Find the average rate of change over the given interval.

$$g(x) = 4x^2 - 3 \text{ on } [-2,3]$$

$g(-2) = 4(-2)^2 - 3$

$4(4) - 3$

$16 - 3$

13

$g(3) = 4(3)^2 - 3$

$4(9) - 3$

$36 - 3$

33

$(-2,13)$ $(3,33)$

$$\frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1}$$

$$\frac{33-13}{3+2} = \frac{20}{5} = 4$$

Find the average rate of change over the given interval.

$$g(x) = 5x^2 - 2 \text{ on } [2, b]$$

$g(2) = 5(2)^2 - 2$

$= 5(4) - 2$

$= 18$

$g(b) = 5b^2 - 2$

$(2, 18) \quad (b, 5b^2 - 2)$

$$\frac{\Delta y}{\Delta x} = \frac{5b^2 - 2 - 18}{b - 2}$$

$$= \frac{5b^2 - 20}{b - 2}$$

$$\frac{5(b^2 - 4)}{b - 2} = \frac{5(b-2)(b+2)}{b-2}$$

$$= 5(b+2)$$

$$5b + 10$$

Rewrite the expression with a positive exponent and then in root form.

$(3x)^{-9/4}$

$X^{\frac{\text{Power}}{\text{root}}}$

$3x^{-9/4} = \frac{3}{X^{9/4}}$

$= \frac{3}{\sqrt[4]{X^9}}$

$= \frac{3}{(\sqrt[4]{X})^9}$

Rewrite the expression with a rational exponent.

$X^{\frac{\text{Power}}{\text{root}}}$

$2\sqrt[8]{x^5}$

$2x^{\frac{5}{8}}$