



Calculus 1 Workbook

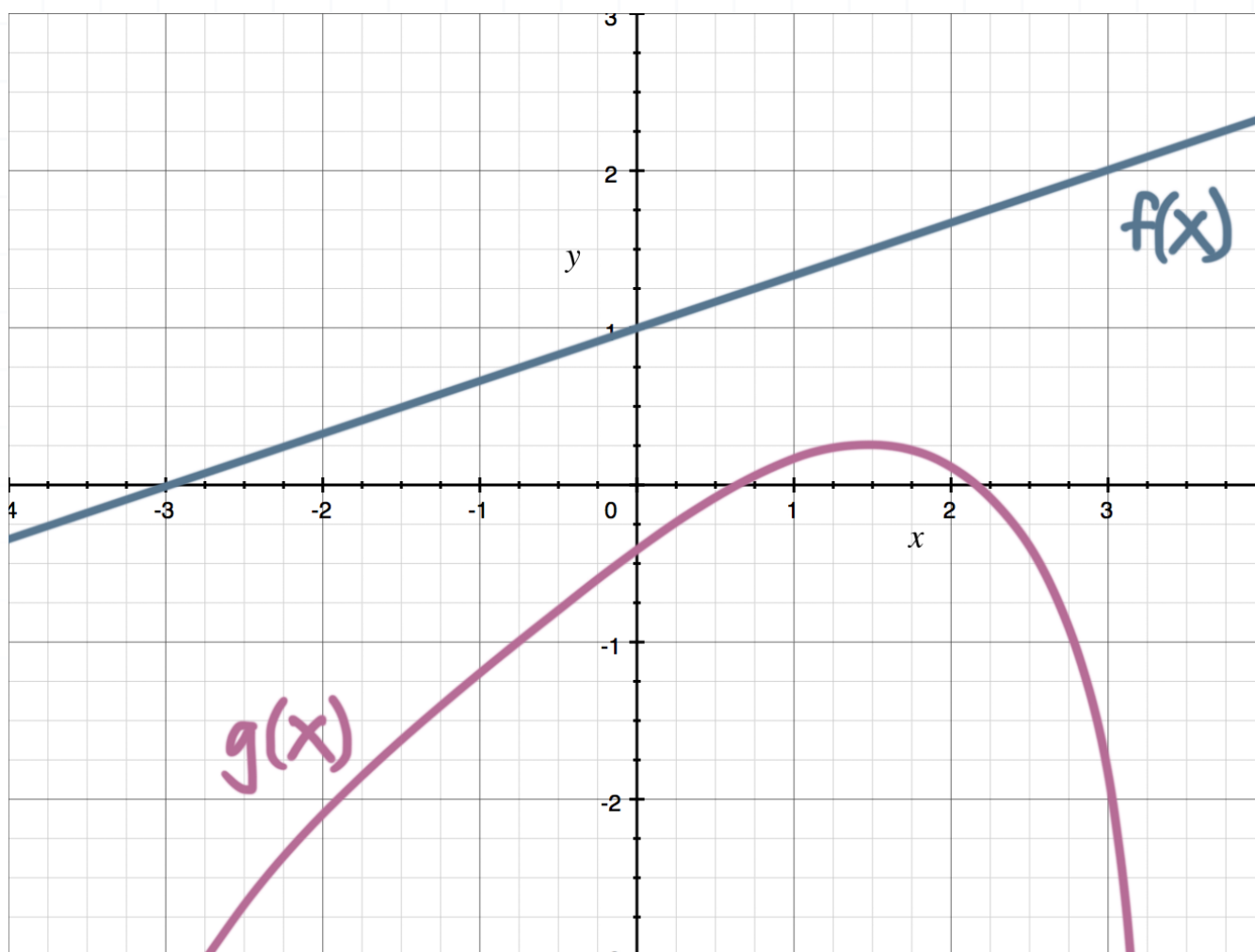
Combinations and composites

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MATH

LIMITS OF COMBINATIONS

- 1. Use limit laws and the graph below to evaluate the limit.

