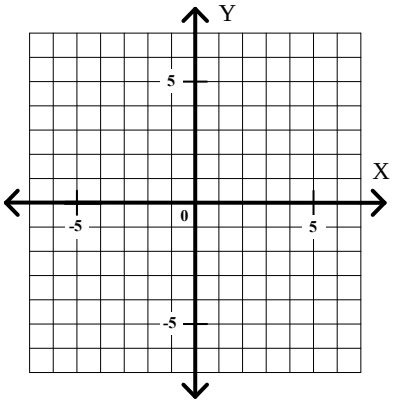
Precalculus Worksheet #3 Chapter 2 page 1 _____

Sketch a graph of each of the following functions. Then give the interval(s) where each function is increasing, decreasing , or constant. If no interval exists, write ∅.

1. f(x) = | x + 4 | + | x – 4 | – 10

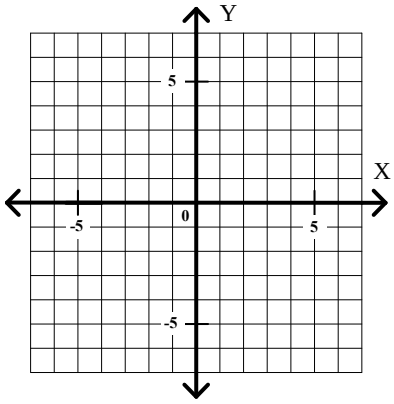


Increasing: _____

Decreasing: _____

Constant: _____

2. g(x) = 2 $\sqrt{16 - x^2}$ + 4



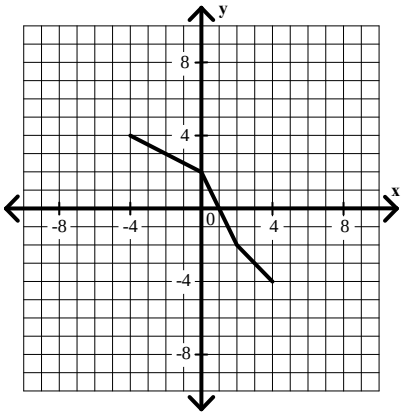
Increasing: _____

Decreasing: _____

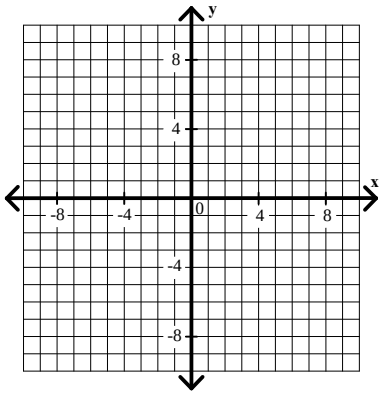
Constant: _____

Use the graph of y = f(x) to sketch the graph of ....

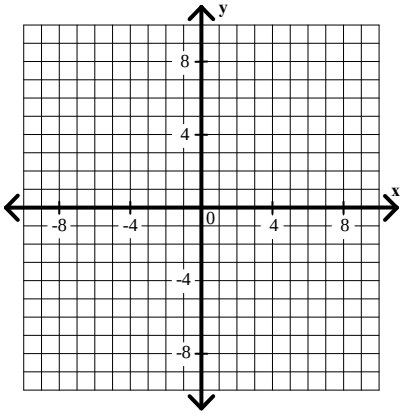
y = f(x)



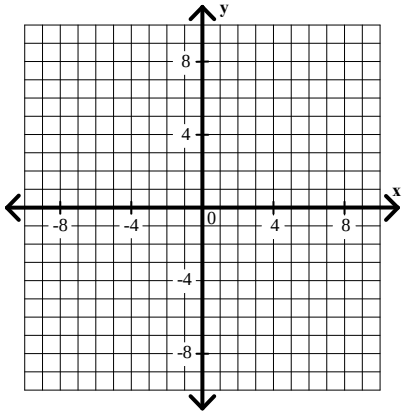
3. y = f(x + 5)



4. y = f(x) + 5



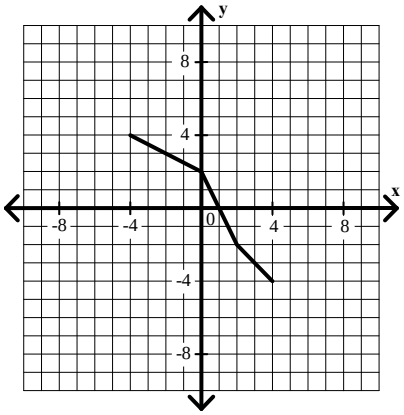
5. y = f(x – 3) – 2



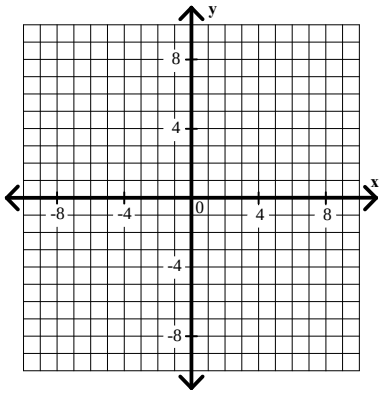
Precalculus Worksheet #3 Chapter 2 page 2

Use the graph of y = f(x) to sketch the graph of ....

