Practice Problems

Compare the graph of the given quadratic function f with the graph of y = x2.

1) f(x) = (x - 2)2 + 3

Determine if the function is even, odd, or neither.

2) f(x) = 2x5 + 2x3

Decide whether the relation defines a function.

3) {(-8, 2), (-8, 8), (-1, 8), (5, 6), (8, 7)}

5) y2 = 3x

Find the domain and range of the inverse of the given function.

7) f(x) = -4x - 2

Compute and simplify the difference quotient $\frac{f\left(x+h\right)-f(x)}{h} ,h\ne 0. $

8) f(x) = 7x - 9

Consider the function h as defined. Find functions f and g so that (f ∘ g)(x) = h(x).

9) h(x) = $\frac{8}{x^{2}}+10$

Find the requested value.

10) f(3) for f(x) = 3x + 1, if x < 1

 f(3) for f(x) = 3x, if 3 ≤ x ≤ 8

 f(3) for f(x) = 3 - 5x, if x > 8

Determine whether the function is symmetric with respect to the y-axis, symmetric with respect to the x-axis, symmetric with respect to the origin, or none of these.

11) f(x) = -5x3 + 2x

If the following defines a one-to-one function, find its inverse. If not, write "Not one-to-one."

12) {(-2, 4), (-1, 4), (0, 1), (1, -5)}

If f is one-to-one, find an equation for its inverse.

13) f(x) = x3 - 5

Perform the requested operation or operations.

14) f(x) = $\sqrt{x+10}$, g(x) = 8x - 14

Find (f ∘ g)(x).

Graph the function.

16) f(x) = 4x + 2 if x < -2

f(x) = x if -2 ≤ x ≤ 3

f(x) = 3x-1 if x > 3

Find the indicated composite for the pair of functions.

18) (g ∘ f)(x): f(x) = $\frac{x-3}{6}$, g(x) = 6x + 3

Give the domain and range of the relation.

20) y = (x + 4)2 - 7