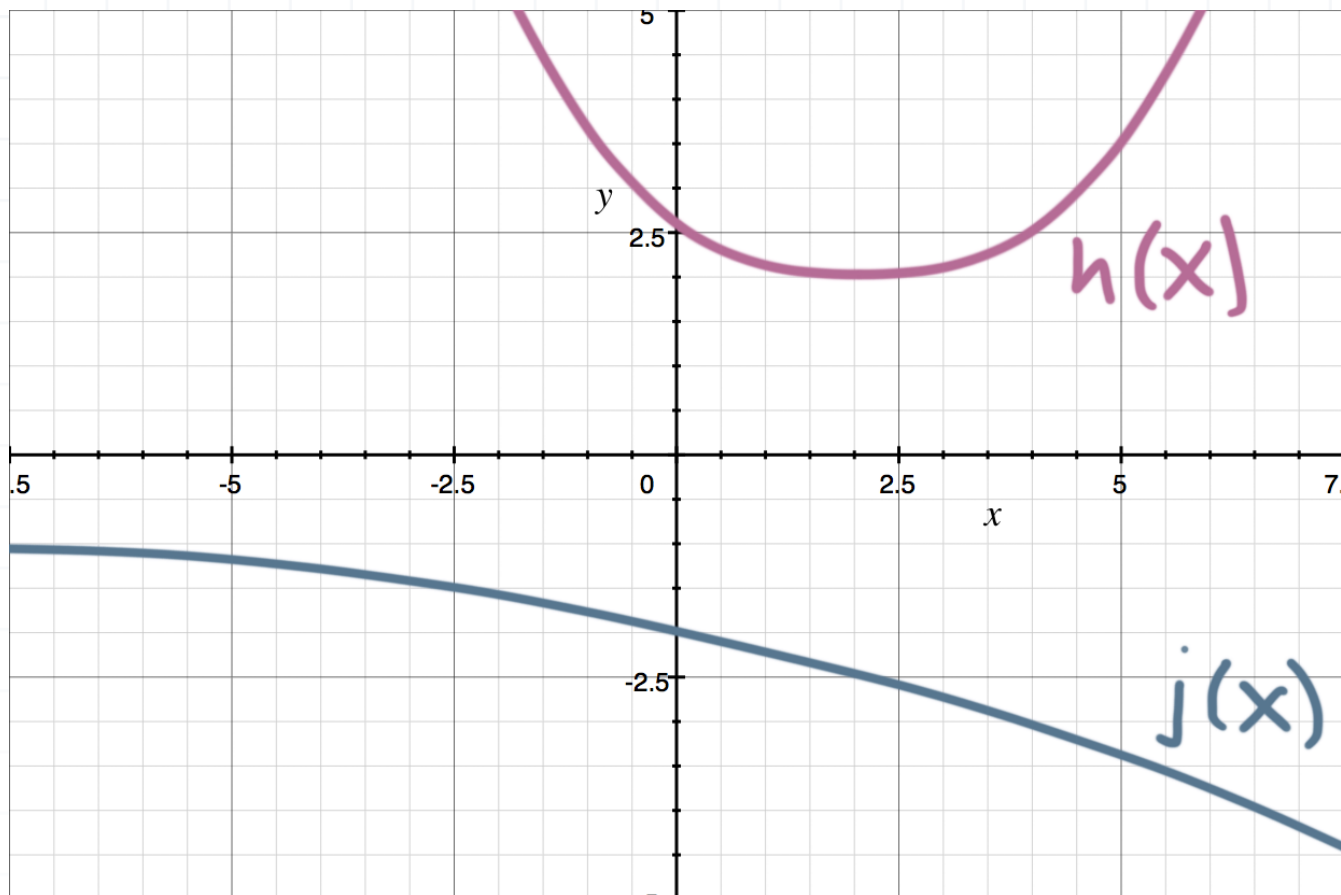
$$\lim_{x \rightarrow 3} [4f(x) - 3g(x)]$$



