Transformations Quiz_{2a}

Name:

1. Fill in the blanks with the appropriate word or phrase. *(1 mark each)*

   a. $y = -f(x)$ will cause the graph of $y = f(x)$ to reflect in the _____

   b. $y = 3x$ will cause the graph of $y = f(x)$ to be _____

   c.   If $f(x)$ and $g(x)$ are reflections of each other in the line $y = x$, they
        are said to be _____.

   d. $y = \left(\dfrac{1}{3}x\right)$ will cause the graph of $y = f(x)$ to be _____

   e. $y = f(-x)$ will cause the graph of $y = f(x)$ to reflect in the _____

   f.   When vertically stretching the graph, the values of _____
        will remain invariant.

2. Describe how each of the following can be obtained from the graph of
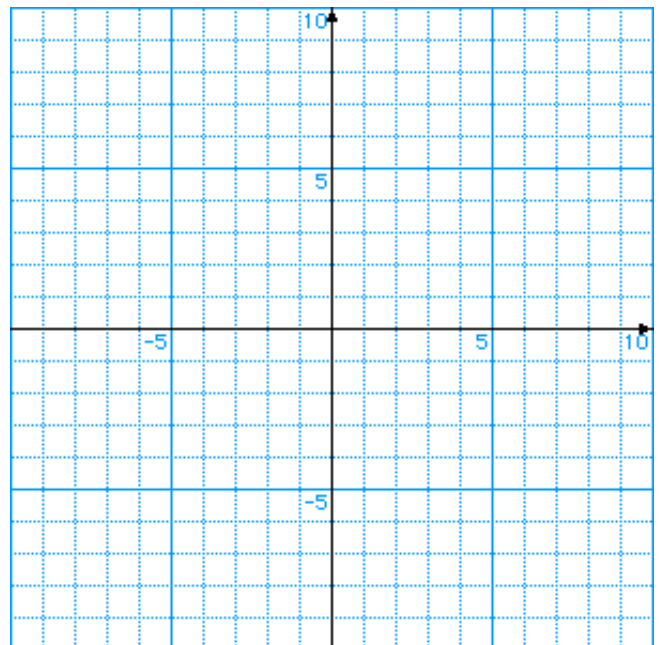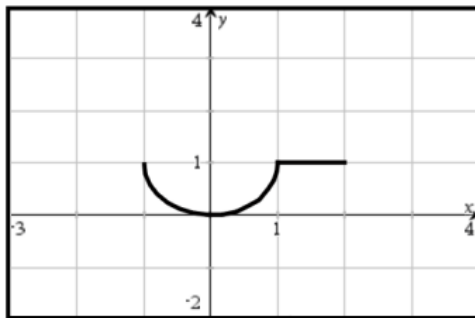 $y = f(x)$.   *(2 marks each)*

   a. $y = f(x+4) - 2$

   b. $y = 2f(4x)$

c. $y = f\left(-\dfrac{1}{2}x\right) + 3$

d. $y = -\dfrac{5}{3}f(2x+6) - 1$

3. The graph of the function $y = f(x)$ is shown on the left. If $y = f(x)$ is
    changed to $y = -4f(x) + 5$, graph the transformed function on the grid
    provided.   *(3 marks)*

4. Kelly was asked to compare the graphs of $y = |x|$ and $y = \frac{1}{2}|-x-3|-5$. As her answer, she gave the following statements. State whether you agree or disagree with her answers and explain using the parameters a, b, c and d.
(3 marks)

The second graph has gone through a vertical stretch by a factor of $\frac{1}{2}$.

It has also been translated 3 units right and 5 units down.
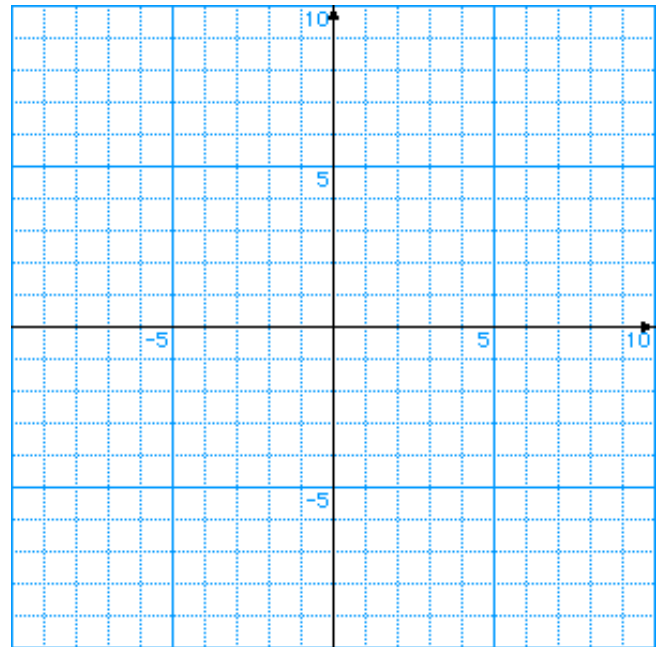
It has been reflected in the x-axis.

5. Sketch the function $f(x) = \sqrt{x}$ on the grid below. In the following order,

a. translate the function 4 units down

b. reflect the function from 'a' in the x-axis.

c. vertically stretch the the function from 'b' by a factor of 2.

d. Write the equation of the function that would describe the function from 'c'.

e. Would you get the same function if you did the transformations in the opposite order?