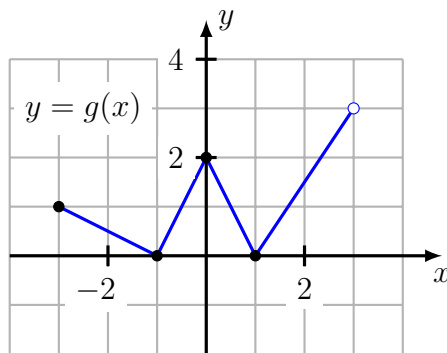


1. 10 pts. Given $f(x) = x^2 - 3x + 8$, find and simplify $f(-1)$, $f(-x)$, and $f(x + 3)$.

2. 10 pts. each The graph of function $y = g(x)$ is below.

(a) Find $g(-1)$, $g(0)$, and $g(3)$.

(b) Find the domain and range of g .



3. 5 pts. each

(a) Is the graph of $x^2y^2 + 5xy = 2$ symmetric with respect to the x -axis, the y -axis, the origin, more than one of these, or none of these?

(b) Is the function $h(x) = x^2 + x$ even, odd, or neither?

4. 10 pts. each Define

$$p(x) = \begin{cases} -\frac{1}{2}x^2, & \text{if } x < 1 \\ 2x + 1, & \text{if } x > 1 \end{cases}$$

(a) Graph $y = p(x)$.

(b) What is the domain and range of p ?

5. 10 pts. Write the equation of the line passing through $(-3, -2)$ and $(3, -7)$ in slope-intercept form.

6. 10 pts. Write the equation of the line passing through $(-3, -2)$ and $(-3, -7)$.

7. 10 pts. If one point on a line is $(2, -6)$ and the line's slope is $-\frac{3}{2}$, what is the y -intercept?

8. 10 pts. A line L passes through $(-1, 2)$ and is perpendicular to the line $y - 2x + 5 = 0$. Find the equation for L in slope-intercept form.

9. 10 pts. each Find the domain of each function in interval notation.

(a) $f(x) = \frac{42}{4 - x^2}$

(b) $r(x) = \frac{x + 9}{\frac{12}{x} - 4}$

10. 10 pts. each Let $F(x) = \sqrt{x + 8}$ and $G(x) = \sqrt{10 - x}$. For what follows find all domains in interval notation.

(a) Find the domain of F and G separately.

(b) Find $F - G$ and its domain.

(c) Find F/G and its domain.

11. Let $f(x) = \frac{5}{x - 4}$ and $g(x) = \frac{1}{2x}$.

(a) 5 pts. Find $(f \circ g)(x)$. No need to simplify.

(b) 10 pts. Find the domain of $f \circ g$ in interval notation.

12. 10 pts. each The function $f(x) = \frac{2x + 1}{6 - x}$ is one-to-one.

(a) Find an equation for $f^{-1}(x)$.

(b) Use interval notation to give the domain and range of f and f^{-1} .