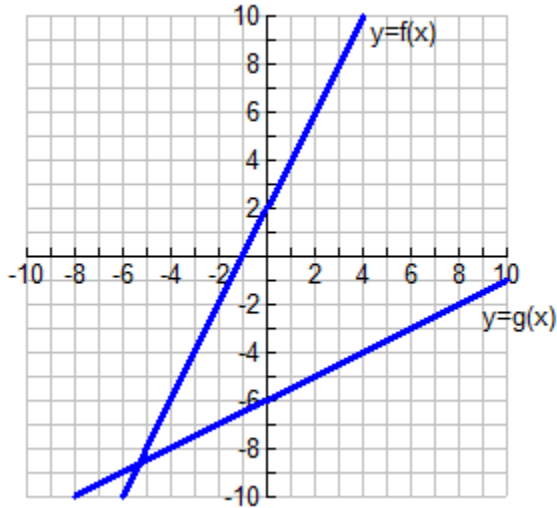


Target 1: I understand how to evaluate composite functions using a graph.

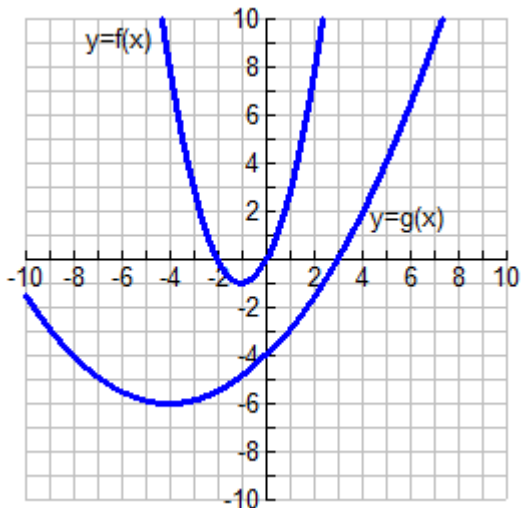
1. The graphs of $y = f(x)$ and $y = g(x)$ are shown in the graph below.



Approximate the value of $g(f(0))$.

$$g(f(0)) = g(2) = -5$$

2. The graphs of $y = f(x)$ and $y = g(x)$ are shown in the graph below.

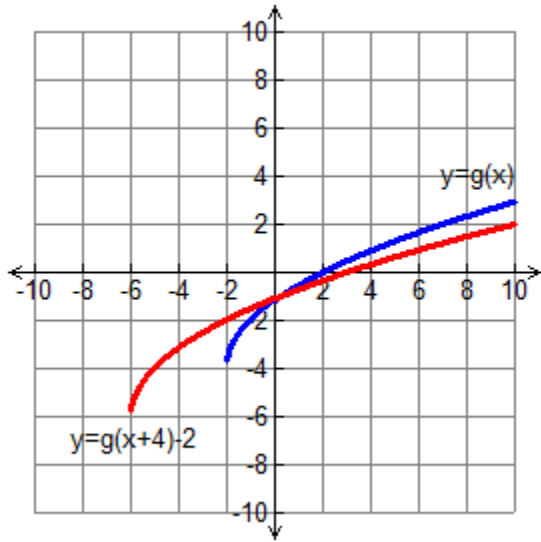


Approximate the value of $f(g(1))$.

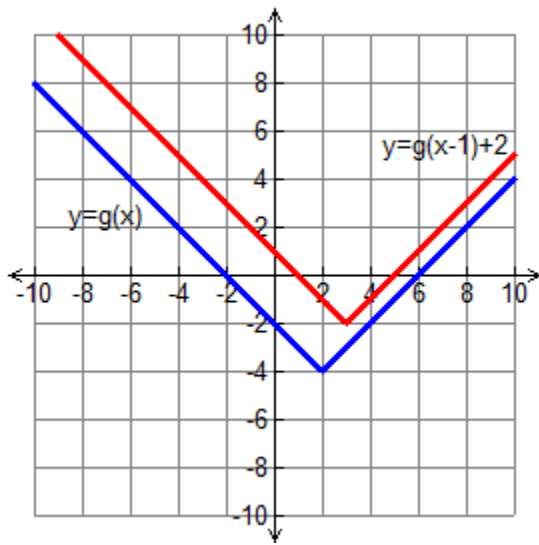
$$f(g(1)) = f(-3) = 3$$

Target 2: I understand how to sketch graphs of composite functions.

3. The graph of $y = g(x)$ is how in the graph below. Sketch the graph of $y = g(x+4) - 2$ on the same grid.



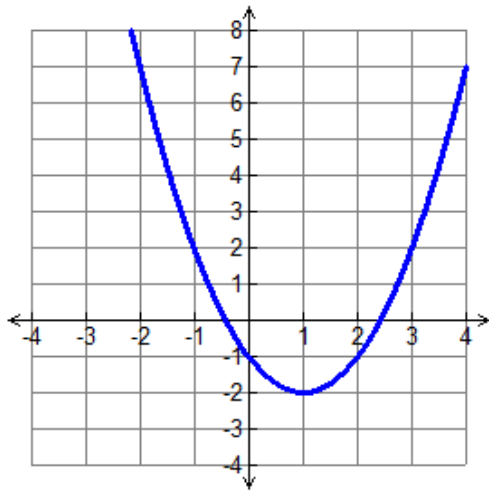
4. The graph of $y = g(x)$ is how in the graph below. Sketch the graph of $y = g(x-1) + 2$ on the same grid



