Handout 10: 2.8 Transformations

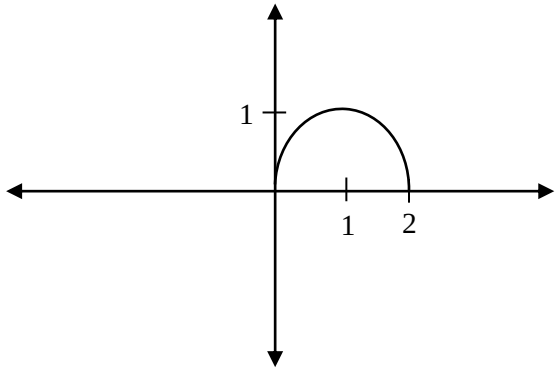
1. The figure below shows the graph of a function *h*. Make a graph of each variation of *h* and state the domain and range for each.

a. $y = 2h(x)$

b. $y = h(x) + 1$

c. $y = h(x - 4)$

d. $y = h(2x)$



2. Graph each piecewise-defined function.

a. $c(a) = \begin{cases} \sqrt{2a}, & a > 0 \\ \frac{2}{a}, & -1 \le a < 0 \\ |a| - 3, & a \le -1 \end{cases}$

b. $w(\theta) = n\sin(\theta)$, if $(n-1)\pi \le \theta < n\pi$ and n is an integer greater than or equal to 1.

3. If $h(x)$ is symmetric about the line $x = 4$, what line would $h(x-6)$ be symmetric about?

4. Below is a table of functional values for $f(x), g(x)$, and $h(x)$. $g(x)$ and $h(x)$ are transformations of $f(x)$. Write the equations for $g(x)$ and $h(x)$ in terms of $f(x)$.

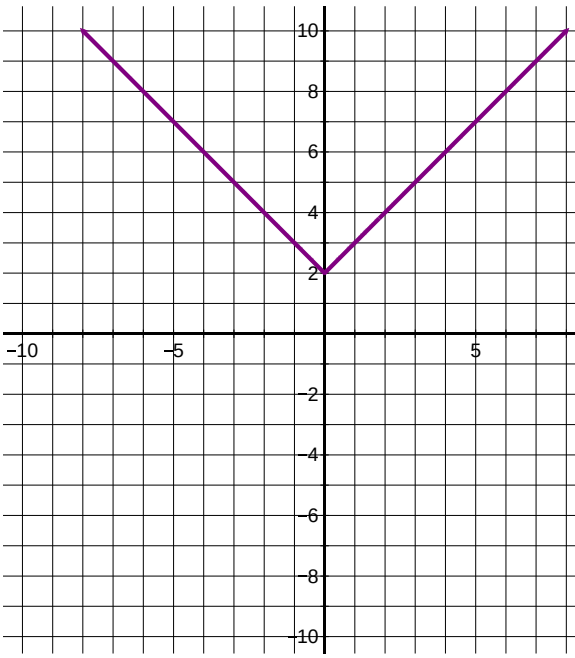
x	$f(x)$	$g(x)$	$h(x)$
-5	-1562.5	-4687.5	-121.5
-4	-512	-1536	-16
-3	-121.5	-364.5	-0.5
-2	-16	-48	0
-1	-0.5	-1.5	0.5
0	0	0	16
1	0.5	1.5	121.5
2	16	48	512
3	121.5	364.5	1562.5
4	512	1536	3888
5	1562.5	4687.5	84043.5

5. Suppose the domain of $f(x)$ is $\{x| -2 < x < 5\}$ and the range of $f(x)$ is $\{y|y \ge 1\}$. Find the domain and range of

a. $y = f(x) + 5$ b. $y = f(x + 5)$ c. $y = 5f(x)$ d. $y = f(5x)$

6. Write an equation for each of the functions graphed below. Some may be piecewise-defined functions.

a.



