

$$A.R.C = \frac{y_2 - y_1}{x_2 - x_1}$$

Average Rate of Change

Let $f(x) = x^2$

Let $g(x) = 3x + 2$

Let $l(x) = x^3$

a) Compute the average rate of change of $f(x)$ from $x = 1$ to $x = 4$

$$f(1) = 1 \quad (1, 1)$$

$$f(4) = 16 \quad (4, 16)$$

$$\frac{16-1}{4-1} = \frac{15}{3} = 5$$

b) Compute the average rate of change of $g(x)$ from $x = 1$ to $x = 4$

$$g(1) = 3(1) + 2 \quad (1, 5)$$

$$= 5$$

$$g(4) = 3(4) + 2 \quad (4, 14)$$

$$= 14$$

$$\frac{14-5}{4-1} = \frac{9}{3} = 3$$

c) Compute the average rate of change of $l(x)$ from $x = 1$ to $x = 4$

$$l(1) = 1 \quad (1, 1)$$

$$l(4) = 64 \quad (4, 64)$$

$$\frac{64-1}{4-1} = \frac{63}{3} = 21$$

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<div style="margin-bottom: 10px;"> $x^{\frac{\text{Power}}{\text{root}}}$ </div> $x^{1/2} = \sqrt{x}$ <p>Negative Exponent Reciprocal</p>	<p>Write the following expressions using only positive integer powers</p> <p>a) $x^{3/2} \quad \sqrt{x^3} \quad (\sqrt{x})^3$</p> <p>b) $x^{4/3} \quad \sqrt[3]{x^4}$ $(\sqrt[3]{x})^4$</p> <p>c) $x^{-1} = \frac{1}{x}$</p> <p>d) $x^{-3} = \frac{1}{x^3}$</p> <p>e) $x^{-2/3} = \frac{1}{x^{2/3}}$ $\frac{1}{\sqrt[3]{x^2}}$</p> <p>f) $x^{-3/2} = \frac{1}{x^{3/2}} = \frac{1}{\sqrt{x^3}}$</p> <p>Write the following expressions in the form kx^a</p> <p>a) $\sqrt{16x^5}$</p> <p>b) $\sqrt[3]{27x^7}$</p> <p>c) $\sqrt[3]{\frac{12}{x^5}}$</p> <p>d) $\frac{5x}{\sqrt{20x^5}}$</p>
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