

Precalculus Worksheet #2 Chapter 2 page 1 _____

Find the equation of each line described below. If the line is oblique, then write the slope-intercept equation.

1. the line with slope $\frac{3}{4}$ through $(-4, 2)$ _____

2. the vertical line through $(2, -3)$ _____

3. the line with slope 0 through $(5, 3)$ _____

4. the line through $(6, 4)$ and $(0, 2)$ _____

5. the line through $(4, -2)$ and $(8, 1)$ _____

6. the line through $(-4, 2)$ and $(-4, 0)$ _____

7. the line through $(5, -1)$ and $(2, 0)$ _____

8. the line through $(4, -1)$ that is parallel to $3x + 4y = 10$ _____

9. the line through $(0, 3)$ that is perpendicular to $x - 3y = 6$ _____

10. the line through $(-1, 4)$ that is parallel to $x = 8$ _____

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Given functions f and g defined by the equations $f(x) = 4x - 5$ and $g(x) = x^2 + 1$. Evaluate each of the following. Express your answers in simplest form.

11. $f(4) =$ _____

12. $g(4) =$ _____

13. $f(-5) =$ _____

14. $g(-5) =$ _____

15. $f(t) =$ _____

16. $g(t) =$ _____

17. $f(-3x) =$ _____

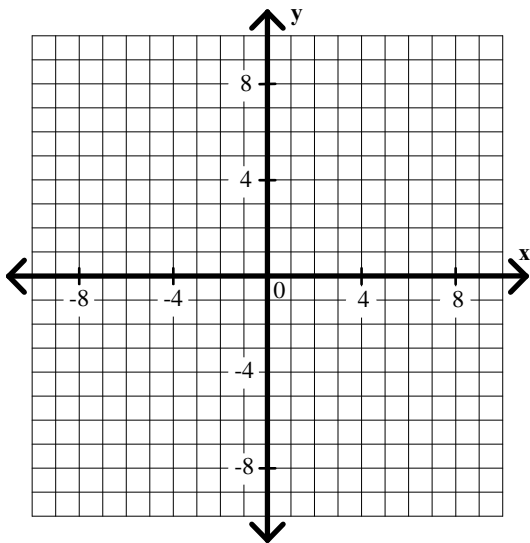
18. $g(-3x) =$ _____

19. $f(5a + 2) =$ _____

20. $g(5a + 2) =$ _____

In problems #21 and 22, you are given a function. Sketch a graph of each, and then give the domain and range.

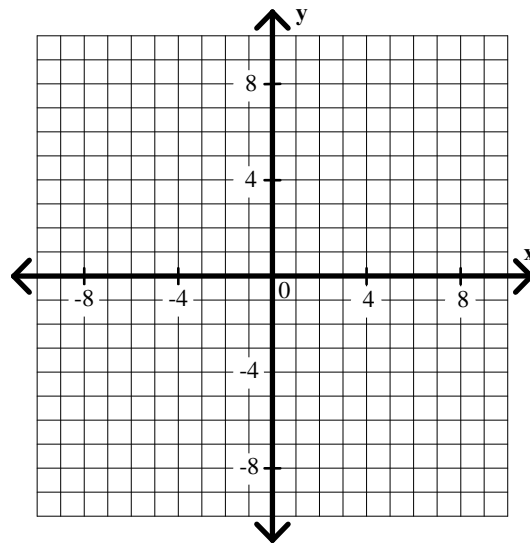
21. $f(x) = 2x - 3$



domain of f (above) _____

range of f (above) _____

22. $g(x) = x^2 - 6$



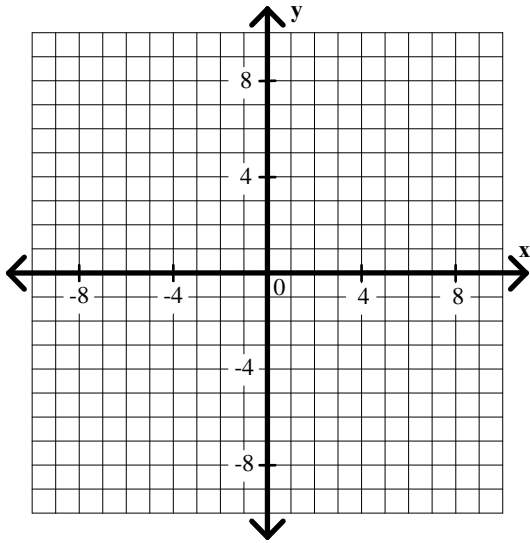
domain of g (above) _____

range of g (above) _____

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In problems #23 and 24, you are given a function. Sketch a graph of each, and then give the domain and range.

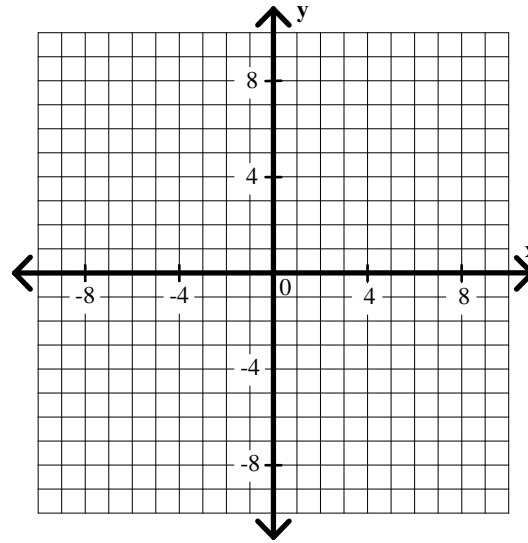
23. $h(x) = \sqrt{25 - x^2}$



domain of h (above) _____

range of h (above) _____

24. $j(x) = |2x| - 4$



domain of j (above) _____

range of j (above) _____

Write the indicated function.

25. A rectangle's length is 3 inches less than twice its width. Let x represent the width, and express the area of the rectangle, A , as a function of x .

26. Express the area, A , of a circle as a function of its diameter, d .

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Write the indicated function.

27. Al walks at a constant speed of 5 feet per second for 3 minutes.

(a) Express d , the total distance (feet) that he has walked, as a function of t , the length of time (seconds) he has been walking.

(b) Find the implied domain and the range of this function.

28. Point A is 5 miles due north of point B. Point C is 12 miles due east of point B. Mary travels in a straight line from point B to point C at a constant rate of 6 miles per hour. Let D represent the distance (in miles) from point A to Mary.

(a) Express D as a function of t , the time (in hours) since Mary left point B.

(b) Find the implied domain and the range of this function.