Graphs and f(x)

Last day we learned that

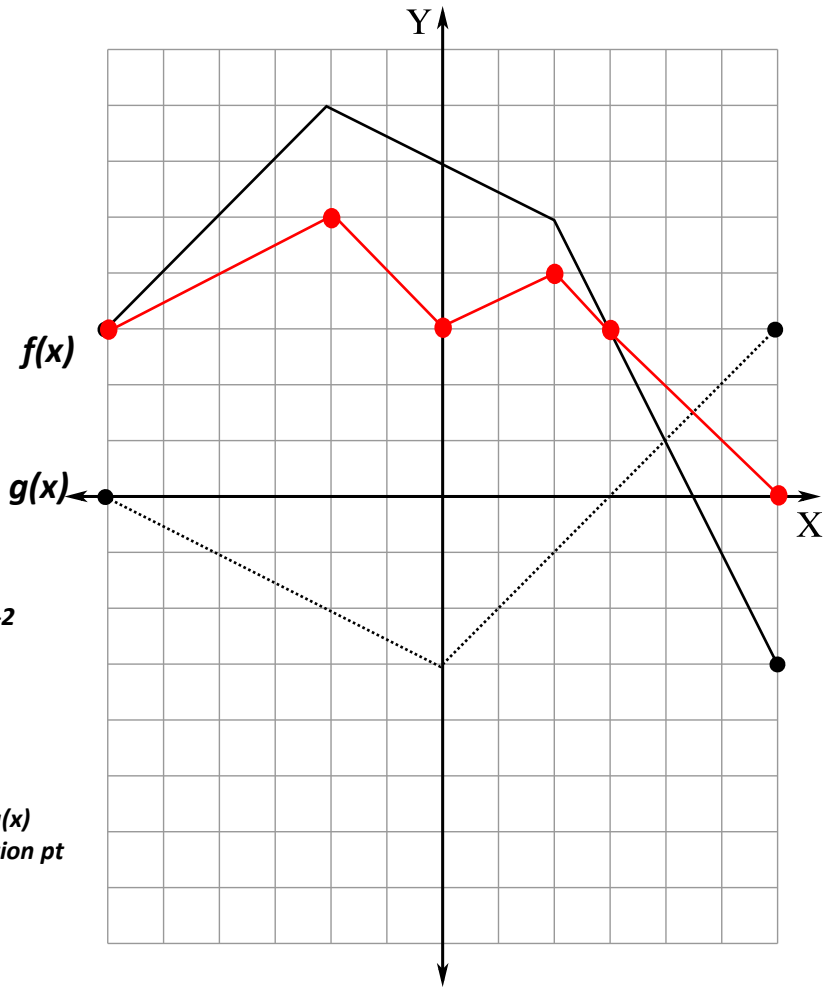
f(2) means what is y when x = 2

and f(x) = 2 means for what x does y = 2

Now we look at this in terms of a graph
But instead of 'plugging in x' or solving for x

we will go to the graph called f(x) and find the requested value

1) The graph of f(x) and g(x) are shown on the axis below - use the graph to determine the value(s) of the following statements



