

Name key
8A; Algebra 1

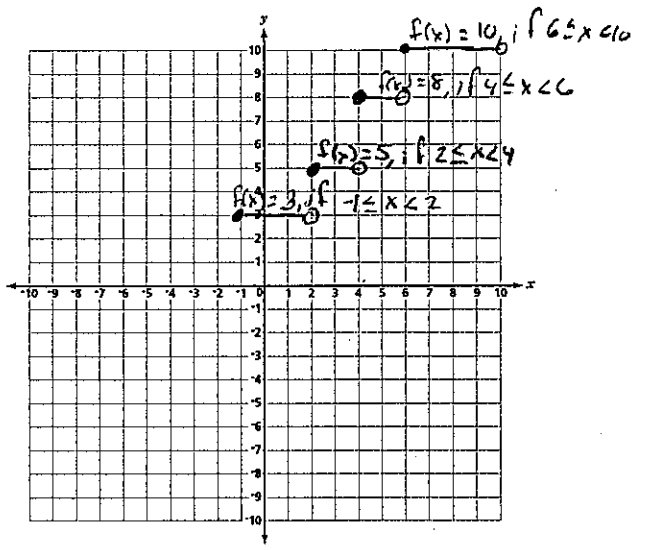
Date _____
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Homework

#'s 1-4: Graph the following step functions

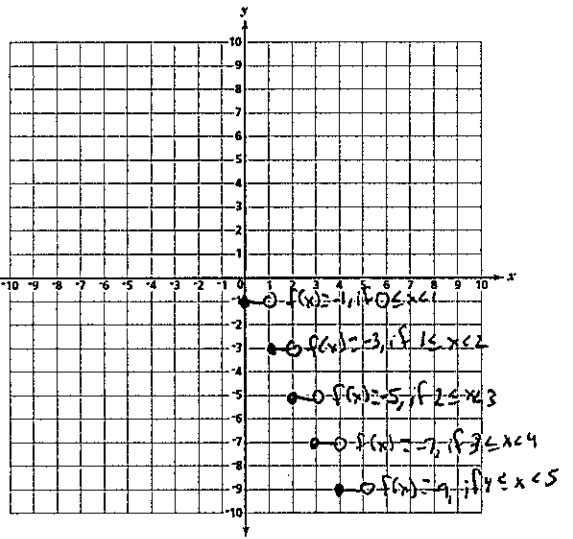
$$1. f(x) = \begin{cases} 3, & \text{if } -1 \leq x < 2 \\ 5, & \text{if } 2 \leq x < 4 \\ 8, & \text{if } 4 \leq x < 6 \\ 10, & \text{if } 6 \leq x < 10 \end{cases}$$

$f(x) = 3, \text{ if } -1 \leq x < 2$	$f(x) = 5, \text{ if } 2 \leq x < 4$	$f(x) = 8, \text{ if } 4 \leq x < 6$	$f(x) = 10, \text{ if } 6 \leq x < 10$
$\begin{matrix} c & 0 \\ m & 0 \\ B & 3 \end{matrix}$	$\begin{matrix} c & 0 \\ m & 0 \\ B & 5 \end{matrix}$	$\begin{matrix} c & 0 \\ m & 0 \\ B & 8 \end{matrix}$	$\begin{matrix} c & 0 \\ m & 0 \\ B & 10 \end{matrix}$



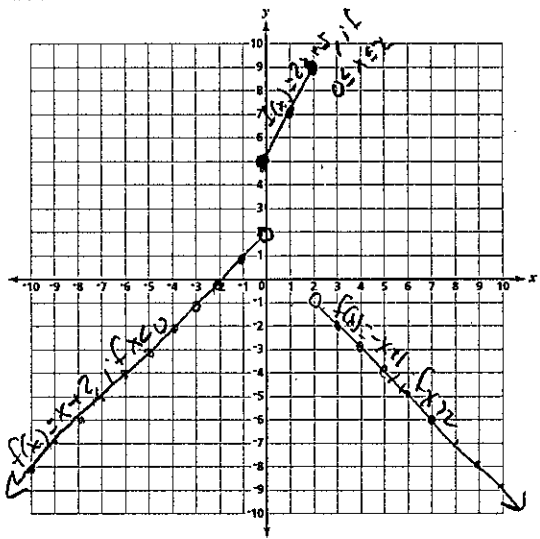
$$2. f(x) = \begin{cases} -1, & \text{if } 0 \leq x < 1 \\ -3, & \text{if } 1 \leq x < 2 \\ -5, & \text{if } 2 \leq x < 3 \\ -7, & \text{if } 3 \leq x < 4 \\ -9, & \text{if } 4 \leq x < 5 \end{cases}$$

