

**MAT 127, Lecture 1, August 27, 2020**

Differentiate  $x^4 + 5x^2 + 1 + \frac{1}{x}$

Differentiate  $e^x \sin(x)$

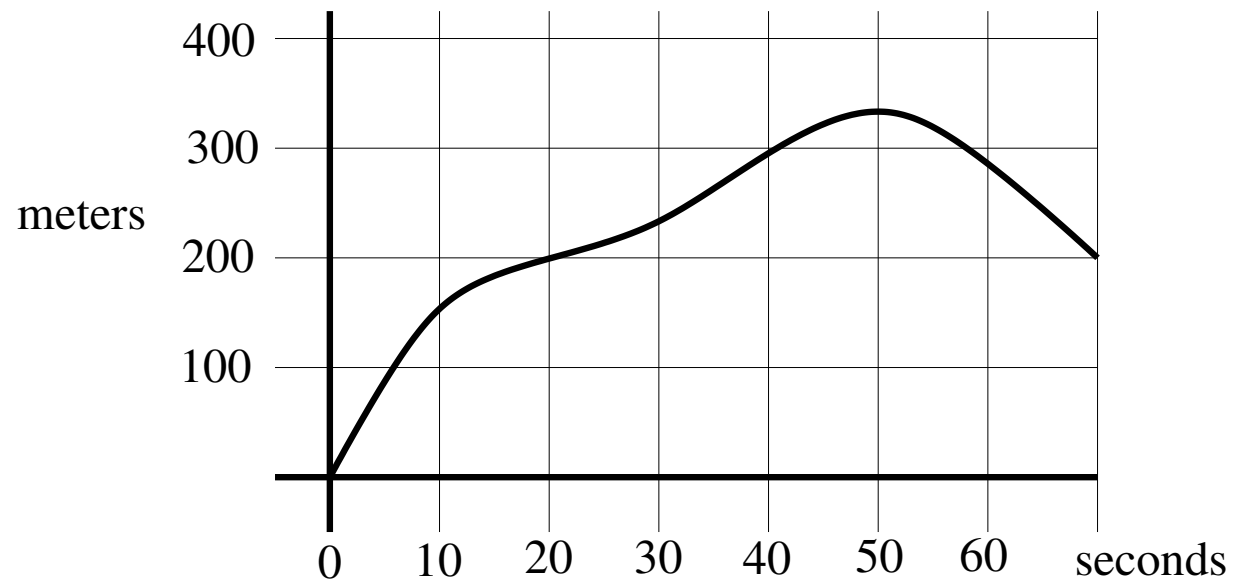
Differentiate  $\frac{\log x}{\cos(x)}$

Differentiate  $\cos(x^6)$

Differentiate  $\cos^6(x)$

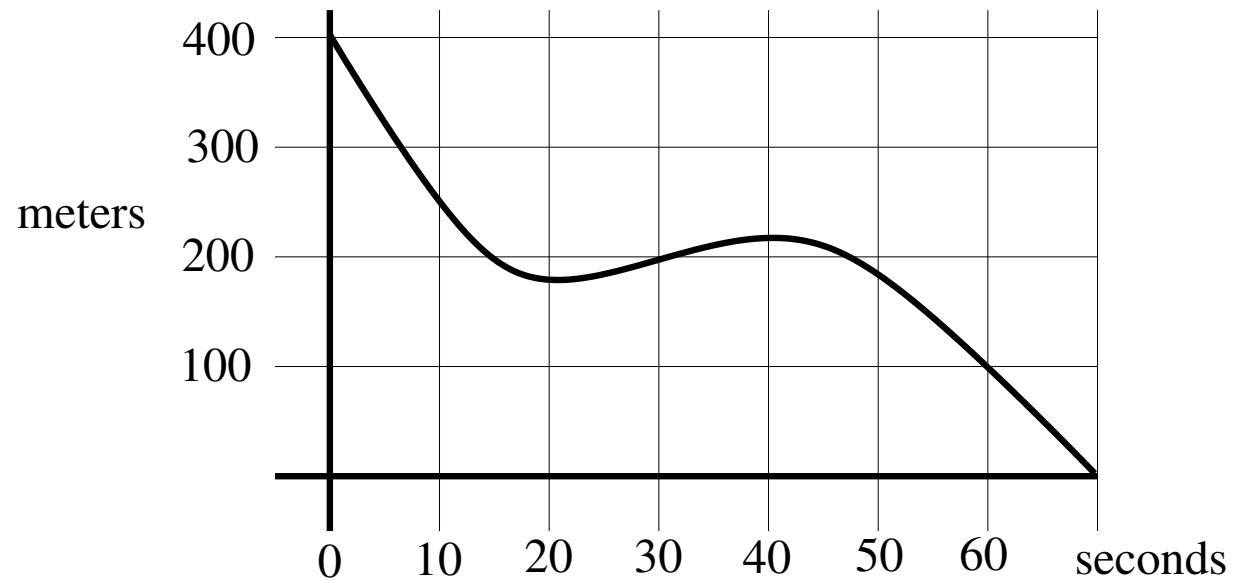
For the plotted function  $f$ , find:

1. The critical points.
2. Where  $f' > 0$ .
3. Where  $f'' > 0$ .



For the plotted function  $f$ :

1. Approximate the derivative at  $x = 10$ .
2. Where is  $f'$  maximum?
3. Approximate the maximum value of  $f'$





Where does  $p(x) = 3x^3 - 20x^2 - 5x$  take its maximum value in  $[-4, 4]$ ?