Algebra 2 – Functions Notes Day 1 **Name:** Key

Write an algebraic expression for the following:

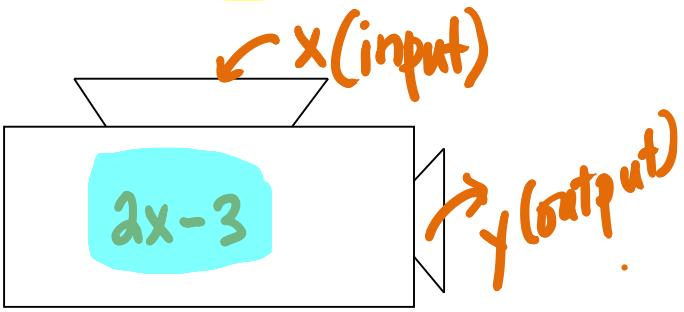
1. The sum of three times a number and five

$3x + 5$

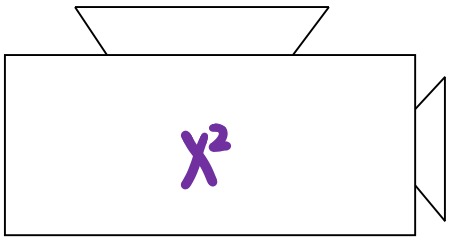
2. A number cubed less seven

$x^3 - 7$

2. f(x) : double the input and then subtract 3

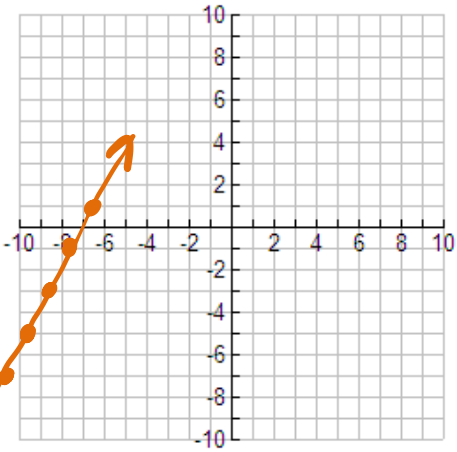


3. g(x): square the input

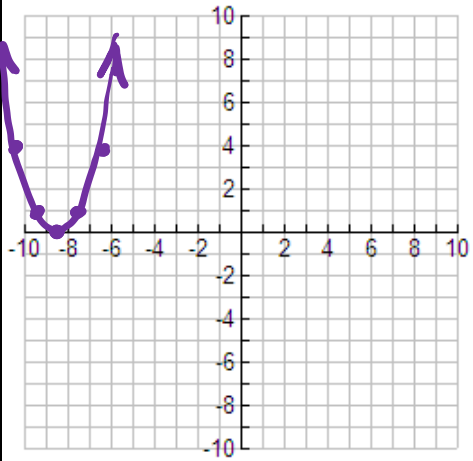


input

x	f(x)
-2	-7
-1	-5
0	-3
1	-1
2	1



x	g(x)
-2	4
-1	1
0	0
1	1
2	4



Use $q(x) = 5x - 2$, $k(x) = x^2 - 3x + 7$, **and** $m(x) = |8x - 1|$ **to answer the questions below.**

Evaluate the following:

1. q(10) = $5(10) - 2$ $= 48$ (output)

2. m(-5) = $|8(-5) - 1|$ $= |-40 - 1|$ $= |-41| = 41$

3. k(-2) = $(-2)^2 - 3(-2) + 7$ $= 4 + 6 + 7$ $= 17$

4. m(x) = $|8x - 1|$

5. Find x when q(x) = 13 (find the input (x))

$13 = 5x - 2$

$15 = 5x$

$3 = x$

6. Find x when k(x) = 17

$17 = x^2 - 3x + 7$

$0 = x^2 - 3x - 10$

$0 = (x + 2)(x - 5)$

$x = -2, 5$

II.

x	$f(x)$	$g(x)$	$h(x)$
-1	2	3	-1
0	0	2	1
1	1	1	3
2	0	-1	5
3	2	-1	7

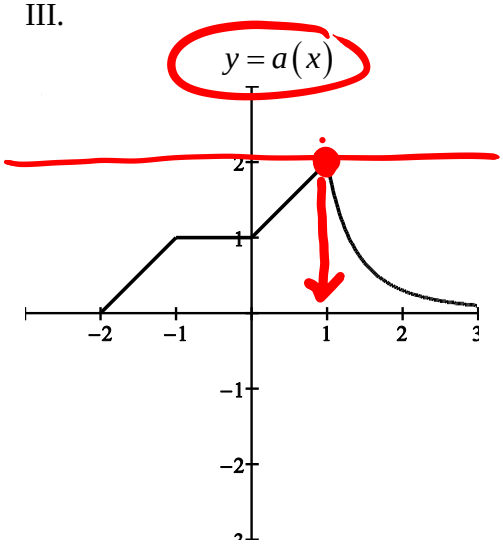
Evaluate the following:

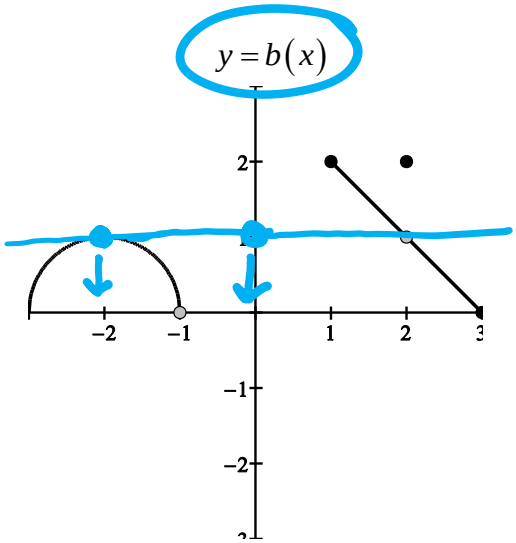
1. $g(2) =$ -1
2. f(0) = 0
3. $-4f(3) =$ $-4 \cdot f(3)$, $-4 \cdot 2 = -8$
4. f(-1) + f(2) = $2 + 0 = 2$

9. Find x when h(x) = 5 — 2

10. Find x when f(x) = 2 — -1, 3 (can have 2 answers)

III.





Evaluate the following:

1. a(0) = 1
2. a(1) = 2
3. a(-0.3) = 1
4. b(1) = 2
5. b(2) = 2

*draw a horizontal line

6. Find x when a(x) = 2 — (y=2), x=1
7. Find x when b(x) = 1 (y=1)
(hint: there's more than one answer!) — x = 0, -2