

Chapter 2 Practice Test – answers

1) $f'(x) = 6x - 5$

2) $f'(x) = \frac{6}{x^3}$

3) $f'(x) = \frac{4}{3\sqrt[3]{x}}$

4) $f'(x) = -\frac{6}{x^3}$

5) $f'(x) = 9x^2 + 34x - 6$

6) $f'(y) = \frac{y(3y-10)}{(3y-5)^2}$

7) $f'(t) = 40(4t - 3)^4$

8) $y' = 4x^2(5x + 3)(25x + 9)$

9a) $m = 7$

9b) $y = 7x - 4$

10a) $x = -4$

10b) $y = -20$

11) $f'(x) = 2xe^{x^2}$

12) $f'(y) = 2e^{5y^2}(10y^2 - 20y + 1)$

13) $f'(t) = \frac{t^3(4-t)}{e^t} = \frac{-t^3(t-4)}{e^t}$

14) $f'(t) = \frac{5}{t}$

15) $\frac{dy}{dx} = x + 2x \ln(x)$ or $x(1 + 2 \ln(x))$ or $x(2 \ln(x) + 1)$

16a) $x = 0$

16b) $y = 1$

17a) $C(4) = 1.99$

17b) It will cost \$1.99 to make 4 super-sized candy bars.

17c) $C'(x) = \frac{1}{x} + .15$

17d) $C'(4) = 0.40$

17e) It will cost \$0.40 or 40 cents to make the 5th candy bar.

18a) $P(500) = 5500$

18b) Profit will be \$5500 in a week when 500 widgets are produced and sold.

18c) $P'(x) = -0.02x + 20$

18d) $P'(500) = 10$

18e) Company will earn an additional \$10 in profit when 501st widget is produced and sold.