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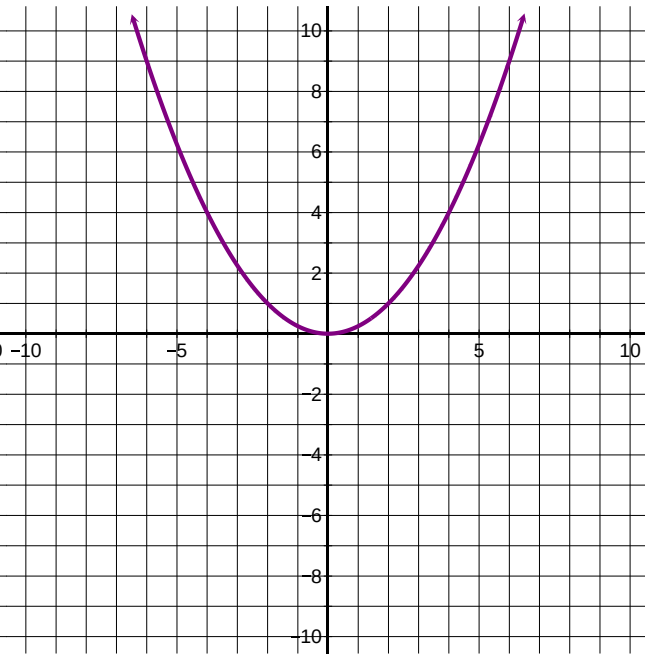

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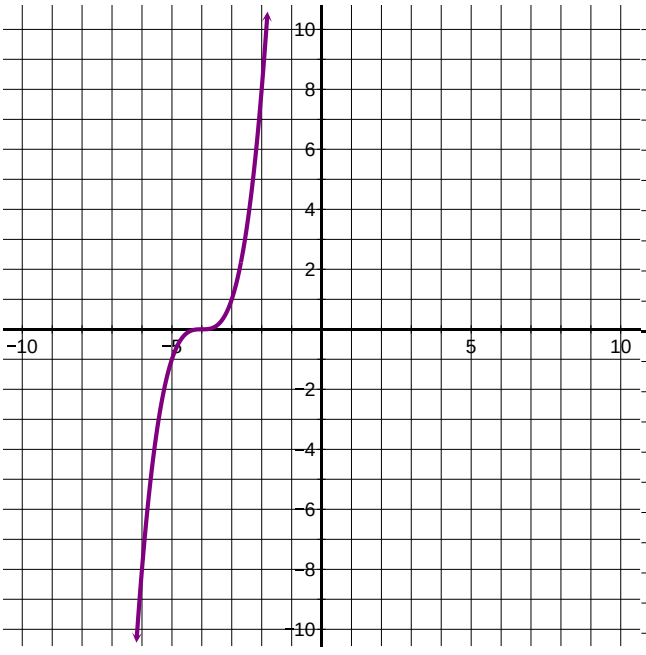

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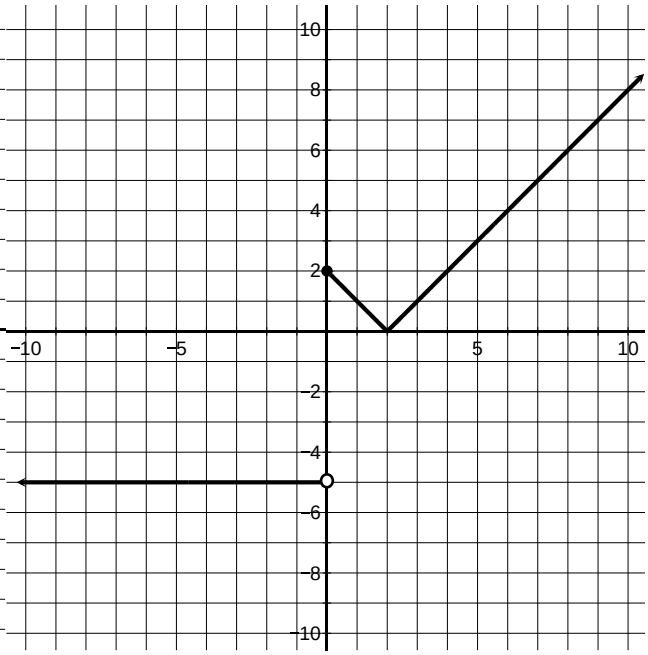