- 2. Use limit laws and the graph below to evaluate the limit.

$$\lim_{x \rightarrow 4} \frac{h(x)}{j(x)}$$

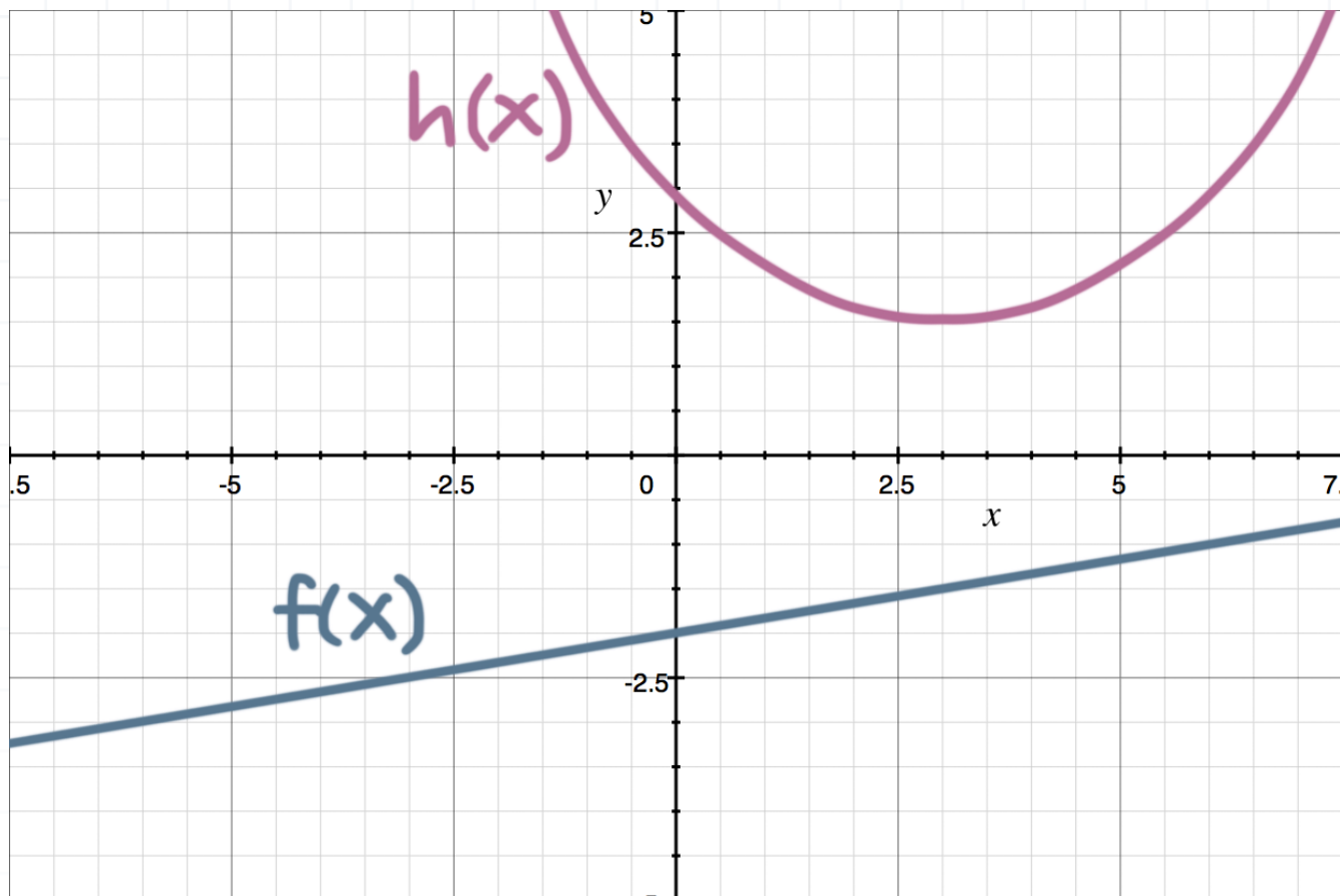




- 3. Use limit laws and the graph below to evaluate the limit.

