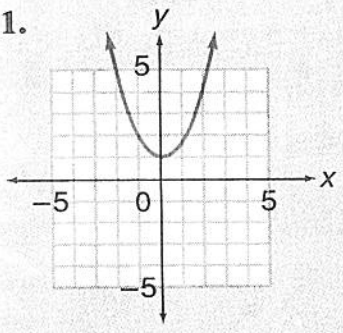
Name:_____ Date: _____

PC: Vertical and Horizontal Stretches and Shrinks Ms. Loughran

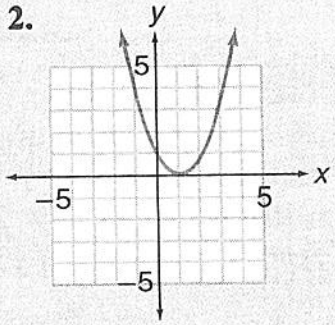
Do Now:

Match each graph with one of the given quadratic equations.

1.



2.



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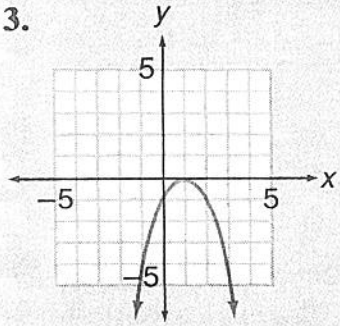

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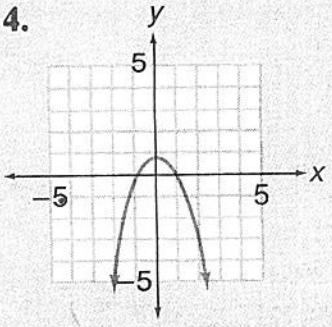

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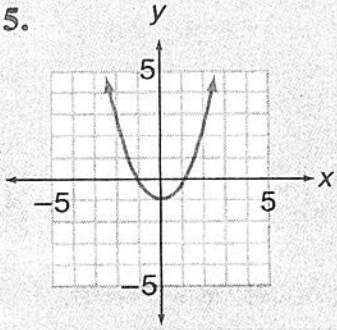
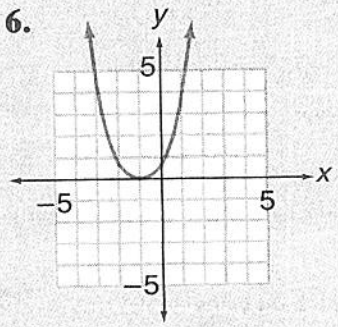


6.



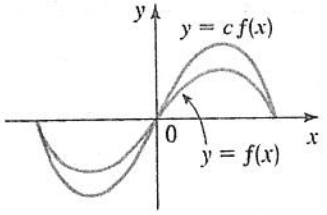
(a) $y = (x + 1)^2$
(b) $y = x^2 + 1$
(c) $y = (x - 1)^2$
(d) $y = x^2 - 1$
(e) $y = -(x - 1)^2$
(f) $y = -x^2 + 1$

Vertical Stretching and Shrinking of Graphs

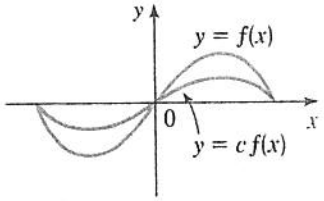
To graph $y = cf(x)$:

If $c > 1$, stretch the graph of $y = f(x)$ vertically by a factor of c.

If $0 < c < 1$, shrink the graph of $y = f(x)$ vertically by a factor of c.



$c > 1$



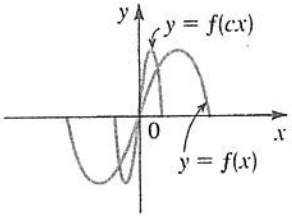
$0 < c < 1$

Horizontal Shrinking and Stretching of Graphs

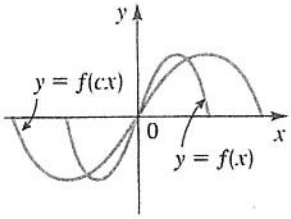
To graph $y = f(cx)$:

If $c > 1$, shrink the graph of $y = f(x)$ horizontally by a factor of $1/c$.

If $0 < c < 1$, stretch the graph of $y = f(x)$ horizontally by a factor of $1/c$.



$c > 1$



$0 < c < 1$

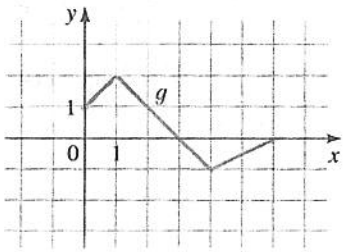
1. The graph of g is given. Use it to graph each of the following functions on a separate piece of graph paper.

(a) $y = g(2x)$

(b) $y = g(\frac{1}{2}x)$

(c) $y = 2g(x)$

(d) $y = \frac{1}{2}g(x)$



For 2 – 5, sketch each function on a separate piece of graph paper, including a minimum of 3 points. Then state the domain, range and coordinates of *x* and *y* intercepts.

2. $y = 3x^2 + 2$

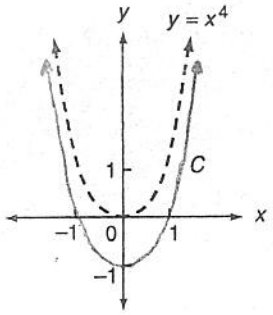
3. $y = 4(x-1)^3$

4. $y = |2x| - 5$

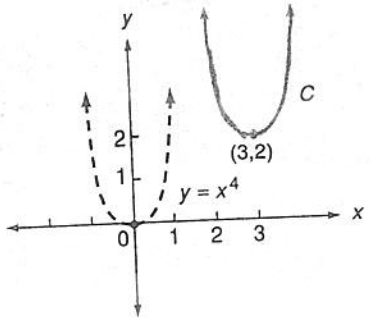
5. $y = (3x)^4$

For 6 – 9, find the equation of the curve *C* which is obtained from the dashed curve by a horizontal or vertical shift, or a combination of the two.

6.



7.



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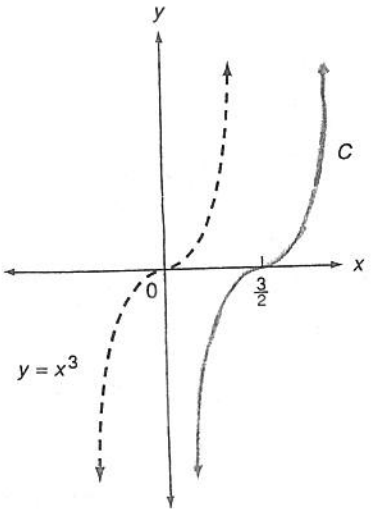

9.