

$$1. f'(x) = \lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h}$$

$$2. f'(x) = 6x - 1; \text{ Equation: } y - 10 = 11(x - 2) \text{ or } y = 11x - 12$$

$$3. f'(x) = 2x + 2; \text{ Rate of change: } 12$$

$$4. f'(x) = \frac{1}{\sqrt{2x+3}}; \text{ Slope: } \frac{1}{3}$$

$$5. f'(x) = -\frac{1}{2\sqrt{4-x}}; \text{ Rate of change: } -\frac{1}{2\sqrt{3}}$$

$$6. f'(x) = -\frac{2}{(x+1)^2}; \text{ Equation: } y + 2 = -2(x + 2) \text{ or } y = -2x - 6$$

$$7. f'(x) = -\frac{3}{(x+2)^2}; \text{ Equation: } y - \frac{1}{2} = -\frac{3}{4}x \text{ or } y = -\frac{3}{4}x + \frac{1}{2}$$

8-14. See solutions.