

$$1. \quad s = \sqrt{2t+5}$$

$$t = \ln dt$$

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$$l = \frac{\frac{ds}{dt}(t)}{\sqrt{2t+5}}$$

$$\frac{ds}{dt}(t) : \frac{d}{dt}(t) = \sqrt{2t+5}$$

$$\frac{d}{dt}(t) = \sqrt{2t+5}$$

$$2. f(x) = 3x^3 + 2x^2 - 5$$

$$f'(c) = ?$$

$$\frac{d}{dx}(3x^3 + 2x^2 - 5) = \frac{d}{dx}(3x^3) + \frac{d}{dx}(2x^2) - \frac{d}{dx}(5)$$

$$\frac{d}{dx}(3x^3) = 9x^2$$
$$\frac{d}{dx}(2x^2) = 4x$$
$$= 9x^2 + 4x - 0 = \underline{\underline{9x^2 + 4x}}$$

$$\frac{d}{dx}(-5) = 0$$

$$3. f(x) = \sqrt{5x+5}$$

$$x > 0$$

$$\frac{d}{dx} (\sqrt{5x+5}) = \frac{5}{2\sqrt{5x+5}}$$

$$\frac{d}{dx} (\sqrt{5x+5}) = \frac{1}{2\sqrt{5x+5}} \frac{d}{dx} (5x+5)$$

$$\frac{d}{dx} (5x+5) = 5 = \frac{1}{2\sqrt{5x+5}} \cdot 5$$

$$= \frac{5}{2\sqrt{5x+5}}$$

$$4. \quad h(x) = \frac{2x}{x+5} \therefore \frac{10}{(x+5)^2}$$

$$h'(c) = ?$$

$$\frac{d}{dx} \left( \frac{2x}{x+5} \right)$$

$$= 2 \frac{d}{dx} \left( \frac{x}{x+5} \right)$$

$$= 2 \cdot \frac{\cancel{d/dx}(x)(x+5) - \cancel{d/dx}(x+5)x}{(x+5)^2}$$

$$= 2 \cdot \frac{1 \cdot (x+5) - 1 \cdot x}{(x+5)^2}$$

$$= \frac{10}{(x+5)^2}$$