

$$\boxed{21} \quad y = \frac{(3x+1)^5 - 3x}{7} = \frac{1}{7} (3x+1)^5 - \frac{3}{7} x$$

$$y' = \frac{1}{7} (5)(3x+1)^4 (3) - \frac{3}{7}$$

$$= \frac{15}{7} (3x+1)^4 - \frac{3}{7}$$

$$\boxed{42} \quad y = \frac{90}{\sqrt{p+5}} ; \quad p > 10$$

(a) What is the rate of change when the price is \$20.

$$y = \frac{90}{\sqrt{p+5}} = 90(p+5)^{-\frac{1}{2}}$$

the rate of change = $y' = 90 \left(\frac{1}{2}\right) (p+5)^{-\frac{3}{2}}$ (1)

$$= 45(p+5)^{-\frac{3}{2}}$$

$$= \frac{45}{(p+5)^{\frac{3}{2}}} = \frac{45}{\sqrt{p+5}^3} \quad (p=20)$$

$$= \frac{45}{\sqrt{20+5}^3} = \frac{45}{5^3} = \frac{45}{125} = \frac{9}{25}$$

(b) Interpret your answer?

if the price changes by 1\$ (to ~~20~~ \$21)

the weekly sales volume will change by approximately 9 thousand units.