a) f(2)
if x = 2
f(2) = 5

b) g(2)
g(2) = -1

c) f(-2)
if x = -2
f(-2) = 7

d) g(-2)
g(-2) = -2

e) f(6)
if x = 6
f(6) = -3

f) g(-4)
if x = -4
g(-4) = 3

g) f(x) = -1
when does f(x) = -1
x = 5

h) g(x) = -2
when does g(x) = -2
x = -4 or 2

i) f(x) = 3
when does f(x) = 3
x = -6 or 3

j) f(x) = g(x)
when does f(x) = g(x)
that's an intersection pt
x = 4

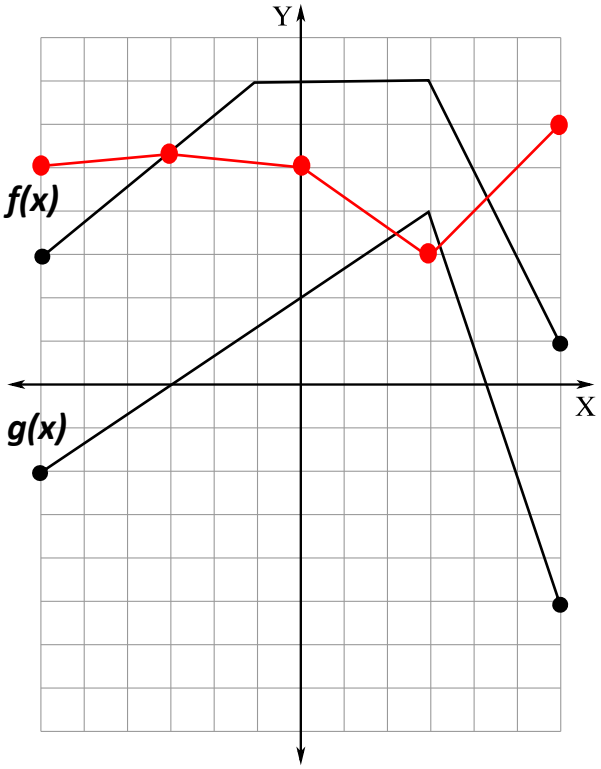
k) f(-4) + g(-4)
x = -4
5 + -1
f(-4) + g(-4) = -4

l) f(0) - g(0)
x = 0
6 - -3
f(0) - g(0) = 9

(k and l) above imply we could create a new graph - let's create y = f(x) + g(x)
We do this by adding the y-values together for each x (ex. Far right pt. 3 + -3 = 0)

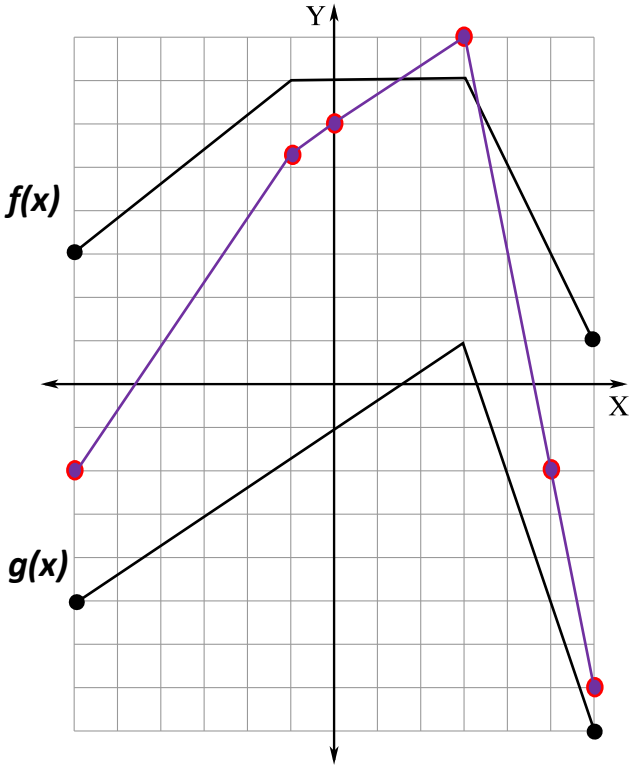
Let's combine ***f(x) - g(x)***

here we subtract y's f – g *(watch for - -)*



f(x) + g(x)

add y's f + g

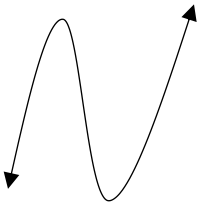


A graph is only considered a function if

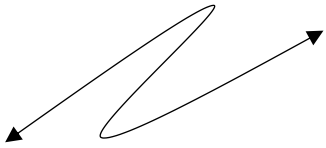
For every ***x*** ***value you produce*** ***a single y*** ***value - which is a fancy way of saying***

