<del>shaded</del>
2	<del>shaded</del>	$\frac{x+2}{x+4}$	$\frac{x+2}{4x}$	$\frac{2(x-2)}{x}$	$\frac{2(x-2)}{x}$	$\frac{x+2}{x+4}$
3	$(x+1)$	<del>shaded</del>	<del>shaded</del>	<del>shaded</del>	$3x$	$\frac{2}{x}$
4	<del>shaded</del>	$\frac{2(x-2)}{x}$	$\frac{2(x-2)}{x}$	$\frac{3(x-3)}{x}$	$3x$	$\frac{2}{x}$
5	<del>shaded</del>	$\frac{2(x-2)}{x}$	$\frac{x+2}{x+4}$	$\frac{x+2}{x+4}$	$\frac{x+2}{x+4}$	$\frac{2(x-2)}{x}$
6	<del>shaded</del>	$3x$	$\frac{2}{x}$	$(x+1)$	$3$	$3$

Simplify each product or quotient.

$$\frac{2}{x-2} \cdot \frac{x(x-2)}{x^2-2x} = \frac{x}{2}$$

$$\frac{x+1}{2} \cdot \frac{x-1}{x^2-1} = \frac{1}{2}$$

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

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

$$\frac{3x}{x+3} \cdot \frac{x^2-9}{4x-12} = \frac{3x}{4}$$

$$\frac{(x+1)(x-4)}{x^2-3x-4} \cdot \frac{(x+2)(x-2)}{x^2-2x-8} = \frac{(x+1)(x-2)}{5}$$

4A

$$\frac{2x^3+8x^2}{2x^2(x+4)} \cdot \frac{x^2-3x-4}{(x+1)(x-4)} = \frac{x(x+4)}{2x(x+1)}$$

$$\frac{x^2-4}{x+1} \cdot \frac{x+1}{x+2} = \frac{x-2}{x+2}$$

$$\frac{x(2x-3)}{2x^2-3x} \cdot \frac{4}{3(2x-3)} = \frac{2x}{3(x-5)}$$

3B

$$\frac{2x}{3x-1} \div \frac{6x}{3x^2-x} = \frac{2x}{3x-1} \cdot \frac{x(3x-1)}{6x} = \frac{x}{3}$$

$$\frac{2x+2}{x+2} \div \frac{x^2+x}{x^2-4} = \frac{2(x+1)}{x+2} \cdot \frac{(x+2)(x-2)}{x(x+1)} = \frac{2(x-2)}{x}$$

$$\frac{(x+3)(x-3)}{x^2-9} \div \frac{3x(x+4)}{3x^2+12x} = \frac{3(x-3)}{2}$$

1D

$$\frac{2x^2-x-1}{(2x+1)(x-1)} \div \frac{2x^2+x}{(2x-1)(x+1)} = \frac{(2x-1)(x+1)}{x(2x+1)} \cdot \frac{x+1}{x} = \frac{(x+1)^2}{x^2}$$

$$\frac{3x^2+6x}{x^2+x} \div \frac{x^2+x-2}{x^2-1} = \frac{3x(x+2)}{x(x+1)} \cdot \frac{(x-1)(x+1)}{(x+2)(x-1)} = 3$$

$$\frac{(x+2)(x-2)}{x^2-4} \div \frac{(x+1)}{2x-4} = \frac{x+2}{4x}$$

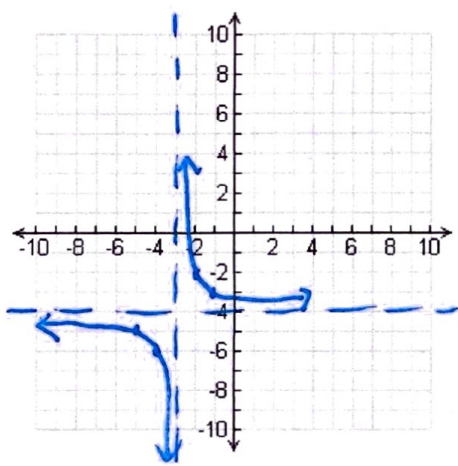
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# QUIZ REVIEW

