

Algebra II Practice Quiz 5.1**Short Answer**

1. (5 points) Graph $f(x) = x^2 - 5x + 10$ by using a table.

2. (5 points) Using the graph of $f(x) = x^2$ as a guide, describe the transformations, and then graph the function $g(x) = (x + 6)^2 - 2$.

3. (5 points) Using the graph of $f(x) = x^2$ as a guide, describe the transformations, and then graph the function $g(x) = -8x^2$.

4. (5 points) The parent function $f(x) = x^2$ is reflected across the x -axis, vertically stretched by a factor of 10, and translated right 10 units to create g . Use the description to write the quadratic function in vertex form.

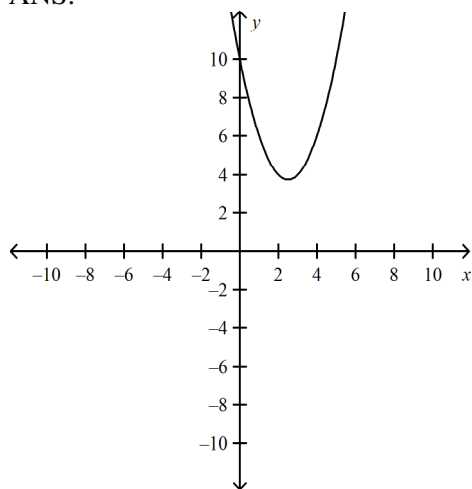
5. (5 points) The minimum braking distance d in feet for a properly loaded truck on dry concrete is approximated by the function $d(v) = 0.065v^2$, where v is the vehicle's speed in miles per hour. If the truck is overloaded, the braking-distance function is $d_o(v) = 0.078v^2$. What kind of transformation describes this change, and what does the transformation mean?

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Answer Section

SHORT ANSWER

1. ANS:

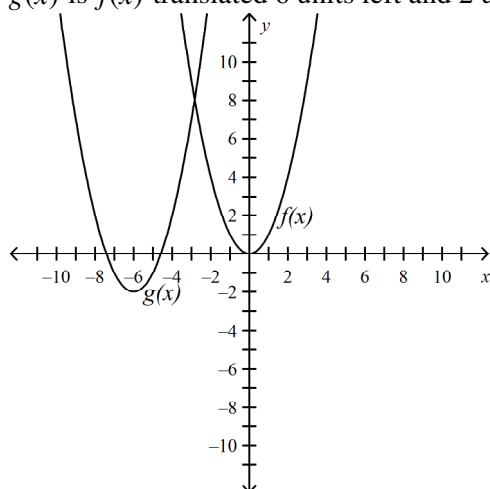


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2. ANS:

$g(x)$ is $f(x)$ translated 6 units left and 2 units down.

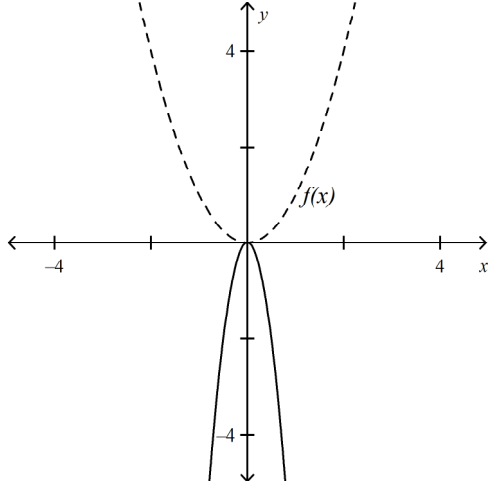


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3. ANS:

A reflection across the x -axis and a vertical stretch by a factor of 8.



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4. ANS:

$$g(x) = -10(x - 10)^2$$

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5. ANS:

The value of a has increased from 0.065 to 0.078. The increase indicates a *vertical stretch* by a factor of 1.2. Thus, an overloaded truck takes about 1.2 times as many feet to stop as a properly loaded truck.

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