PreCal Homework 1.4 Worksheet

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Multiple Choice Questions

For each question, four alternative choices are given, of which only one is correct. You have to select the correct alternative and mark it in the appropriate option.

1. Describe the transformation from f to g where f(x)=|x| and g(x)= |(1/4)x|.

    a. a horizontal shrink by a factor of 1/4
    b. a vertical stretch by a factor of 4
    c. a horizontal stretch by a factor of 4
    d. a vertical shrink by a factor of 1/4

2. Given that the original function is f(x) =

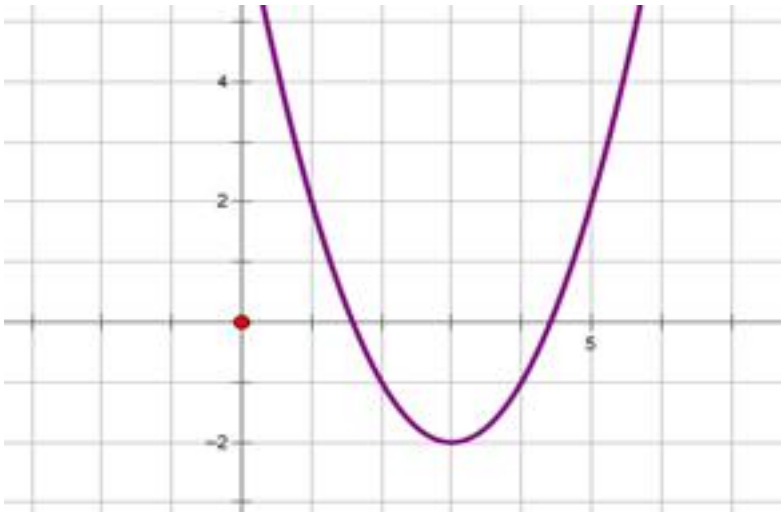
$$x^2$$

, which of the following is an accurate representation of f(x)=

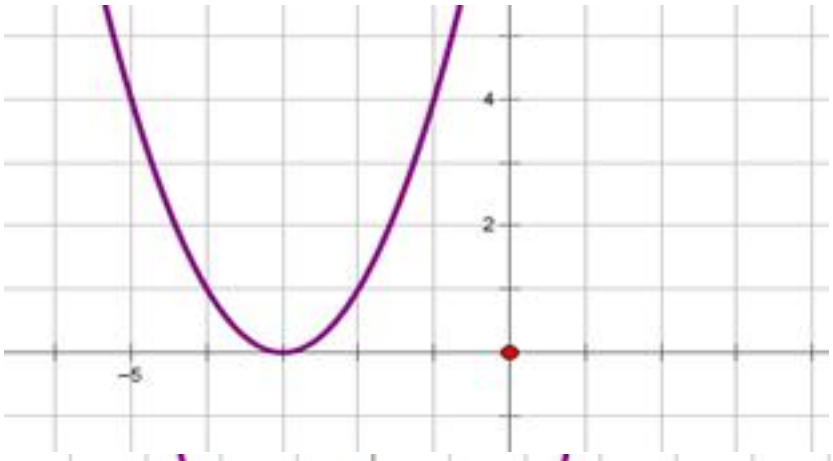
$$(x-3)^2-2$$

?

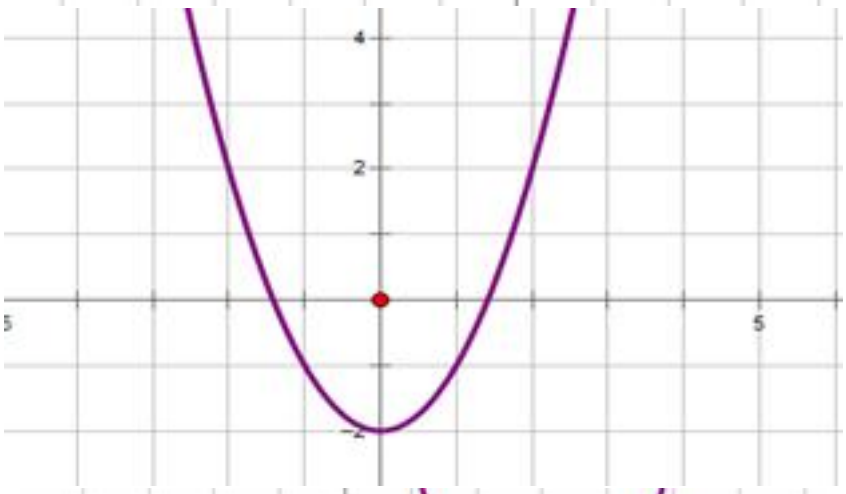
a.



