Review for Test   Name _____   Date _____ Period ___

| 1. Determine the quadrant(s) in which (x,y) is located so that the condition(s) is (are) satisfied.
A. x > 0 and y < 0

B. −x > 0 and y < 0 | 2. Find the center and radius of the circle

$$(x-1)^2 + (y+3)^2 = 25$$

center: _____

radius: _____ |

Find the zeros.

| 3.
$$y = 4 - \frac{3}{4}x$$ | 4. $$y = x^3 + x^2 - 9x - 9$$ | 5. $$y^2 - 5y + 2x^2 = -4$$ |

| 6. Write the slope-intercept forms of the equation of the line through the given point (−21, 15) and parallel to the given line.

$$3x + 7y - 2 = 0$$ | 7. Write the slope-intercept forms of the equations of the lines through the given point (−21, 15) and perpendicular to the given line.

$$3x + 7y - 2 = 0$$ |

8. On the same set of axes, graph the original given line in #6 and graph the line parallel and the line perpendicular to this line from the equations you got for #6 and #7.

| 9. In 2003 there were 1078 J.C. Penney stores and in 2007 there were 1066 stores. Write a linear equation that gives the number of stores in terms of the year. Let t = 3 represent 2003. Then predict the numbers of stores for the years 2012 and 2014. Are your answers reasonable? Explain. | 10. Evaluate the function for the given values.
$$f(x) = \begin{cases} 4 - 5x, x \le -2 \\ 0, -2 < x < 2 \\ x^2 + 1, x \ge 2 \end{cases}$$
A. f(−3)

B. f(4)

C. f(−1) |

11. Evaluate the functions at each specified value of the independent variable and simplify.
$$h(x) = 3 - 2x^2$$

| A. h(2) | B. $$h\left(\frac{2}{3}\right)$$ | C. h(x − 3) |

12. Solve the following situations using f(x) and g(x).
$$f(x) = 7x^2 + 11x - 6 \quad g(x) = -15x - 21$$

| A. f(x) = 0 | B. (x) = g(x) |
| C. g(x) = 0 | D.   f(x) = −10 |

Find the domain of each function.	
14. $h(x) = \dfrac{10}{x^2 - 2x}$	15. $h(x) = \dfrac{\sqrt{x+6}}{6+3x}$

Find the domain and range of the function.	
16.	17.
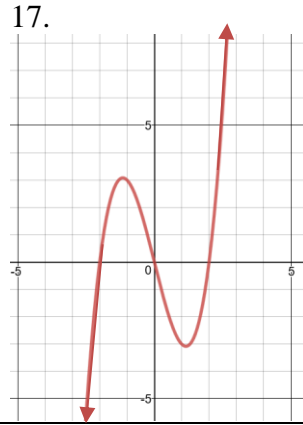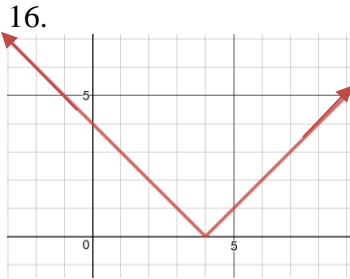
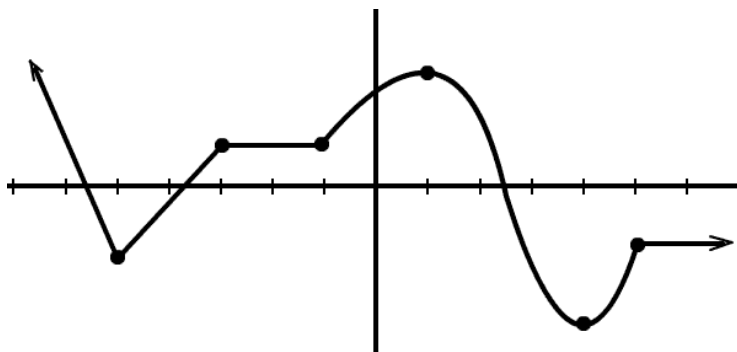|	
18. Determine if each is a function. A. $x + y^2 = 4$ B. $y = \sqrt{x+5}$	19. State the domain then simplify the rational expression $\dfrac{x^2 + 2x - 15}{x^2 - 3x - 40}$.

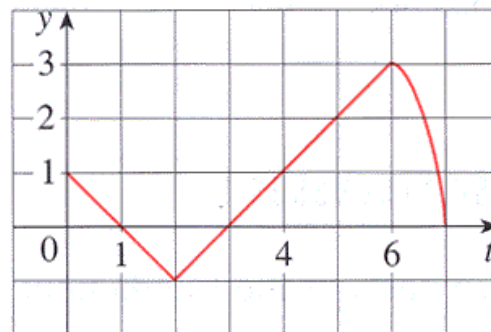|	
20. Simplify the rational expression. $\dfrac{2x^2 + x - 6}{x^2 + 4x - 5} \bullet \dfrac{x^3 - 3x^2 + 2x}{4x^2 - 6x}$	21. Add and simplify the rational expression. $\dfrac{2}{x^2 + 3x - 4} + \dfrac{x}{x^2 - 4x + 3}$

22. Determine the intervals over which the function is increasing, decreasing, or constant. 	23. Use the graph to evaluate the following functions. A. f(5) C. f(x) = 0, x = B. f(3) D. f(x) = 3, x =