$$\lim_{x \rightarrow 0} [2f(x) \cdot 3h(x)]$$

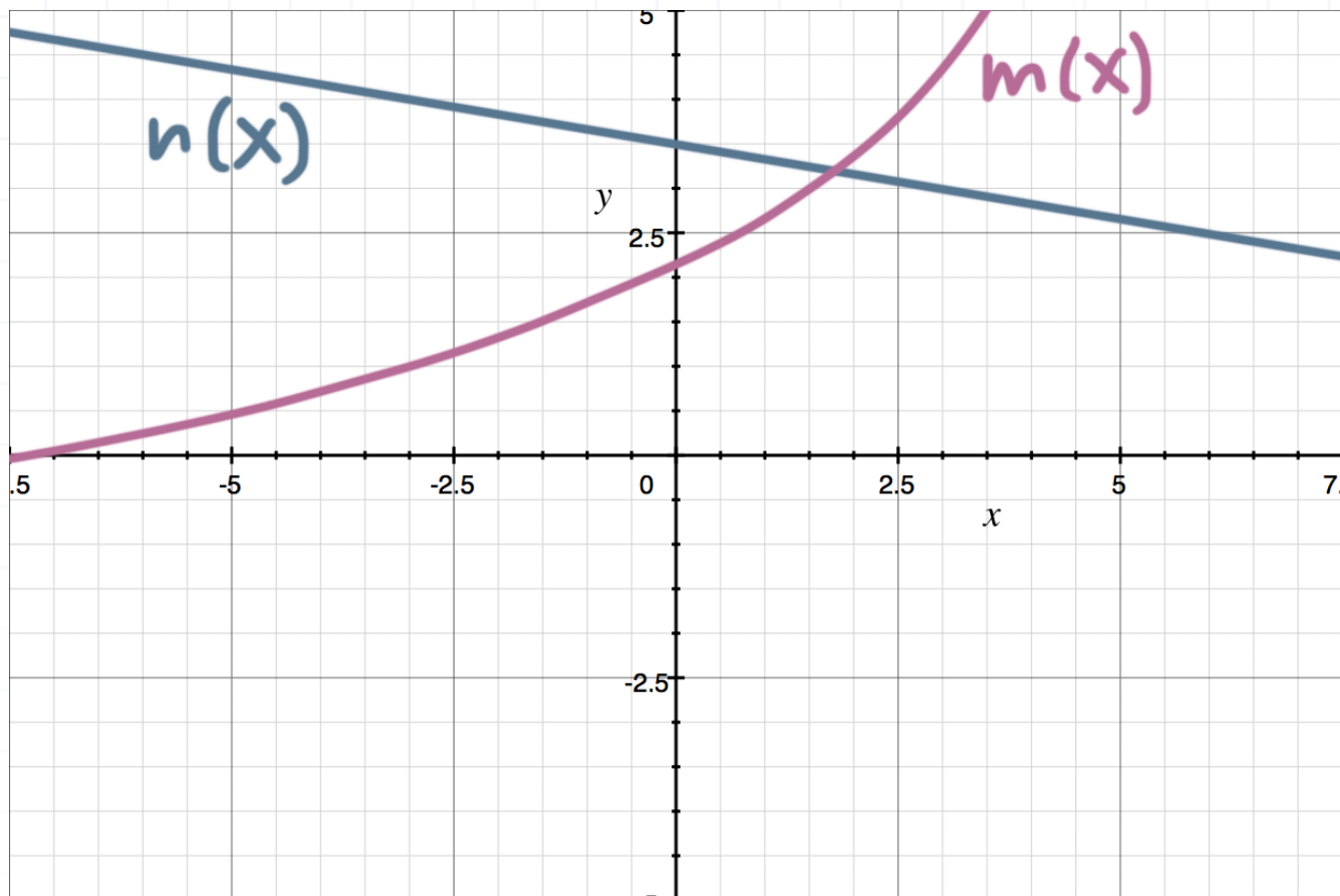




- 4. Use limit laws and the graph below to evaluate the limit.

