

# Ch.8 Skills (48-53)

Name \_\_\_\_\_

Advanced Algebra

BOX YOUR ANSWERS!

## 48 Inverse, Joint and Combined Variation.

- 1)  $y$  varies inversely as  $x$ . If  $y = 18$  when  $x = 15$ , write an inverse -variation equation and find  $y$  when  $x$  is 27.

Equation: \_\_\_\_\_

- 2)  $y$  varies jointly as  $x$  and  $z$ . If  $y = 24$  when  $x = 2$  and  $z = -4$ , write a joint variation equation and find  $y$  when  $x = -3$  and  $z = -6$ .

Equation: \_\_\_\_\_

- 3)  $z$  varies jointly as  $x$  and  $y$  and inversely as  $w$ . If  $z = 6$  when  $x = 12$ ,  $y = -2$  and  $w = 5$ , write a combined variation equation and find  $z$  when  $x = 7$ ,  $y = .2$  and  $w = 14$ .

Equation: \_\_\_\_\_

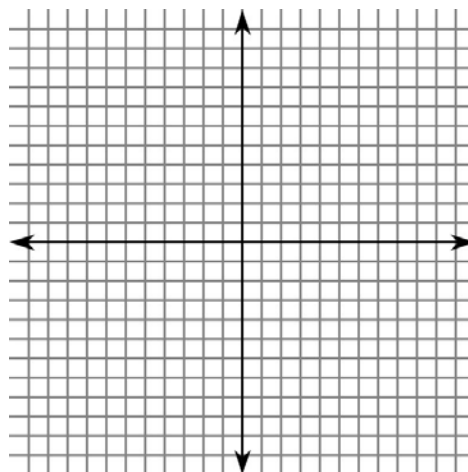
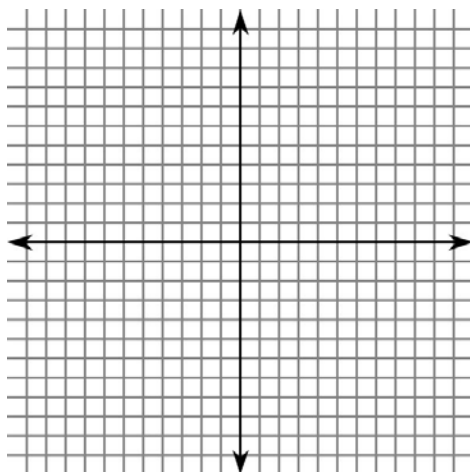
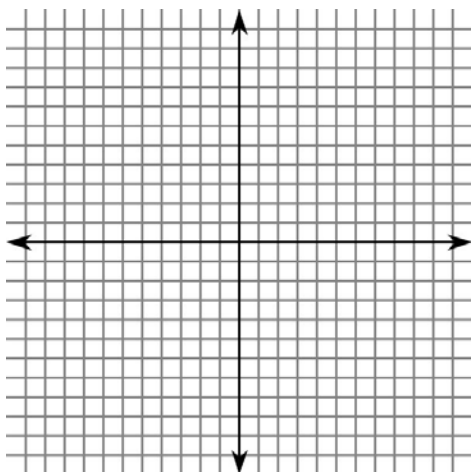
## 49 Graphing Rational Functions.

Graph, Label all holes, asymptotes  $x$ -intercepts and  $y$ -intercepts.

4)  $f(x) = \frac{2x-2}{x+2}$

5)  $f(x) = \frac{2x-2}{2x^2-8}$

6)  $f(x) = \frac{x^2-2x}{x^2-4}$



**50 Multiplying & Dividing Rational Polynomials****Perform the indicated operation.****BOX YOUR ANSWERS!**

$$7) \frac{x^2 - 4}{x^2 + 2x + 1} \cdot \frac{x^2 - 1}{x^2 - x - 6}$$

$$8) \frac{x+4}{x^2-9} \div \frac{x^2+4x}{x+3} \div \frac{x-3}{x}$$

$$9) \frac{\frac{x^2+4x-32}{x^2-12x+35}}{\frac{16x-4x^2}{x^2-4x-21}} \cdot \frac{x^2-10x}{x^2+11x+24}$$

**51 + and - Complex Rational Expressions****Perform the indicated operation.**

$$10) \frac{\frac{3}{2x-1}}{\frac{6x}{2x-1}} + \frac{3}{x}$$

$$11) \frac{\frac{x+1}{x-2}}{\frac{x+2}{2}} - \frac{x}{x^2-4}$$

$$12) \frac{2x-1}{x+5} + \frac{x}{x-2} - \frac{5x+4}{x^2+3x-10}$$

---

52	<b>Solving Rational Equations</b>	<b>Solve each equation for 'x'. (Indicate any constraints.)</b>
----	-----------------------------------	---

BOX YOUR ANSWERS!
-------------------

13) 
$$\frac{3}{x-2} + \frac{5}{x+2} = \frac{4x^2}{x^2-4}$$

14) 
$$\frac{4}{x^2-8x+12} = \frac{x}{x-2} + \frac{1}{x-6}$$

15) 
$$\frac{x-2}{x+1} = \frac{x-3}{x^2-5x-6} - \frac{2x-7}{x-6}$$

---

53	<b>Solving Rational Inequalities</b>
----	--------------------------------------

**Solve each rational inequality. Show your sign test table.**

16) 
$$\frac{3x+5}{2x-3} > 0$$

17) 
$$\frac{x}{x+1} + \frac{2x}{x-1} > \frac{2}{x^2-1}$$

18) 
$$x-1 \leq \frac{2}{x}$$

---