$$g(x) = \sqrt{x^2 + f(x)}$$

$$= (x^2 + f(x))^{1/2}$$

$$g'(x) = \frac{1}{2}(x^2 + f(x))^{-\frac{1}{2}} \frac{d}{dx}(x^2 + f(x))$$

$$= \frac{1}{2}(x^2 + f(x))^{-\frac{1}{2}}(2x + f'(x))$$

$$= \frac{2x + f'(x)}{2\sqrt{x^2 + f(x)}}$$

$$[a] = \left(g'(x) = \frac{2x + f'(x)}{2\sqrt{x^2 + f(x)}} \right)$$

$$[b] = \left(0 = 2x + f'(x) \right)$$

$$[c] = \left(f'(x) = -2x \right)$$

$$z = \sqrt{x^2 + y}$$

$$= (x^2 + y)^{1/2}$$

$$\frac{dz}{dx} = \frac{1}{2}(x^2 + y)^{-1/2} \frac{d}{dx}(x^2 + y)$$

$$= \frac{1}{2}(x^2 + y)^{-1/2}\left(2x + \frac{dy}{dx}\right)$$

$$= \frac{2x + \frac{dy}{dx}}{2\sqrt{x^2 + y}}$$

$$[a'] = \left(\frac{dz}{dx} = \frac{2x + \frac{dy}{dx}}{2\sqrt{x^2 + y}} \right)$$

$$[b'] = \left(0 = 2x + \frac{dy}{dx} \right)$$

$$[c'] = \left(\frac{dy}{dx} = -2x \right)$$

$$[c''] = \left(dx = -2x\,dx \right)$$