$$\lim_{x \rightarrow -3} \left[\frac{5m(x)}{n(x)} - \frac{4m(x)}{n(x)} \right]$$





■ 5. Evaluate the limit.

$$\lim_{x \rightarrow 6} \left(\sqrt{x-2} + \frac{e^x}{2x+3} - x^2 - 12 \right)$$

■ 6. If $f(x) = x^2 + 4$, $g(x) = x - 5$, and $h(x) = -5x$, evaluate the limit.

$$\lim_{x \rightarrow 1} \sqrt{\frac{f(x)g(x)}{h(x)}}$$



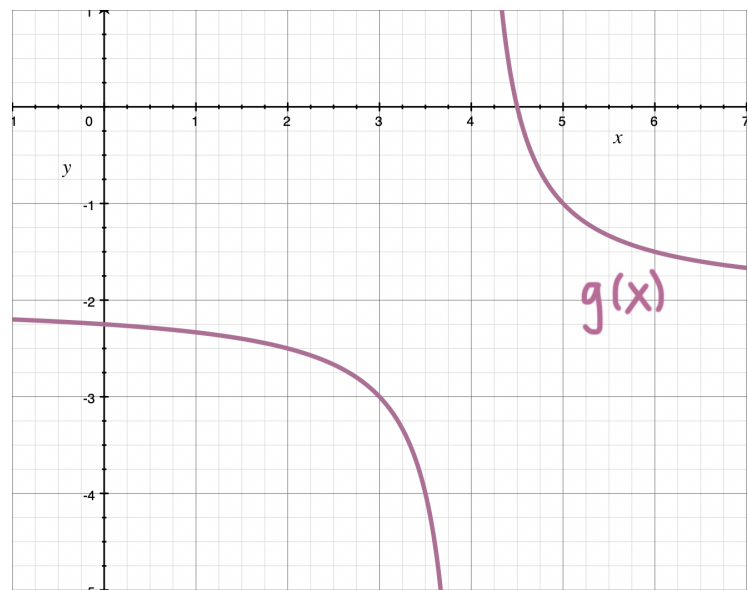
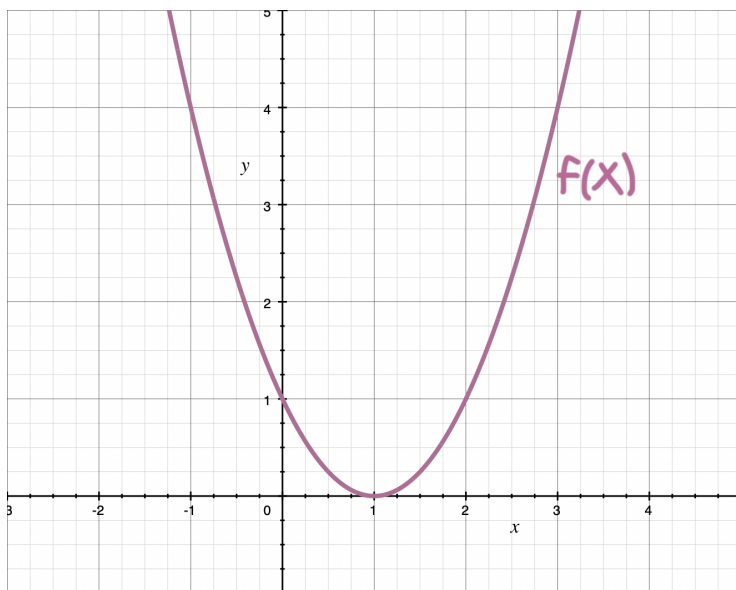
LIMITS OF COMPOSITES

■ 1. What is $\lim_{x \rightarrow 3} f(g(x))$ if $f(x) = 4x$ and $g(x) = 6x - 9$?