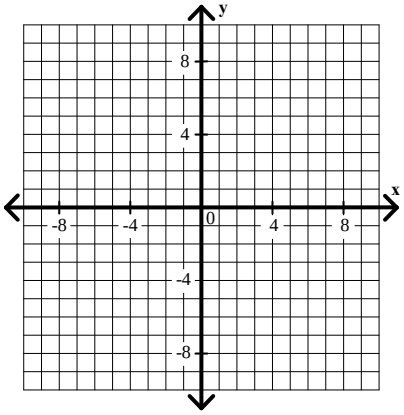
y = f(x)



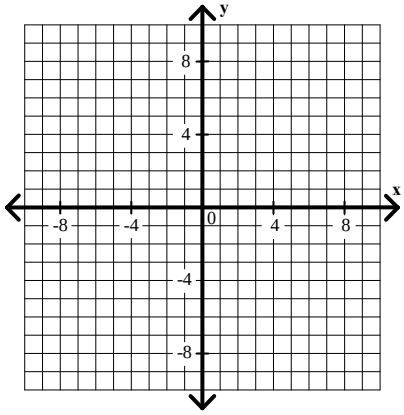
6. y = f(-x)



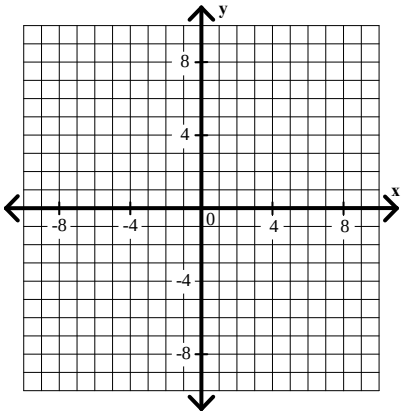
7. y = -f(x)



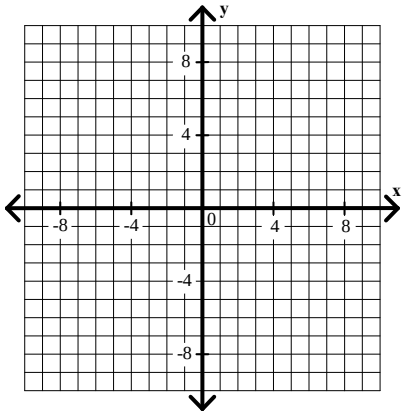
8. y = | f(x) |



9. y = f(2x)



10. y = 2f(x)



Precalculus Worksheet #3 Chapter 2 page 3

Given functions f and g defined by the equations $f(x) = x^2 - 3x - 4$ and $g(x) = 3x - 4$, find each of the following.

11. $f(5) =$ _____

12. $g(5) =$ _____

13. $f(-1) =$ _____

14. $g(-1) =$ _____

15. $f(2a) =$ _____

16. $g(2a) =$ _____

17. $f(a - 1) =$ _____

18. $g(a - 1) =$ _____

19. $(f + g)(3) =$ _____

20. $(f - g)(3) =$ _____

21. $(fg)(3) =$ _____

22. $(f/g)(3) =$ _____

23. $(f \circ g)(3) =$ _____

24. $(g \circ f)(3) =$ _____

25. $(f + g)(-3) =$ _____

26. $(f - g)(-3) =$ _____

27. $(fg)(-3) =$ _____

28. $(f/g)(-3) =$ _____

29. $(f \circ g)(-3) =$ _____

30. $(g \circ f)(-3) =$ _____

31. $(f + g)(x) =$ _____

32. $(f - g)(x) =$ _____

33. $(fg)(x) =$ _____

34. $(f/g)(x) =$ _____

35. $(f \circ g)(x) =$ _____

36. $(g \circ f)(x) =$ _____

Precalculus Worksheet #3 Chapter 2 page 4

Given functions f and g defined by the equations $f(x) = x^2 - 3x - 4$ and $g(x) = 3x - 4$.

37. Describe the domain and the range of f ?

Domain: _____

Range: _____

38. Describe the domain and the range of g ?

Domain: _____

Range: _____

39. Find all values of x such that f(x) = g(x).

40. Graph f, g, and f + g on the coordinate plane below.