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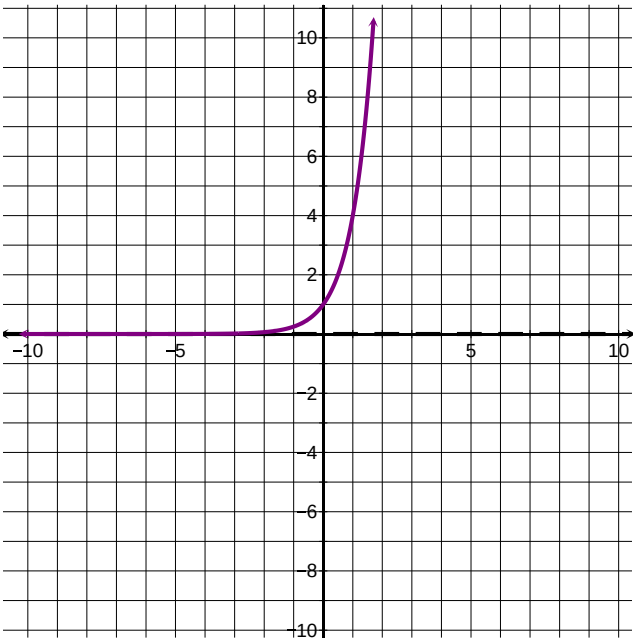
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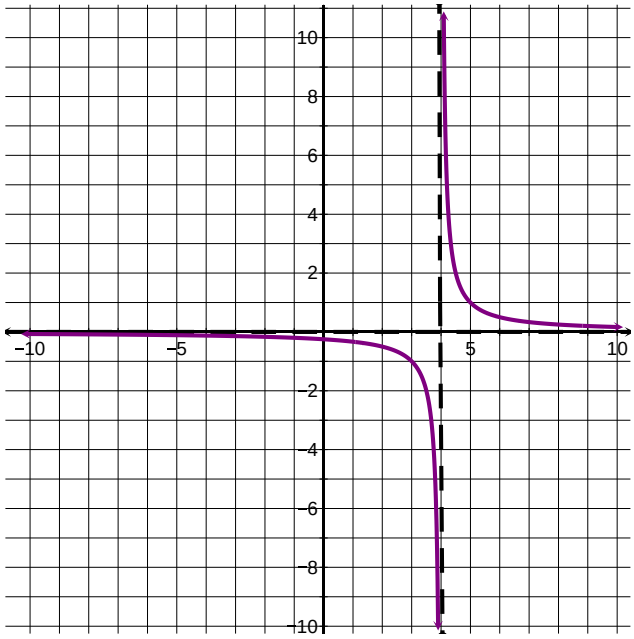
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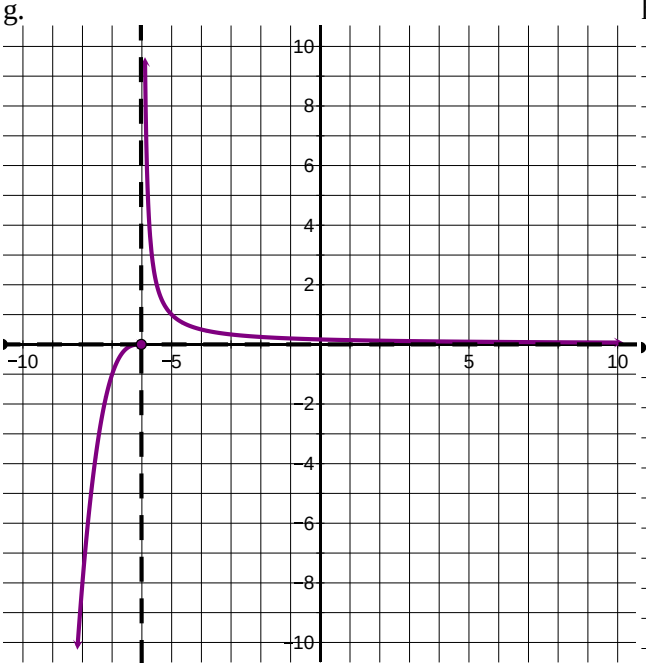
