

Student Name: \_\_\_\_\_

Score: \_\_\_\_\_

**Derivatives using Power Rule**

Find the derivatives using power rule:

$$y = 10x^3$$

$$y = \frac{1}{2}x^{-2}$$

$$y = \frac{1}{2\sqrt{x}}$$

$$y = 3x^{\frac{-1}{15}}$$

$$y = 8x^6 + 2x^{17}$$

$$y = \sqrt[5]{x}$$

$$y = x^{\frac{1}{31}} + x^{\frac{-1}{7}}$$

$$y = 2x^{12} + 6x^7 + x^4$$

$$y = \frac{5}{3}x^3 - \frac{7}{6}x^6 + \frac{6}{4}x^8$$

$$y = \frac{1}{2}x^{\frac{3}{2}} - \frac{22}{7}x^{\frac{-5}{2}} + x^{\frac{3}{7}}$$

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**U2H5**

Find the derivative.

1.  $y = 6x$

2.  $f(x) = 5x^{\frac{1}{2}}$

3.  $g(x) = \sqrt[6]{x^5}$

4.  $f(x) = x^{\frac{4}{3}}$

5.  $y = e^2$

6.  $y = \frac{1}{x^{\frac{2}{3}}}$

7.  $\frac{d}{dx}(8x^{-3})$

8.  $f(x) = (\sqrt[3]{x})^2$

9.  $h(x) = (3x+4)^2$

10.  $g(x) = \sqrt{x}(x^2 + 2x + 3)$

11.  $\frac{d}{dx}(x^{0.35})$

12.  $y = 5x^3 - 4x^2 + 8x + 5 + x^{-3} + x^{-5}$

13. If  $f(x) = 3x^2 + 5$ , find  $f'(2)$

14. Find the tangent line at  $x = 1$  of  $f(x) = x^5$

15. Find the tangent line at the point  $(8, 64)$  of  $f(x) = 24\sqrt[3]{x} + 2x$