

Math 203-04
College Algebra
Practice Test 2

Name: _____ Date: _____

1. Find the midpoint of the line segment joining the points.

$(5, 3), (5, -9)$

2. Find the distance between the points.

$(-6, -9), (8, 1)$

3. Write the standard form of the equation of the circle with radius $r = 8$ and center: $(2, -5)$.

4. Find the center and radius of the graph of the circle. The equation of the circle is written in general form.

$$x^2 + y^2 - 10x + 8y + 5 = 0$$

5. Find $(f/g)(x)$ and state the domain.

$$f(x) = -8x^2 - 2x \qquad g(x) = 5 - x$$

6. Evaluate $(f - g)(8)$ where $f(x) = x^2 - x - 12$ and $g(x) = -3x - 3$.

7. Evaluate $(fg)(1)$ where $f(x) = x^2 + 6x + 5$ and $g(x) = -2x - 4$.

8. Evaluate $\left(\frac{f}{g}\right)(3)$ where $f(x) = x^2 + 4x - 12$ and $g(x) = -15x + 8$.

9. Given that $f(x) = \sqrt[4]{x-1}$ and $g(x) = x^4 + 1$ determine the value of the following (if possible).
 $(f \circ g)(0)$

10. Find expressions for $(f \circ g)(x)$ and $(g \circ f)(x)$, where $f(x) = 5x - 1$ and $g(x) = \frac{x+1}{5}$.

11. Find expressions for $(f \circ g)(x)$ and $(g \circ f)(x)$, where $f(x) = \sqrt{x+6}$ and $g(x) = -3x - 9$.

12. Find $g \circ f$.

$$f(x) = x + 8$$

$$g(x) = x^2$$

13. Find the difference quotient of the function $f(x) = -5x^2 - 7$.

14. Find the difference quotient of $f(x) = -2x - 4$.

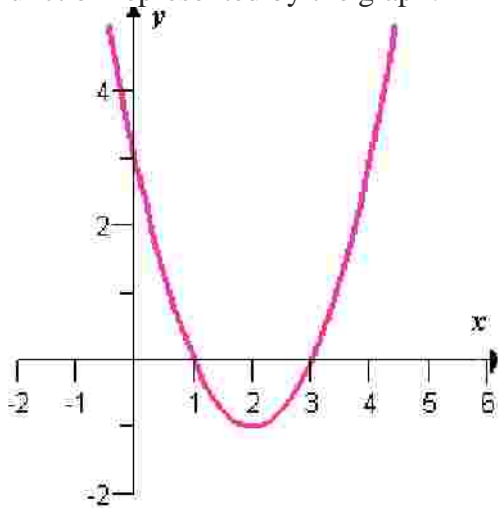
15. Use transformations of the basic function t^2 to sketch the graph of the function given below.

$$f(t) = -4t^2$$

16. Use transformations of the basic function $|x|$ to sketch the graph of the function given below.

$$f(x) = |x - 4| - 3$$

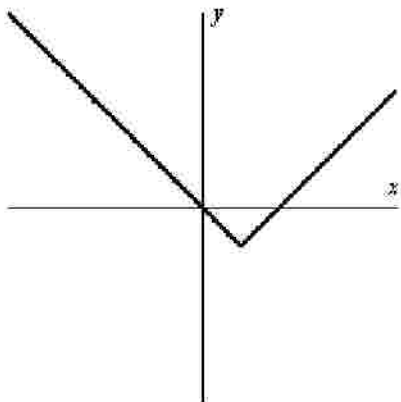
17. The following graph is a transformation of the graph of $f(x) = x^2$. Find a suitable expression for the function represented by the graph.



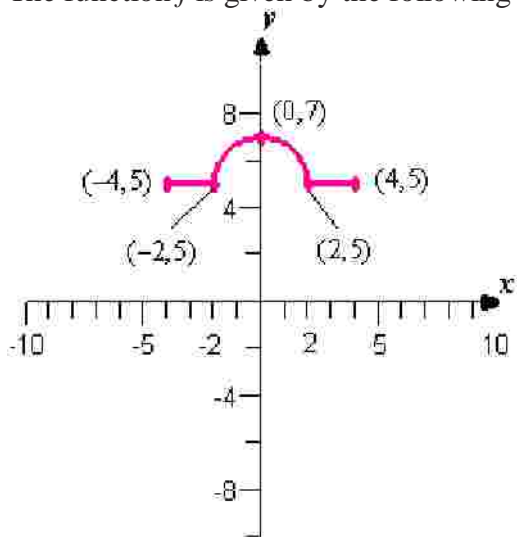
18. Describe the sequence of transformations from the related common function $f(x) = \sqrt{x}$ to g .

$$g(x) = -\sqrt{x} + 3$$

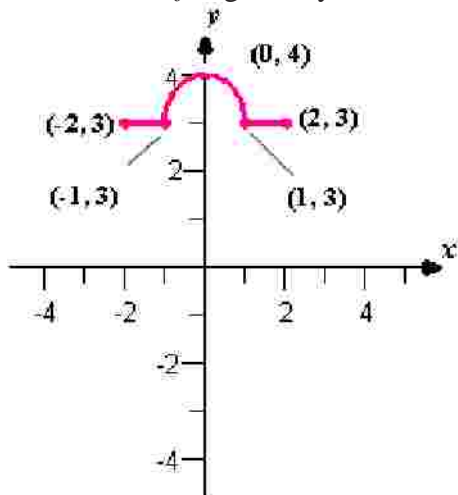
19. Determine an equation that may be represented by the graph shown below.



20. The function f is given by the following graph. Find the interval(s) on which f is decreasing.



21. The function f is given by the following graph. Is the function f even, odd, or neither?



22. Find the average rate of change of the function $f(x) = 2x^3 + x^2 + 1$ on the interval $[-3, 0]$.

23. Find all solutions of $|2x + 5| = 8$.

24. Solve the equation $1 + |-4x + 9| = 5$.

25. Solve the inequality $|4 - 5x| \leq 11$ and express your answer in interval notation.

26. Use interval notation to express the solution set of the inequality below.

$$|2x - 2| \geq 6$$

27. Graph the function $f(x) = \begin{cases} x + 4 & x < -2 \\ 2 & x \geq -2 \end{cases}$.

28. Graph the function $f(x) = \begin{cases} \sqrt{x}, & 0 \leq x < 4 \\ -x+5, & 5 < x < 6 \\ x-7, & 6 < x \leq 10 \end{cases}$.