

Slopes of Secants and Tangent Lines

1. For the function $f(x) = 5x + 3$, find the following: Confirm c) on your calculator.

a. the slope of the secant line
between $x = 1$ and $x = 5$

b. the slope of the tangent
line at $x = 2$

c. the equation of the tangent
line at $x = 2$

2. For the function $f(x) = x^2 - 3$, find the following: Confirm c) on your calculator.

a) the slope of the secant line
between $x = 0$ and $x = 3$

b) the slope of the tangent
line at $x = 1$

c) the equation of the tangent
line at $x = 1$

3. For the function $f(x) = x^2 - 5x + 4$, find the following: Confirm c) on your calculator.

a. the slope of the secant line
between $x = 3$ and $x = 6$

b. the slope of the tangent
line at $x = 3$

c. the equation of the tangent
line at $x = 3$

4. For the function $f(x) = 2x^2 - 7x + 8$, find the following: Confirm c) on your calculator.

a. the slope of the secant line
between $x = -1$ and $x = 4$

b. the slope of the tangent
line at $x = -1$

c. the equation of the tangent
line at $x = -1$

5. For the function $f(x) = x^3 + x - 2$, find the following: Confirm c) on your calculator.

a. the slope of the secant line
between $x = -3$ and $x = 3$

b. the slope of the tangent
line at $x = 2$

c. the equation of the tangent
line at $x = 2$

6. For the function $f(x) = \frac{5}{x-3}$, find the following: Confirm c) on your calculator.

a. the slope of the secant line
between $x = 4$ and $x = 6$

b. the slope of the tangent
line at $x = 1$

c. the equation of the tangent
line at $x = 1$

7. For the function $f(x) = \frac{x-2}{x+1}$, find the following: Confirm c) on your calculator.

a. the slope of the secant line
between $x = 1$ and $x = 5$

b. the slope of the tangent
line at $x = 3$

c. the equation of the tangent
line at $x = 3$

8. If $s(t) = 4t + 1$ is a measure of feet traveled with t measured in seconds, find
a. the average velocity between $t = 1$ and $t = 5$ b. the instantaneous velocity at $t = 2$ seconds

9. If $s(t) = t^2 + 4$ is a measure of feet traveled with t measured in seconds, find
a. the average velocity between $t = 0$ and $t = 4$ b. the instantaneous velocity at $t = 1$ second

10. If $s(t) = t^2 - 3t + 2$ is a measure of miles traveled with t measured in hours, find
a. the average velocity between $t = 0$ and $t = 4$ b. the instantaneous velocity at $t = 1$ hour

11. If $s(t) = t^3 + t - 1$ is a measure of meters traveled with t measured in seconds, find
a. the average velocity between $t = 2$ and $t = 7$ b. the instantaneous velocity at $t = 2$ seconds

12. If $s(t) = \frac{6}{t+2}$ is a measure of feet traveled with t measured in seconds, find
a. the average velocity between $t = 1$ and $t = 7$ b. the instantaneous velocity at $t = 4$ seconds

