

Palomar College Math Placement Test Study Guide Intermediate Algebra

Topic 12: Functions

1. Let $f(x) = x^2 + 3x$ and $g(x) = 2x - 3$. Find the following:

- $f(-3)$
- $(f + g)(1)$
- $(f - g)(0)$
- $(fg)(-2)$
- $\left(\frac{f}{g}\right)(5)$
- $g(f(-4))$
- $f(g(-4))$
- $g^{-1}(2)$

2. Given the tables below, find

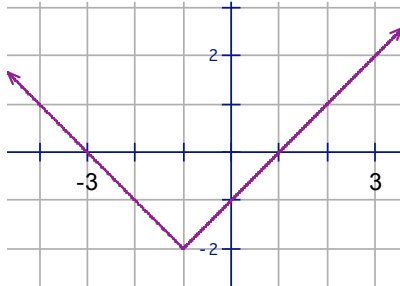
- $f(g(1))$
- $g^{-1}(0)$

x	f(x)
-2	0
-1	-2
0	1
1	2
2	-1

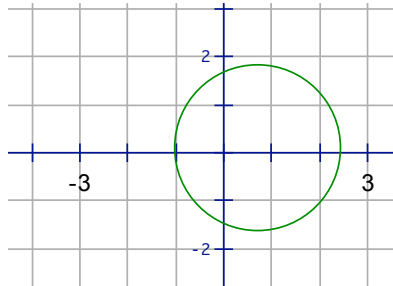
x	g(x)
-2	2
-1	0
0	-2
1	-1
2	1

3. State whether each graph is the graph of a function.

a.



b.



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

- a. Find the x-intercept.
- b. Find the y-intercept.
- c. Find the domain.
- d. Find the range.
- e. Graph the function.
- f. Find $f^{-1}(x)$.

5. Find the domain of $g(t) = \frac{1}{t+3}$

6. Find the domain of $f(x) = \sqrt{2-x}$

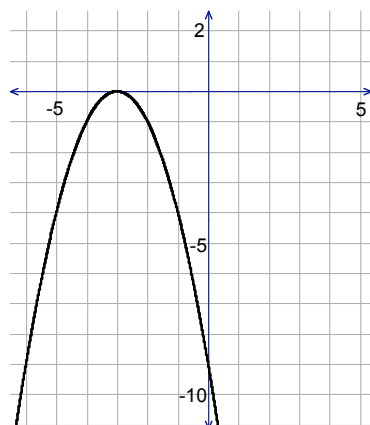
7. Let $f(x) = (x-2)^2 - 4$

- a. Find the vertex.
- b. Find the axis of symmetry.
- c. Find the x-intercepts of the graph of f.
- d. Find the domain of f.
- e. Find the range of f.
- f. Graph the function.

8. Let $g(x) = -3x^2 - 6x + 7$

- a. Find the y-intercept.
- b. Find the axis of symmetry.
- c. Find the vertex.
- d. Find the x-intercepts.
- e. Find the domain.
- f. Find the range.
- g. Graph the function.

9. Write an equation for the function $h(x)$ whose graph is shown below.



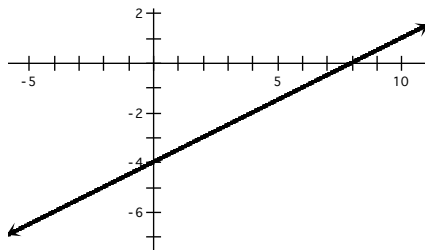
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Intermediate Algebra

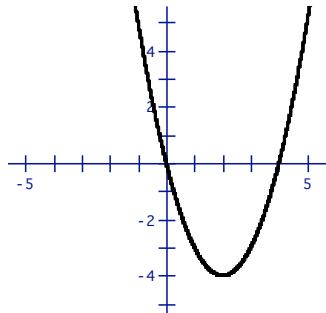
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Answers:

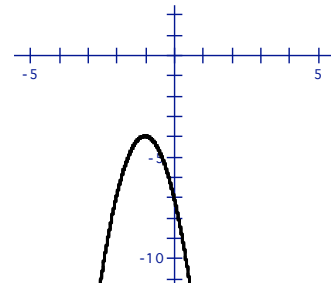
1. a) 0 b) 3 c) 3 d) 14 e) $40/7$ f) 5 g) 88 h) $5/2$
2. a) -2 b) -1
3. a) is a function b) is not a function
4. a) (8, 0) b) (0, -4) c) All real numbers d) All real numbers
e) f) $f'(x) = 2x + 8$



5. $\{ t \mid t \neq -3 \}$
6. $\{ x \mid x \leq 2 \}$
7. a) (2, -4) b) $x = 2$ c) (0, 0), (4, 0) d) All real numbers
e) $f(x) \geq -4$ f)



8. a) (0, 7) b) $x = -1$ c) (-1, 10) d) $\left(-1 + \frac{\sqrt{30}}{2}, 0\right), \left(-1 - \frac{\sqrt{30}}{2}, 0\right)$
e) All real numbers f) $g(x) \leq 10$ g)



9. $h(x) = -(x + 3)^2$