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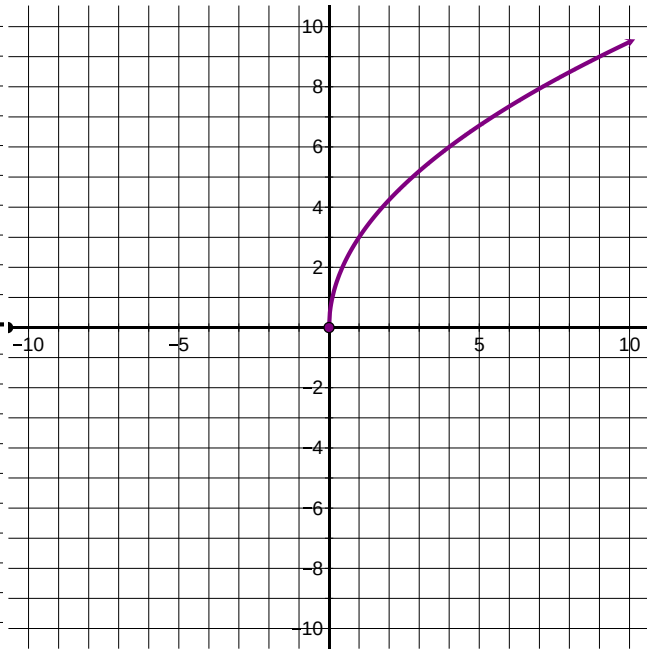
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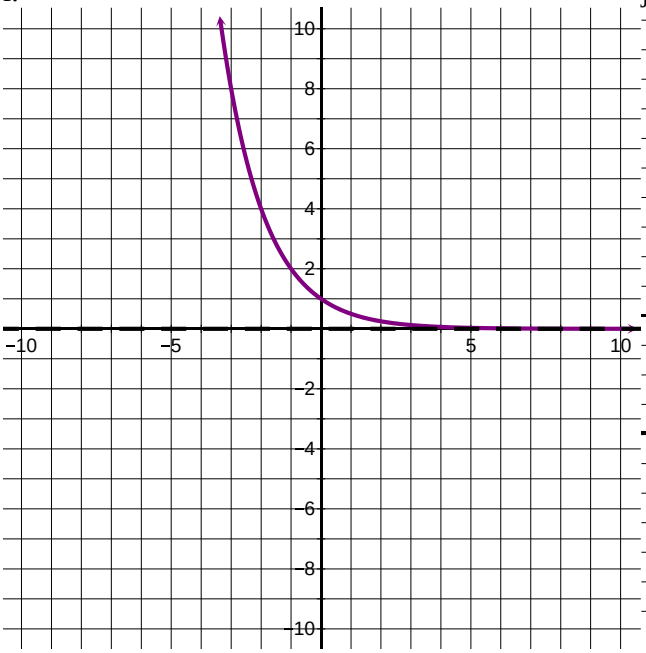
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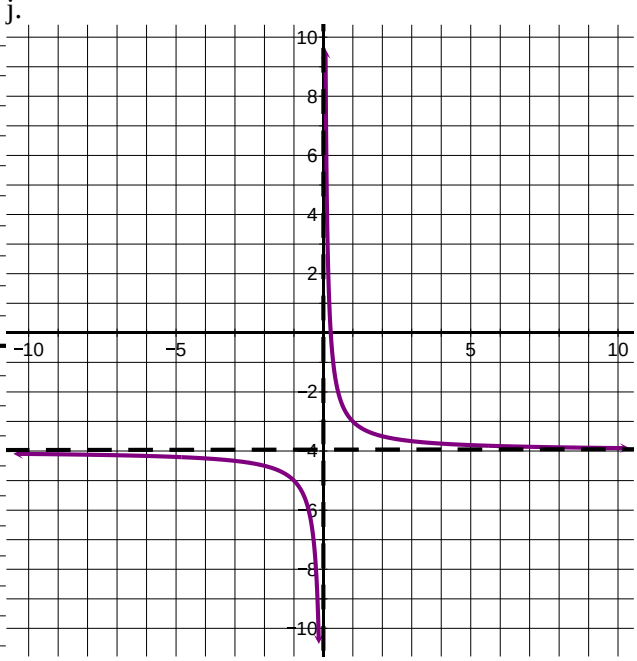
