

Name: KEY
Business Calculus
Quiz 6

Instructions. Find the derivatives of the following functions. You may use any of your favorite rules or tricks.

1. $f(x) = (x^2 - 4)(x^2 + 5) = x^4 + x^2 - 20$

$$\boxed{f'(x) = 4x^3 + 2x}$$

2. $f(x) = \frac{x^3 + 9}{x^3} = \frac{x^3}{x^3} + \frac{9}{x^3} = 1 + 9x^{-3}$

$$\boxed{f'(x) = -27x^{-4}}$$

3. $f(x) = \sqrt{x^2 + 4x + 5}$

$$f'(x) = \frac{2x + 4}{2\sqrt{x^2 + 4x + 5}} = \boxed{\frac{x + 2}{\sqrt{x^2 + 4x + 5}}}$$

because $(\sqrt{u})' = \frac{u'}{2\sqrt{u}}$

4. Describe briefly what *math* is to you. (There is no wrong answer; except no answer at all.)