Use these two functions: $f(x) = 2x - 3$ $g(c) = 2c^2 - 5c$

1. Find $4f(6) + 1$

4 times f of 6 plus 1

① $f(6) = 2(6) - 3 = 12 - 3 = 9$

② $4(9) + 1 = 36 + 1 = \boxed{37}$

Use these two functions: $f(x) = 2x - 3$ $g(c) = 2c^2 - 5c$

2. Find $8g(3) - 5g(2)$ ⟶ $8(3) - 5(-2)$

$g(3) = 2(3)^2 - 5(3)$
$= 18 - 15$
$= 3$

$g(2) = 2(2)^2 - 5(2)$
$= 8 - 10$
$= -2$

$= 24 + 10$

$= \boxed{34}$

Use these two functions: $f(x) = 2x - 3$ $g(c) = 2c^2 - 5c$

3. Find $2f(-5) + 3g(-2)$ ⟶ $2(-13) + 3(18)$

$f(-5) = 2(-5) - 3 = -13$

$g(-2) = 2(-2)^2 - 5(-2)$
$= 8 + 10$
$= 18$

$= -26 + 54$

$= \boxed{28}$

Relation: A set of ordered pairs

↓

A bunch of points

Know the difference between these terms and be able to identify a relation using the correct one.

Function vs. Not a Function

Function: A relation such that every domain is paired with exactly one range.

How do you tell if a graph represents a function?

Vertical Line Test: If any vertical line passes through a graph more than once, then the graph is NOT a function.

Does each relation represent a function?

A. YES

X	Y
7	3
6	−1
−2	0
10	−8
1	3

No x-value repeats.

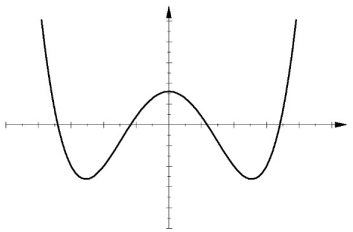
B. NO

X	Y
4	−6
−2	8
3	7
4	1
0	−5

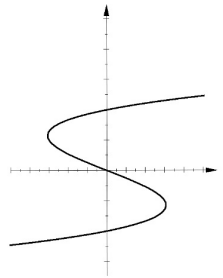
The x-value of 4 is paired with two different y-values.

Does each relation represent a function?

A.

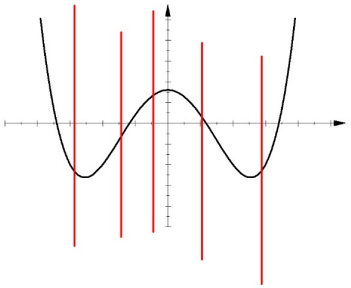


B.

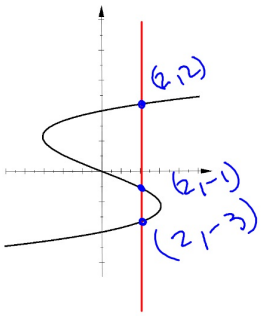


Does each relation represent a function?

A. Yes, no vertical line will ever touch the graph more than once.



B. No, the red line touches the graph more than once.



X	Y
2	2
2	-1
2	-3

These three points of intersection represent the same x-value being paired with three different y-values.

Given two functions, f(x) and g(x) and their graphs:

When does f(x) = g(x)?

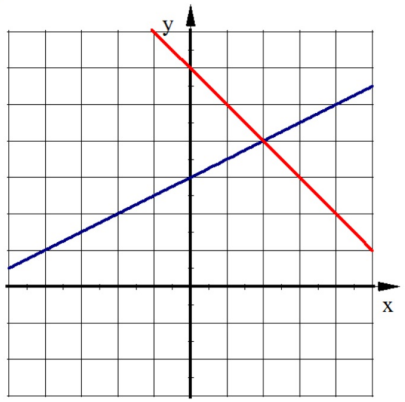
When is f(x) > g(x)?

When is f(x) < g(x)?

Use the graphs of these two functions shown to answer the following questions. Give interval answers using interval notation.