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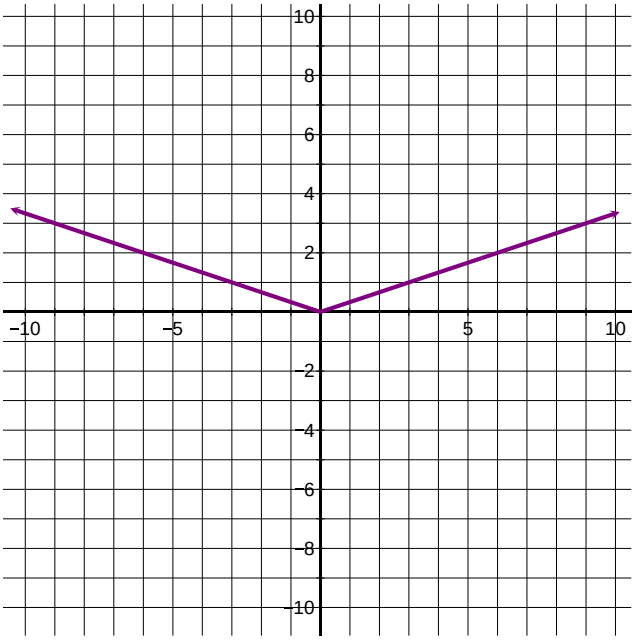
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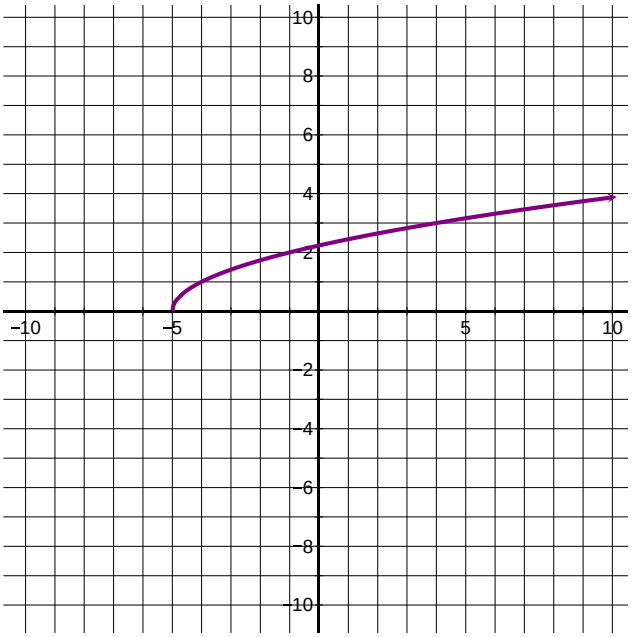
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