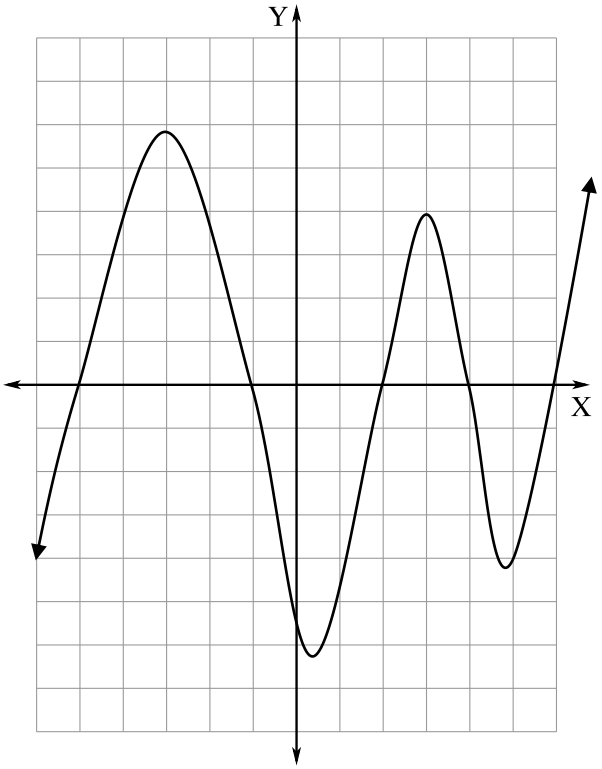
The graph can't ***cross back on itself***

function



Not a function





Solve f(x) = 0 for the function shown to the right

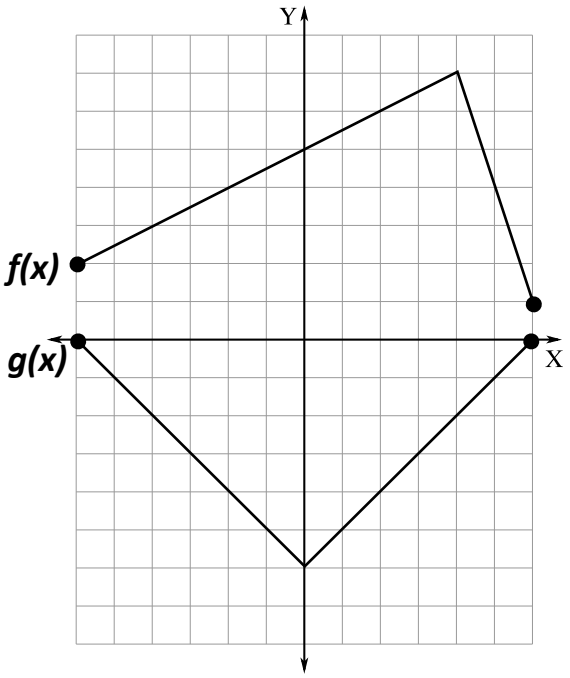
X = -5, -1, 2, 4, 6

Is this graph foreshadowing graphs that you will encounter in your future?

Assignment = worksheet

Graphs and f(x)

1) The graph of f(x) and g(x) are shown on the axis below - use the graph to determine the value(s) of the following statements



