

**DO NOW**

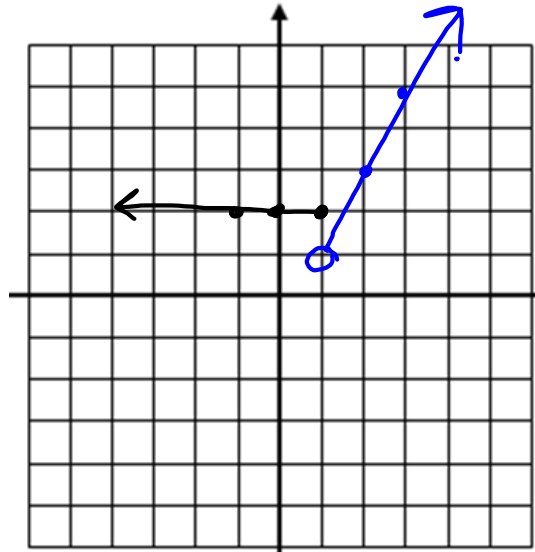
Graph  $g(x) = \begin{cases} 2, & x \leq 1 \\ 2x-1, & x > 1 \end{cases}$

$g(x) = 2$

x	y
1	2
0	2
-1	2

$g(x) = 2x - 1$

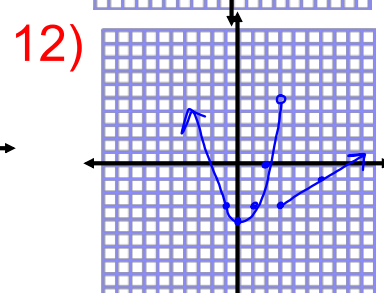
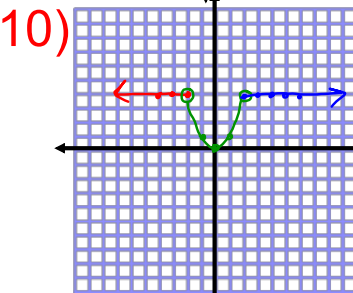
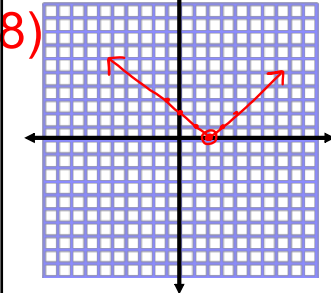
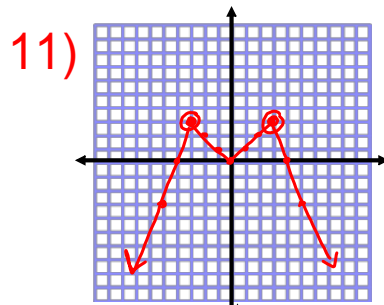
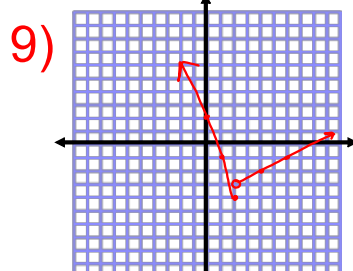
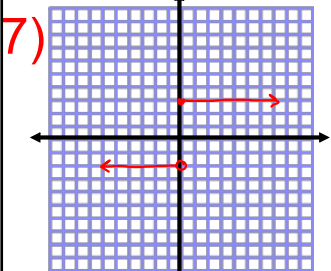
x	y
1	1
2	3
3	5



What is  $g(6)$ ?

Jan 30-9:42 AM

1) 16   2) 16   3) 9   4) -14   5) 3   6) -2   **HW Answers**



13)  $f(x) = \begin{cases} \frac{1}{2}x + \frac{3}{2}; & x \geq 1 \\ x; & x < -1 \end{cases}$

14)  $f(x) = \begin{cases} x + 3; & -2 \leq x \leq 0 \\ -x + 3; & 0 < x < 2 \\ -2x + 2; & x \geq 2 \end{cases}$

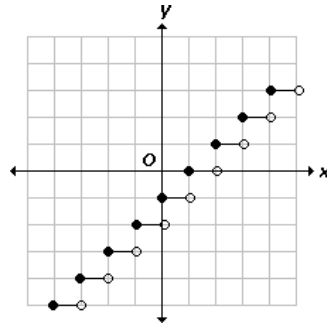
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## Step Functions

Special Cases of Piecewise Functions

### Step Function

a function that pairs every number in an interval with a single value.



Jan 29-7:43 PM

### Graphing Step Functions

1. Are the endpoints of the intervals included or excluded?  $\leq$   $\geq$   
 $<$   $>$  *Restricted Domain*

2. What y-values should you be graphing?

3. Is your end graph a function?

Dec 11-2:55 PM

A step function is defined using the piecewise formula

$$f(x) = \begin{cases} 2 & 0 \leq x < 3 \\ 5 & 3 \leq x < 5 \\ -4 & 5 \leq x \leq 10 \end{cases}$$

(a) Evaluate the following: → ALL CONSTANTS

$$f(2.7) = 2$$

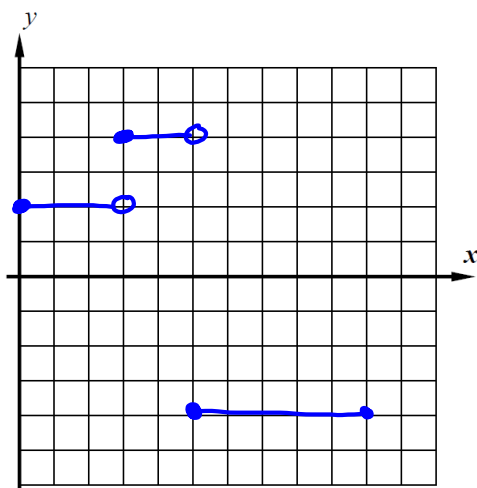
$$f(5) = -4$$

$$f(3.5) = 5$$

$$f(0) = 2$$

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(b) Graph  $f(x)$  on the grid to the right.



$$f(x) = \begin{cases} 2 & 0 \leq x < 3 \\ 5 & 3 \leq x < 5 \\ -4 & 5 \leq x \leq 10 \end{cases}$$

$$\begin{array}{r|l} y=2 & \\ \hline x & y \\ \hline 0 & 2 \\ 3 & 2 \end{array}$$

$$\begin{array}{r|l} y=5 & \\ \hline x & y \\ \hline 3 & 5 \\ 5 & 5 \end{array}$$

$$\begin{array}{r|l} y=-4 & \\ \hline x & y \\ \hline 5 & -4 \\ 10 & -4 \end{array}$$

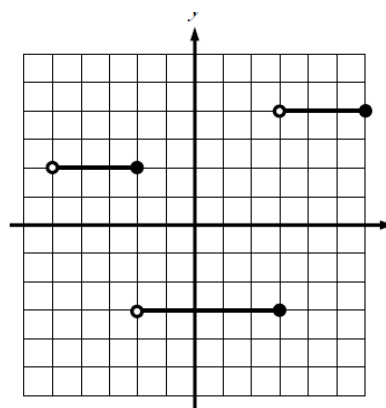
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The step function  $g(x)$  is shown on the grid to below. Answer the following questions.

(a) Evaluate each of the following:

$$f(-4) = 2 \qquad f(-2) = 2$$

$$f(2) = -3 \qquad f(5) = 4$$



(b) Write an equation for this step function:

$$g(x) = \begin{cases} 2; & -5 < x \leq -2 \\ -3; & -2 < x \leq 3 \\ 4; & 3 < x \leq 6 \end{cases}$$

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