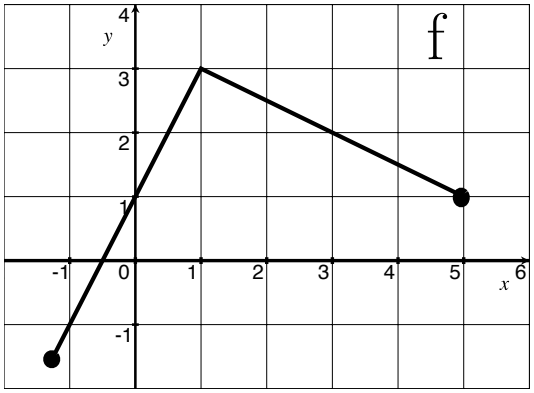
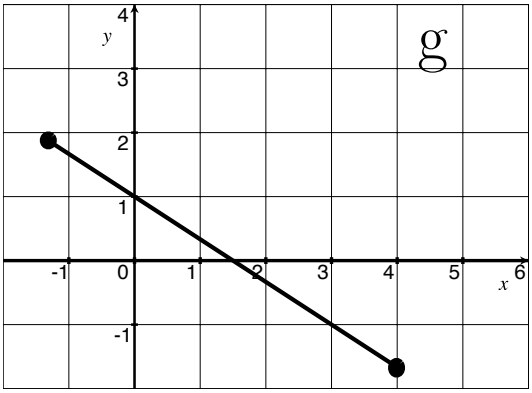
Derivatives of Products & Quotients

While working in a group make sure you:

- Expect to make mistakes but be sure to reflect/learn from them!
- Are civil and are aware of your impact on others.
- Assume and engage with the strongest argument while assuming best intent.

1. Let f be the function graphed on the left and g be the function graphed on the right.





Estimate the following (if possible):

$(f \cdot g)'(-1)$

$\frac{d}{dx}(fg)|_{x=0}$

$(fg)'(1)$

$(g \cdot f)'(2)$

2. Find:

$\frac{d}{dx}\left(\frac{6x}{x^2}\right)$

$\left(4x^3 \sin(x)\right)'$

$\frac{d}{dx}\left(ex^2\right)$

3. Find:

$\frac{d}{dx}(\tan(x))$ $\left(\frac{3x^2-\sqrt{x}}{x}\right)'$

4. Consider the function $f(x) = \frac{6x}{1+3x^2}$.

   (a) Find the equation of the line tangent to f when $x = 3$

   (b) Find where the function f has a horizontal tangent line.