

2.1 Average Rate of Change

For questions 1-12, a function is given. Determine the average rate of change of the function between the given values of the variable.

1) $f(x) = 3x - 2$; $x = 2, x = 3$

2) $g(x) = 5 + \frac{1}{2}x$; $x = 1, x = 5$

3) $f(t) = t^2 + 2t$; $t = -1, t = 4$

4) $f(z) = 1 - 3z^2$; $z = -2, z = 0$

5) $h(t) = t^3 - 4t^2$; $t = 0, t = 10$

6) $f(x) = x + x^4$; $x = -1, x = 3$

7) $f(x) = 3x^2$; $x = 2, x = 2 + h$

8) $f(x) = 4 - x^2$; $x = 1, x = 1 + h$

9) $g(x) = \frac{1}{x}$; $x = 1, x = h$

10) $g(x) = \frac{2}{x+1}$; $x = 0, x = h$

11) $f(t) = \frac{2}{t}$; $t = a, t = a + h$

12) $f(t) = \sqrt{t}$; $t = a, t = a + h$

For Questions 13-16, a linear function is given:

(a) Find the average change of the function between $x = a$ and $x = a + h$.

(b) Show that the average rate of change is the same as the slope of the function in questions 13 and 14.

13) $f(x) = \frac{1}{2}x + 3$

14) $g(x) = -4x + 2$

15) $h(x) = x^2$

16) $g(x) = x^2 - x$