$f(x) = \frac{1}{2}x + 3$ $g(x) = -x + 6$

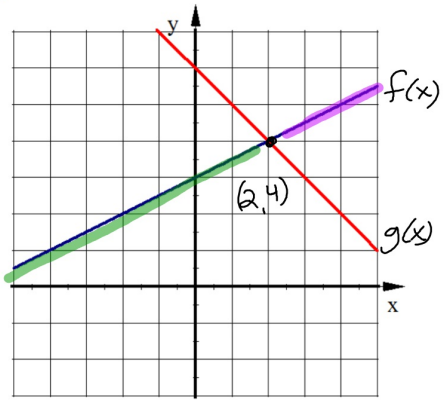
1. f(x) = g(x)
2. f(x) > g(x)
3. f(x) < g(x)



Use the graphs of these two functions shown to answer the following questions. Give interval answers using interval notation.

$f(x) = \frac{1}{2}x + 3$ $g(x) = -x + 6$

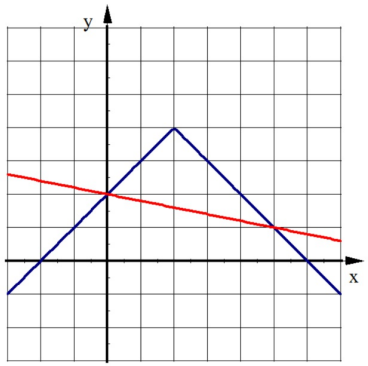
1. f(x) = g(x) $x = 2$
2. f(x) > g(x) $(2, \infty)$
   when f(x) is above g(x)
3. f(x) < g(x) $(-\infty, 2)$
   when f(x) is below g(x)



Use the graphs of these two functions shown to answer the following questions. Give answers that are intervals in interval notation.

$f(x) = -|x-2|+4$ $\quad g(x) = -\frac{1}{5}x+2$

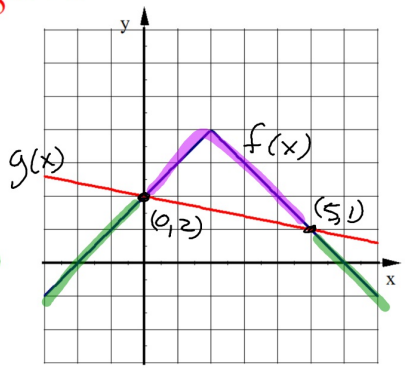
1. f(x) = g(x)
2. f(x) > g(x)
3. f(x) < g(x)



Use the graphs of these two functions shown to answer the following questions. Give answers that are intervals in interval notation.

$f(x) = -|x-2|+4$ $\quad g(x) = -\frac{1}{5}x+2$

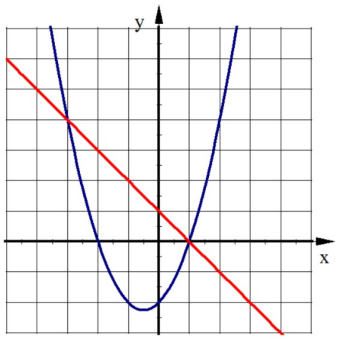
1. f(x) = g(x) $x = 0, 5$
2. f(x) > g(x) $(0, 5)$ when f(x) is above g(x)
3. f(x) < g(x) $(-\infty, 0) \cup (5, \infty)$ when f(x) is below g(x)



Use the graphs of these two functions shown to answer the following questions. Give answers that are intervals in interval notation.

$f(x) = x^2 + x - 2$ $\quad g(x) = -x+1$

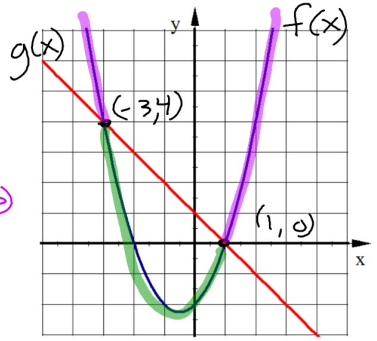
1. f(x) = g(x)
2. f(x) > g(x)
3. f(x) < g(x)



Use the graphs of these two functions shown to answer the following questions. Give answers that are intervals in interval notation.

$f(x) = x^2 + x - 2$ $\quad g(x) = -x+1$

1. f(x) = g(x) $x = -3, 1$
2. f(x) > g(x) $(-\infty, -3) \cup (1, \infty)$ when f(x) is above g(x)
3. f(x) < g(x) $(-3, 1)$ when f(x) is below g(x)



You can now finish Hwk #4: Practice Sheet.