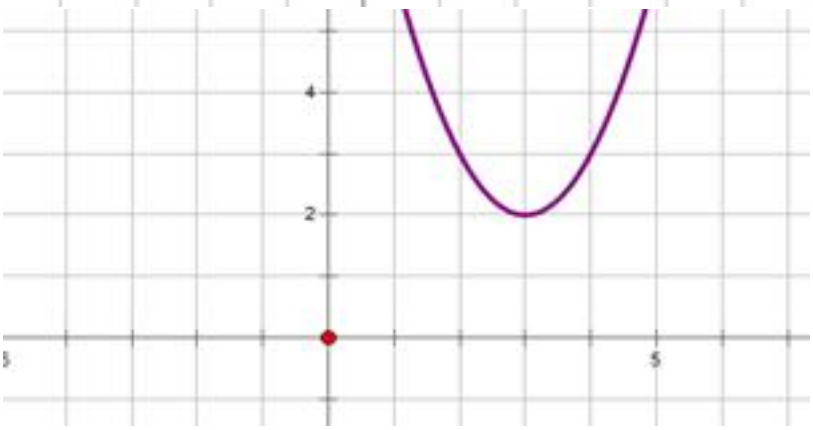
b.



c.



d.



3. Convert the following function notation into words and then point notation.
   $h(x) \rightarrow -h(x-4)-3$

   a. Reflection across the x axis, horizontal shift 4 units to the right, vertical shift 3 units down.
      $(x,y) \rightarrow (x+4,-y-3)$
   b. Reflection across the x axis, horizontal shift 3 units to the right, vertical shift 3 units down.
      $(x,y) \rightarrow (x+4,-y+3)$
   c. Reflection across the x axis, horizontal shift 4 units to the right, vertical shift 1 units down.
      $(x,y) \rightarrow (x+4,y-3)$
   d. Reflection across the x axis, horizontal shift 4 units to the right, vertical shift 3 units down.
      $(x,y) \rightarrow (x+2,-y-2)$

4. Identify the translations and reflections of the following function:
   $f(x) = \frac{1}{3}(x-3)^2+1$

a. Vertically stretched ($\frac{1}{3}$ as wide), shift right 3, up 3
b. Vertically stretched ($\frac{1}{3}$ as wide), shift right 3, up 1
c. Horizontally stretched ($\frac{1}{3}$ as wide), shift right 2, up 1
d. Vertically stretched ($\frac{1}{3}$ as wide), shift right 2, down 1

5. Describe the transformation from f to g where f(x)=x^4 and g(x)=(1/3)x^4.

a. a vertical stretch by a factor of 3
b. a vertical shrink by a factor of 1/3
c. a horizontal stretch by a factor of 3
d. a horizontal shrink by a factor of 1/3

6. Convert the following function notation into words and then point notation.
$f(x) \to -\frac{1}{2}f(x+1)$

a. Vertical reflection across the x axis, vertical compression by a factor of 2, horizontal shift one unit left.
$(x,y) \to \left(x-2, \frac{-1}{3}y\right)$
b. Vertical reflection across the x axis, vertical compression by a factor of 1, horizontal shift one unit left.
$(x,y) \to \left(x-2, \frac{1}{2}y\right)$
c. Vertical reflection across the x axis, vertical compression by a factor of 2, horizontal shift one unit left.
$(x,y) \to \left(x+1, \frac{1}{2}y\right)$
d. Vertical reflection across the x axis, vertical compression by a factor of 2, horizontal shift one unit left.
$(x,y) \to \left(x-1, \frac{-1}{2}y\right)$

7. Write a function that will create a horizontal compression of the following:
$f(x) = x^2 + 3$

a. $f(x) = x^2 + 3$
b. $f(x) = 2x^2 + 6$
c. $f(x) = 2x^2 + 3$
d. $f(x) = 2x^2 - 3$

8. Write an equation that reflects the transformation that has taken place for the parent function $g(x) = \frac{1}{x}$, for it to move in the following way:
Move four spaces to the right

a. $h(x) = \frac{1}{x-4}$
b. $h(x) = \frac{1}{x} + 4$
c. $h(x) = \frac{1}{x} - 4$
d. $h(x) = \frac{1}{x+4}$

9. Convert the following function in function notation to point notation.
$g(x) \to -4g(x-1)+3$

a. $(x,y) \to (x-1, -4y+3)$
b. $(x,y) \to (x+1, -4y-3)$
c. $(x,y) \to (x-1, -4y-3)$
d. $(x,y) \to (x+1, -4y+3)$

10. Describe the transformation that has taken place for the parent function $f(x) = |x|$
$f(x) = |x|-5$

a. shifted down 5 units
b. shifted right 5 units
c. shifted left 5 units
d. shifted up 5 units