Algebra I
Worksheet: Chapter 11 Review

Write an equation for the inverse variation that includes the given point. (***Hint: Your answer will be in the form xy = k or y =*** $\frac{k}{x}$)

1. (-3, 6)

2. (7, 8)

3. Suppose y varies inversely with x, and y = 4 when x = 12. Write an equation for the variation.(**Hint: sames as numbers 1 and 2**)

Each pair of points is on the graph of an inverse variation. Find the missing value.

4. (3, 12), (4, y)

5. (2.5, 4), (x, 2)

6. A 120 lb weight is placed on a lever, 5 ft from the fulcrum. How far from the fulcrum should an 80 lb weight be placed to balance the lever? (**Hint: This is an inverse variation problem**)

7. Mark can clean his father's office in 30 min. His younger sister Lynn can clean the office in 40 min. How long will it take the two of them together to clean the office? (***Hint: This is a work problem. Since Mark can clean the office in 30 minutes he can clean*** $\frac{1}{30}$ ***of the office in 1 min***.)

Identify the asymptotes of each function. (***Hint; remember that asymptotes are lines and the answers will be equations!***)

8. $f(x) = \frac{-5}{x+6} - 1$

vertical :

horizontal:

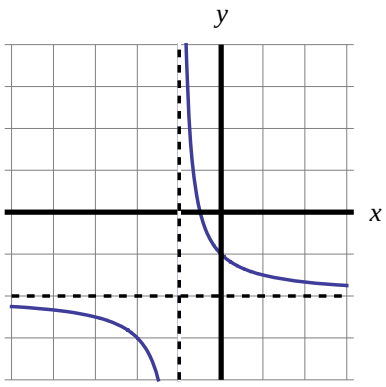
9. $y = \frac{2}{x} + 3$

vertical:

horizontal:

Identify the vertical and horizontal asymptotes of each graph. (***Hint: same as above***)

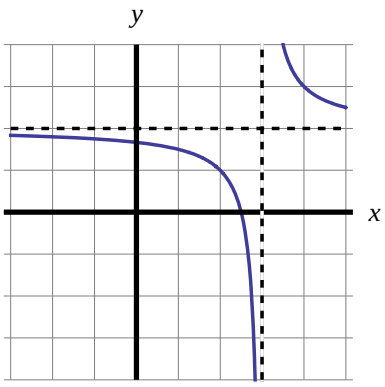
10.



vertical:

horizontal:

11.



vertical:

horizontal:

Simplify each expression. State any excluded values. (***Hint: factor, then cancel like factors in the numerator and the denominator. Set denominator equal to zero and solve to find the excluded values***)

12. $\frac{6p-30}{3p-15}$

13. $\frac{n^2+4n-5}{n+5}$

Multiply or divide. (**Hint: same as numbers 12 and 13 except do not find the excluded values**)

14. $\frac{3}{x-2} \cdot \frac{x^2-4}{12}$

15. $\frac{5x}{x^2+2x} \div \frac{30x^2}{x+2}$

Divide. (***Hint: in number 16 divide each term of the polynomial by $3x^3$ individually. Use polynomial long division for number 17***)

16. $\left(12x^4+9x^3-10x^2\right) \div 3x^3$

17. $\left(12x^3+11x^2-15x+8\right) \div (3x-4)$

Solve each equation. Check your solution. (***Hint: in number 18 multiply each term in the equation by the LCD. In number 19 use the cross-product property***)

18. $\frac{v+2}{v} + \frac{4}{3v} = 11$

19. $\frac{16}{x+10} = \frac{8}{2x-1}$

20. For lunch, you bought 4 pizzas for you and your friends to divide evenly. Each pizza contains 920 calories. In addition to the pizza, each person has a soft drink containing 140 calories.

(A) Write an equation that gives the number of calories C consumed by each person as a function of the number of people n. (***Hint: your equation will be similar to the equations in numbers 8 and 9***)

(B) Approximately how many people must share the pizzas in order for each person to consume about 600 calories? (***Hint: C = 600***)