Summary of derivatives we know thus far

$$\frac{d}{dx}\, x^n = nx^{n-1} \qquad \frac{d}{dx}\, e^x = e^x$$

$$\frac{d}{dx}\, \sin(x) = \cos(x) \qquad \frac{d}{dx}\, \ln(x) = \frac{1}{x}$$

$$\frac{d}{dx}\, \cos(x) = -\sin(x) \qquad \frac{d}{dx}\, b^x = \ln(b)\, b^x$$

$$(u\, v)' = u'v + uv' \qquad \left(\frac{u}{v}\right)' = \frac{u'v - uv'}{v^2}$$

$$\frac{d}{dx}\, f(g(x)) = f'(g(x)) \cdot g'(x)$$

Work on these with your partner(s) at the board

1. $f(x) = (3x^2 + 2)^{14}$
2. $f(x) = \big(\cos(x)\big)^3$
3. $f(x) = x^2 \sin(x^3)$
4. $f(x) = \sqrt{\ln(x^2 + 2x)}$
5. $f(x) = \tan(x)$
   Hint: $\tan(x) = \frac{\sin(x)}{\cos(x)}$
6. $f(x) = \tan(\ln(x))$
7. $f(x) = \sec(x)$
   Hint: $\sec(x) = \frac{1}{\cos(x)}$
8. $f(x) = -\ln(\cos(x))$