■ 2. What is $\lim_{x \rightarrow -4} f(g(x))$ if $f(x) = 2x^2$ and $g(x) = 2x - 1$?

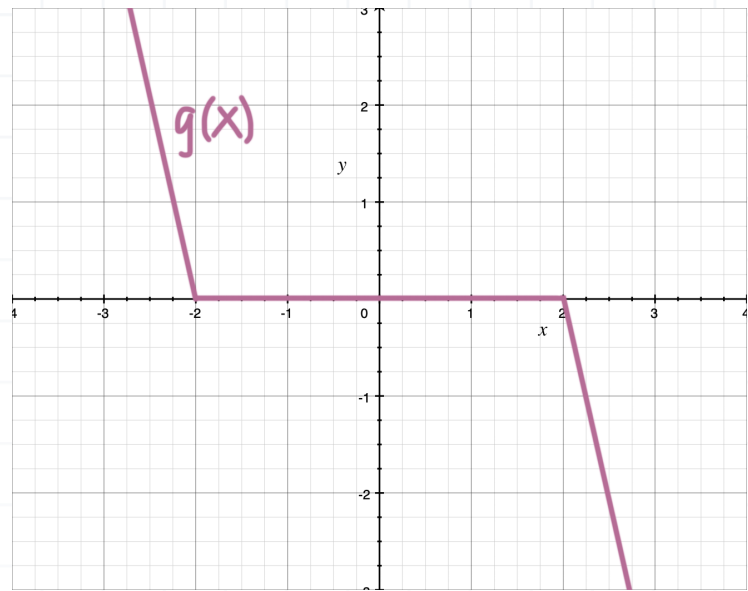
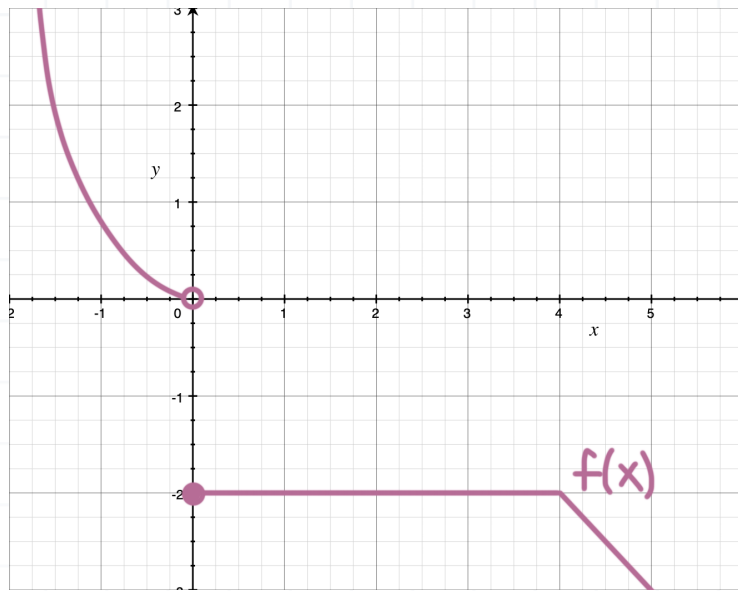
■ 3. What is $\lim_{x \rightarrow \frac{\pi}{2}} f(g(x))$ if $f(x) = \sin x$ and $g(x) = x/2$?

■ 4. If $f(x)$ and $g(x)$ are graphed below, find $\lim_{x \rightarrow 3} g(f(x))$.



■ 5. If $f(x)$ and $g(x)$ are graphed below, find $\lim_{x \rightarrow 2} g(f(x))$.





■ 6. If $f(x) = 2x + 1$ and $\lim_{x \rightarrow 3} h(x) = -2$, find $\lim_{x \rightarrow 3} f(h(x))$.