$f(x) = -1, \text{ if } 0 \leq x < 1$	$f(x) = -3, \text{ if } 1 \leq x < 2$	$f(x) = -5, \text{ if } 2 \leq x < 3$	$f(x) = -7, \text{ if } 3 \leq x < 4$	$f(x) = -9, \text{ if } 4 \leq x < 5$
$\begin{matrix} c & 0 \\ m & 0 \\ B & -1 \end{matrix}$	$\begin{matrix} c & 0 \\ m & 0 \\ B & -3 \end{matrix}$	$\begin{matrix} c & 0 \\ m & 0 \\ B & -5 \end{matrix}$	$\begin{matrix} c & 0 \\ m & 0 \\ B & -7 \end{matrix}$	$\begin{matrix} c & 0 \\ m & 0 \\ B & -9 \end{matrix}$



$$3. f(x) = \begin{cases} x+2, & \text{if } x < 0 \\ 2x+5, & \text{if } 0 \leq x \leq 2 \\ -x+1, & \text{if } x > 2 \end{cases}$$

$f(x) = x+2, \text{ if } x < 0$	$f(x) = 2x+5, \text{ if } 0 \leq x \leq 2$	$f(x) = -x+1, \text{ if } x > 2$
$\begin{matrix} c & 0 \\ m & 1 \\ B & 2 \end{matrix}$	$\begin{matrix} c & 0 \\ m & 2 \\ B & 5 \end{matrix}$	$\begin{matrix} c & 0 \\ m & -1 \\ B & 1 \end{matrix}$

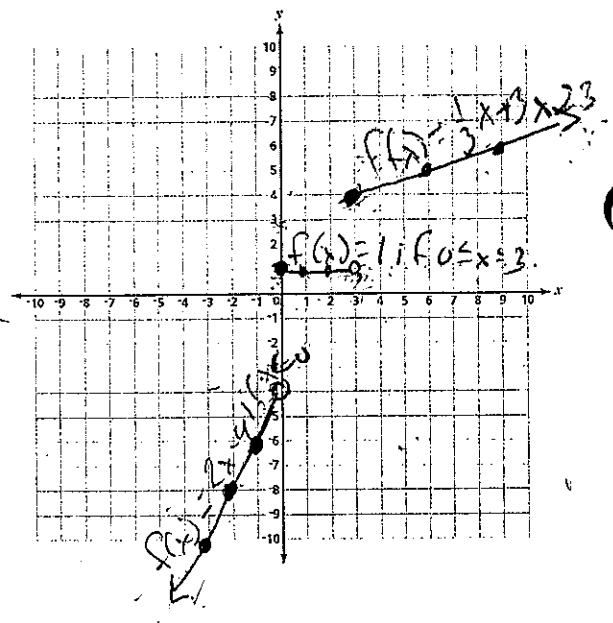


4. $f(x) = \begin{cases} 2x-4, & \text{if } x < 0 \\ 1, & \text{if } 0 \leq x < 3 \\ \frac{1}{3}x+3, & \text{if } x \geq 3 \end{cases}$

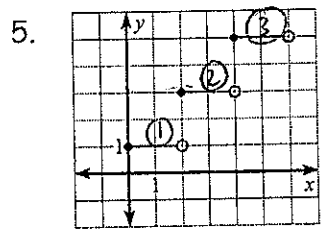
$f(x) = 2x-4$
if $x < 0$
open
 $m = \frac{2}{1}$
 $b = -4$

$f(x) = 1$
if $0 \leq x < 3$
closed
 $m = 0$
 $b = 1$

$f(x) = \frac{1}{3}x+3$
if $x \geq 3$
closed
 $m = \frac{1}{3}$
 $b = 3$



#'s 5 - 6: Write the equations for the piecewise functions below.



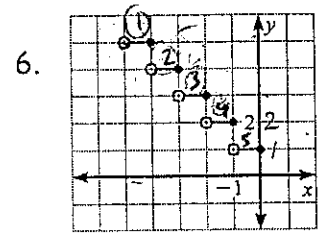
$f(x) = \begin{cases} 1, & \text{if } 0 \leq x < 2 \\ 3, & \text{if } 2 \leq x < 4 \\ 5, & \text{if } 4 \leq x < 6 \end{cases}$

Domain in numerical order

Read graph from left

to right so the domain is in numerical order

①	②	③
$m=0$	$m=0$	$m=0$
$b=1$	$b=3$	$b=5$
$y=1$	$y=3$	$y=5$
$0 \leq x < 2$	$2 \leq x < 4$	$4 \leq x < 6$



$f(x) = \begin{cases} 5, & \text{if } -5 \leq x < -4 \\ 4, & \text{if } -4 < x \leq -3 \\ 3, & \text{if } -3 < x \leq -2 \\ 2, & \text{if } -2 < x \leq -1 \\ 1, & \text{if } -1 < x \leq 0 \end{cases}$

Domain in numerical order

①	②	③	④	⑤
$m=0$	$m=0$	$m=0$	$m=0$	$m=0$
$b=5$	$b=4$	$b=3$	$b=2$	$b=1$
$y=5$	$y=4$	$y=3$	$y=2$	$y=1$
$-5 \leq x < -4$	$-4 < x \leq -3$	$-3 < x \leq -2$	$-2 < x \leq -1$	$-1 < x \leq 0$