Use the power rule to find the derivative, $f'(x)$.

Recall, for $f(x) = x^n$, the power rule is

$$f'(x) = nx^{n-1}$$

1. $f(x) = \sqrt[3]{x}$

   (a) Make sure it’s in the correct form.

   $$f(x) = x^{1/3}$$

   (b) Now use the power rule

   $$f'(x) = \frac{1}{3}x^{1/3-1}$$

   $$f'(x) = \frac{1}{3}x^{-2/3}$$

2. $f(x) = \frac{7}{x^{11}}$

   (a) Make sure it’s in the correct form.

   $$f(x) = 7x^{-11}$$

   (b) Now use the power rule

   $$f'(x) = 7 \cdot -11x^{-11-1}$$

   $$f'(x) = -77x^{-12}$$

   $$f'(x) = \frac{-77}{x^{12}}$$

3. $f(x) = 18x^{2/3}$

   $$f'(x) = 18 \cdot \frac{2}{3}x^{2/3-1}$$

   $$f'(x) = 12x^{-1/3}$$

4. $f(x) = 15x^{25.3}$

   $$f'(x) = 15 \cdot 25.3x^{25.3-1}$$

   $$f'(x) = 379.5x^{24.3}$$
5. \( f(x) = 5x \)

I suppose you can say this is a shortcut,

\[ \frac{d}{dx} [kx] = k \]

Therefore,

\[ f'(x) = 5 \]

6. \( f(x) = 4 \)

Another shortcut,

\[ \frac{d}{dx} [C] = 0, \ C \ is \ a \ constant \]

Therefore,

\[ f'(x) = 0 \]