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

IV

B. –x > 0 and y < 0

III

2. Find the center and radius of the circle

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

center: $(1,-3)$

radius: 5

Find the zeros.

3. $y=4-\frac{3}{4}x$

$\left(\frac{16}{3},0\right),\ (0,4)$

4. $y=x^3+x^2-9x-9$

$(3,0),\ (-3,0),\ (-1,0),\ (0,-9)$

5. $y^2-5y+2x^2=-4$

$(0,4),\ (0,1)$

6. Write the slope-intercept forms of the equation of the line through the given point (–21, 15) and parallel to the given line. $3x+7y-2=0$

$y=-\frac{3}{7}x+6$

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

$y=\frac{7}{3}x-34$

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.

$y=-3x+1085$

1049 *stores in* 2012
1043 *stores in* 2014

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) 19

B. f(4) 17

C. f(–1) 0

11. Evaluate the functions at each specified value of the independent variable and simplify.

$$h(x)=3-2x^2$$

A. h(2) -5

B. $h\left(\frac{2}{3}\right)$ $\frac{19}{9}$

C. h(x – 3) $-2x^2+12x-15$

12. Solve the following situations using f(x) and g(x).

$f(x) = 7x^2 + 11x - 6$ $g(x) = -15x - 21$

A. f(x) = 0 $x=\frac{3}{7},\ -2$

B. f(x) = g(x) $x=-\frac{5}{7},\ -3$

C. g(x) = 0 $x=-\frac{21}{15}$

D. f(x) = –10 $x=-\frac{4}{7},\ -1$

Use the appropriate method to solve for x. (Quadratic formula, square roots, factoring, absolute value, etc)

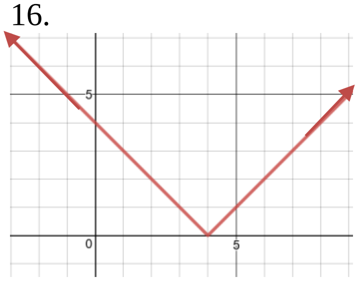
14. $h(x)=\dfrac{10}{x^2-2x}$

$D:\Re, x\neq 0,\ 2$

15. $h(x)=\dfrac{\sqrt{x+6}}{6+3x}$

$D:\Re,\ x\geq -6,\ \ x\neq -2$

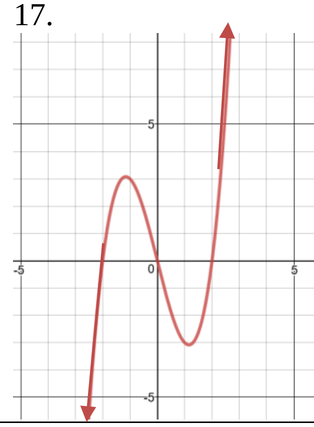
16.



$D:(-\infty,\ \infty)$

$R:\ [0,\ \infty)$

17.



$D:(-\infty,\ \infty)$

$R:\ (-\infty,\ \infty)$

18. Determine if each is a function.

A. $x+y^2=4$ No

B. $y=\sqrt{x+5}$ Yes

19. State the domain then simplify the rational expression

$\dfrac{x^2+2x-15}{x^2-3x-40}$.

$\dfrac{x-3}{x-8}$

$D:\Re,\ x\neq 8,\ -5$

20. Simplify the rational expression.

$\dfrac{2x^2+x-6}{x^2+4x-5}\bullet\dfrac{x^3-3x^2+2x}{4x^2-6x}$

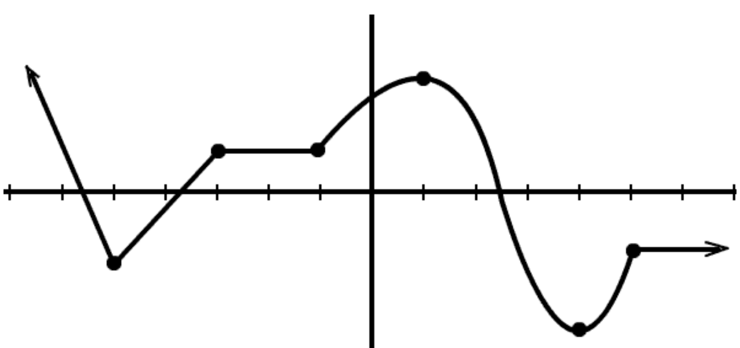
$\dfrac{(x+2)(x-2)}{2(x+5)}$

21. Add and simplify the rational expression.

$\dfrac{2}{x^2+3x-4}+\dfrac{x}{x^2-4x+3}$

$\dfrac{x^2+6x-6}{(x+4)(x-2)(x-3)}$

22. Determine the intervals over which the function is increasing, decreasing, or constant.

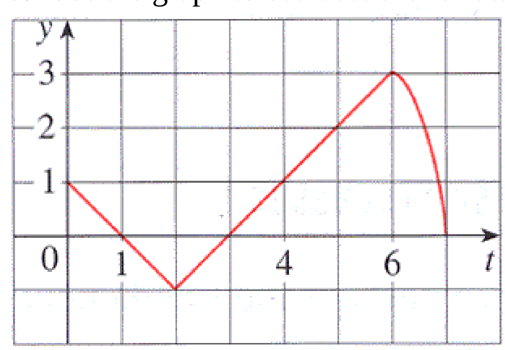


Increasing: $(-5,-3),\ (-1,1),\ (4,5)$

Decreasing: $(-\infty,-5),\ (1,\ 4)$

Constant: $(-3,-1),\ (5,\ \infty)$

23. Use the graph to evaluate the following functions.



A. f(5) 2

B. f(3) 0

C. f(x) = 0, x = $3,\ or\ 1$

D. f(x) = 3, x = 6