2.5 The Power Rule

Calculus Name: _____ **CA #2**

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

1. $y = x^{41}$

2. $y = \sqrt[7]{x}$

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

4. $y = \frac{1}{\sqrt[6]{x}}$

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

5. $f(x) = \sqrt{x}$
   find $f'(49)$.

6. $f(x) = \frac{1}{x}$
   find $f'(-8)$.

7. $f(x) = \frac{1}{\sqrt[6]{x}}$
   find $f'(1)$.

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

8. $y = x^4$ at $x = -2$

9. $y = \sqrt[3]{x}$ at $x = 8$

Answers to 2.5 CA #2

1. $\frac{dy}{dx} = 41x^{40}$	2. $\frac{dy}{dx} = \frac{1}{7\sqrt[7]{x^6}}$	3. $\frac{dy}{dx} = -\frac{3}{x^4}$	4. $\frac{dy}{dx} = -\frac{1}{6\sqrt[6]{x^7}}$
5. $f'(49) = \frac{1}{14}$	6. $f'(-8) = -\frac{1}{64}$	7. $f'(1) = -\frac{1}{6}$	8. $y - 16 = -32(x + 2)$
9. $y - 2 = \frac{1}{12}(x - 8)$			