2.5 The Power Rule

Calculus Name: _____ **CA #1**

Find $\frac{dy}{dx}$.

1. $y = x^{17}$

2. $y = \sqrt[5]{x^3}$

3. $y = \frac{1}{x^{10}}$

4. $y = \frac{1}{\sqrt[4]{x^3}}$

Find $f'(a)$ for each function at the given value of a.

5. $f(x) = \sqrt[4]{x}$
find $f'(16)$.

6. $f(x) = \frac{1}{x^6}$
find $f'(\pi)$.

7. $f(x) = x^6$
find $f'(-2)$.

Find the equation of the tangent line of each function at the given value of x.

8. $y = x^3$ at $x = 6$

9. $f(x) = \frac{1}{x^4}$ at $x = 2$

Answers to 2.5 CA #1

1. $\frac{dy}{dx} = 17x^{16}$	2. $\frac{dy}{dx} = \frac{3}{5\sqrt[5]{x^2}}$	3. $\frac{dy}{dx} = -\frac{10}{x^{11}}$	4. $\frac{dy}{dx} = -\frac{3}{4\sqrt[4]{x^7}}$	5. $f'(16) = \frac{1}{32}$	6. $f'(\pi) = -\frac{6}{\pi^7}$	7. $f'(-2) = -192$	8. $y - 216 = 108(x - 6)$	9. $y - \frac{1}{16} = -\frac{1}{8}(x - 2)$