

1. A rocket is launching, and its height h in meters is a function of t in seconds (so we are considering the function $h(t)$). Explain what $h'(10) = 1035$ means in language your mom could understand. Your answer must include units.

Compute derivatives of the following functions using derivative rules.

2. $f(x) = \sqrt{x}e^x$

3. $f(t) = e^{-t}$

4. $f(t) = e^{2t}$

5. $f(v) = \left(1 + \frac{1}{v}\right)\left(2 - \frac{1}{v}\right)$

6. $f(x) = \frac{e^{2x}}{1 - e^x}$

7. $f(t) = \frac{\sin(x)}{\cos(x)}$

8. $f(t) = e^{2x} \sin(x)$

9. $f(t) = (1 + x^2)e^x \sin(x)$