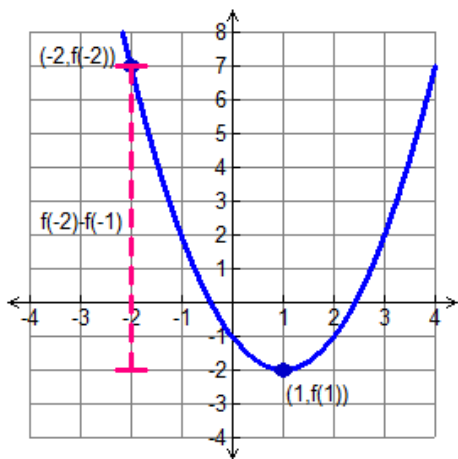
Target 3: I understand the meaning of function expressions as related to the graph.

5. The graph of a function is shown below. Would you label the graph f , $y = f(x)$, or $f(x)$?

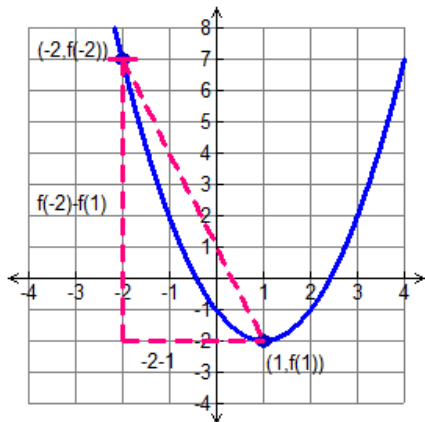
All are found in texts, AP tests, etc. The most formal form is $y=f(x)$



6. Find $f(-2)$ and $f(1)$. Illustrate the meaning of $f(-2) - f(1)$ on the graph below.



7. Illustrate the meaning of $\frac{f(-2) - f(1)}{-2 - 1}$ on the graph below.

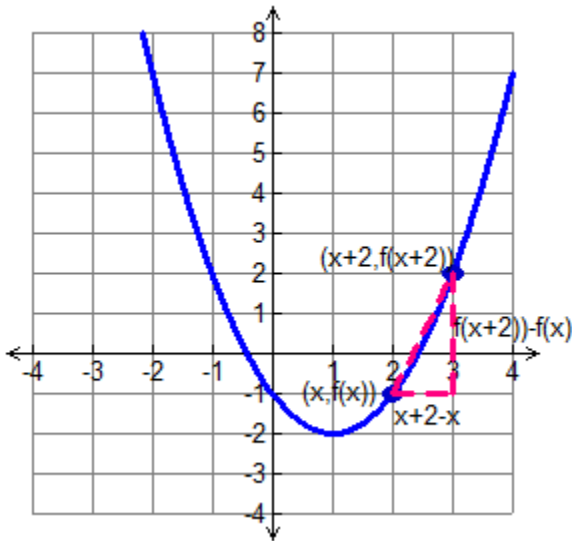


The slope of the secant line between $(1, f(1))$ and $(-2, f(-2))$:

$$\frac{f(-2) - f(1)}{-2 - 1} = \frac{7 - (-2)}{-3} = -3$$

8. A point on the graph is labeled $(x, f(x))$.

- Label a second point $(x+2, f(x+2))$ and
- Illustrate the meaning of $f(x+2) - f(x)$.
- Illustrate the meaning of $\frac{f(x+2) - f(x)}{x+2 - x}$.

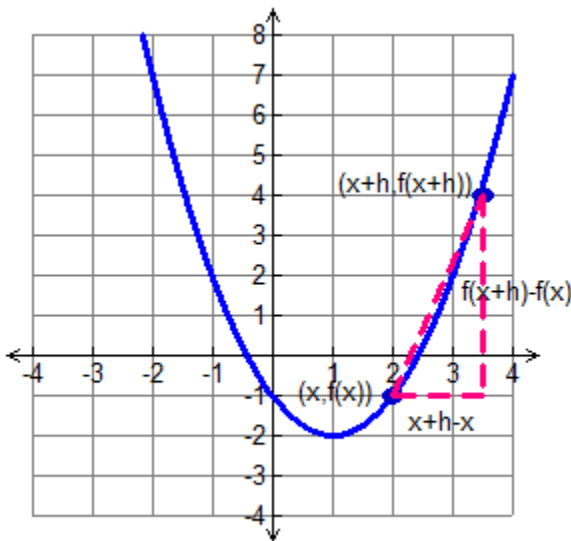


The slope of the secant line between $(x, f(x))$ and $(x+2, f(x+2))$:

$$\frac{f(x+2) - f(x)}{x+2 - x} = \frac{f(x+2) - f(x)}{2}$$

9. A point on the graph is labeled $(x, f(x))$.

- Label a second point $(x+h, f(x+h))$ and
- Illustrate the meaning of $f(x+h) - f(x)$.
- Illustrate the meaning of $\frac{f(x+h) - f(x)}{x+h - x}$.



The slope of the secant line between $(x, f(x))$ and $(x+h, f(x+h))$:

$$\frac{f(x+h) - f(x)}{x+h - x} = \frac{f(x+h) - f(x)}{h}$$

10. A point on the graph is labeled $(x, f(x))$.

- Illustrate the meaning of $\lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{x+h-x}$.