a) f(2) ***b) g(2)***

c) f(-3) ***d) g(-1)***

e) f(6) ***f) g(-4)***

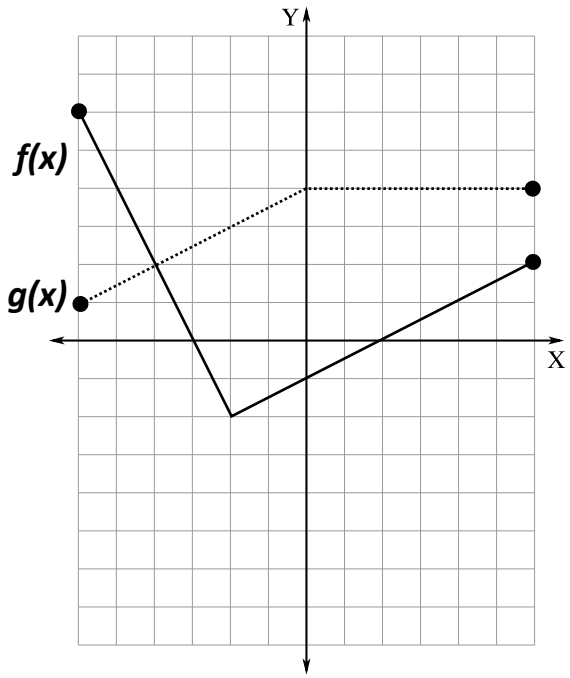
g) f(x) = 7 ***h) g(x) = -6***

i) f(x) = 4 ***j) g(x) = 2***

k) f(2) + g(-5) ***l) f(-4) + g(-4)***

2) Sketch the graph: f(x) + g(x)

3) The graph of f(x) and g(x) are shown on the axis below - use the graph to determine the value(s) of the following statements



a) f(2) ***b) g(2)***

c) f(-6) ***d) g(-6)***

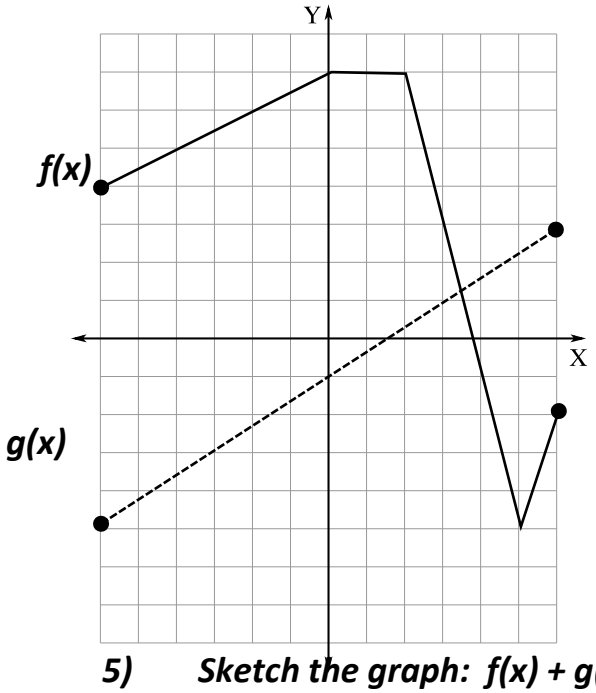
e) f(x) = g(x) ***f) g(0)***

g) f(x) = 2 ***h) g(x) = 3***

i) f(x) = 0 ***j) f(x) = -1***

4) Sketch the graph: f(x) - g(x)

5) The graph of f(x) and g(x) are shown on the axis below - use the graph to determine the value(s) of the following statements



a) f(2) ***b) g(6)***

c) f(x) = g(x) ***d) g(x)= -1***

e) f(x) = -2 ***f) g(0)***

g) g(-3) + f(-4) ***h) f(x) = 5***

i) g(x) = 6 ***j) f(-2) - g(-6)***

5) Sketch the graph: f(x) + g(x)

6) Write the equation of the g(x): g(x) = _____

7) Given f(x) = 9x – 12, g(x) = 14x + 1 and h(x) = x^2 – 8x find

a) f(4) ***b) g(-2)*** ***c) h(2)*** ***d) h(-10)***

e) g(x) = 15 ***f) f(x) = 10*** ***g) h(-5)*** ***h) g(x) = 7***

i) f(x) = 12 ***j) g(x) = 9*** ***k) g(x) = -18*** ***l) f(x) = 200***

m) f(-1) – g(-2) + h(2) ***n) g(x) = f(x)*** ****o) h(x) = 0***