## Unit 7 Day 3 Warm Up: Practice Graphing Rational Functions Continued

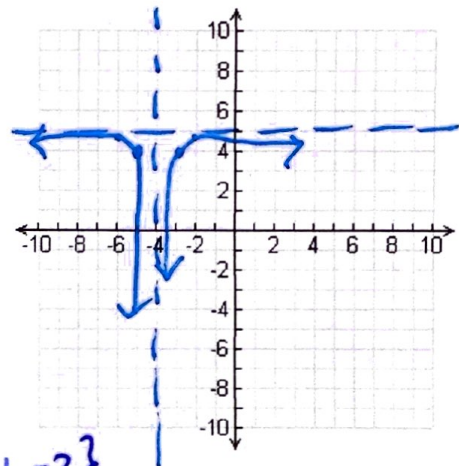
### I. Graphing Parent Functions $y = \frac{1}{x}$ and $y = \frac{1}{x^2}$ Transformationally

1)  $y = \frac{2}{(x+3)} - 4$  What impact will the 2 have?  
*vertical stretch by 2*  
 Translations Needed to Graph: *left 3 down 4*



HA  $y = -4$   
 VA  $x = -3$   
 As  $x \rightarrow \infty$   
 $y \rightarrow -4$   
 As  $x \rightarrow -\infty$   
 $y \rightarrow -4$   
 Domain:  $\{x | x \neq -3\}$

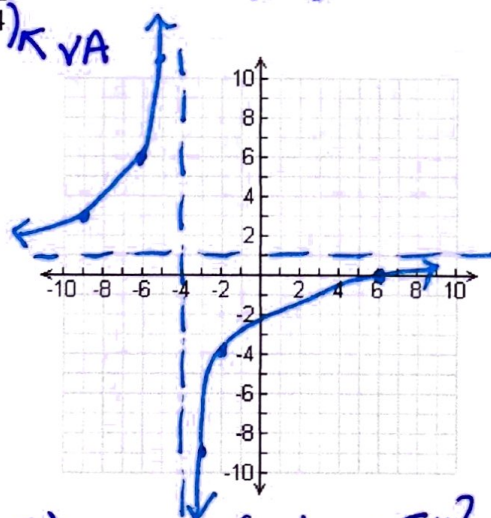
2)  $y = -\frac{1}{(x+4)^2} + 5$  What impact will the negative have?  
*reflect over x*  
 Translations Needed to Graph: *left 4 up 5*



reflect over x  
 left 4 up 5  
 HA  $y = 5$   
 VA  $x = -4$   
 As  $x \rightarrow \infty$ ,  
 $y \rightarrow 5$   
 As  $x \rightarrow -\infty$   
 $y \rightarrow 5$   
 Domain:  $\{x | x \neq -4\}$

### II. Graphing Rational Functions

3)  $y = \frac{(x-6)}{(x+4)}$   
*root  $x-6=0$   $x=6$*   
*VA  $x+4=0$   $x=-4$*   
 Hole:  $(-4, -1)$   
 VA  $x = -4$   
 HA  $y = 1$   
 Roots  $(6, 0)$   
 Domain:  $\{x | x \neq -4\}$   
 As  $x \rightarrow \infty$ ,  $y \rightarrow 1$   
 As  $x \rightarrow -\infty$ ,  $y \rightarrow 1$



4)  $f(x) = \frac{(x-3)(x-4)}{x^2 - 7x + 12} = \frac{(x-4)}{(x+2)}$   
*Hole:  $x-3=0$   $x=3$*   
 $\frac{3-4}{3+2} = \frac{-1}{5}$   
 Hole  $(3, -\frac{1}{5})$   
 VA  $x = -2$   
 HA  $y = 1$   
 Roots  $x = 4$   
 Domain:  $\{x | x \neq -2, 3\}$   
 As  $x \rightarrow \infty$ ,  $y \rightarrow 1$   
 As  $x \rightarrow -\infty$ ,  $y \rightarrow 1$

