

1.2 Rates of Change

AP Precalculus

1.2 Practice

Find the average rate of change of the function on the given interval.

1. $h(t) = 3x - x^2$ over the interval $2 \leq x \leq 5$.

2. $b(w) = w + 2^w$ over the interval $[-1, 2]$.

3. $f(x) = \ln 3x$ over the interval $1 \leq x \leq 4$.

Use the information in each table to find the average rate of change on the given interval.

4.

t Minutes	3	10	21	43	55
$d(t)$ meters	5	102	135	140	143

a. $3 \leq t \leq 55$

b. $10 \leq t \leq 43$

c. $21 \leq t \leq 55$

5.

t months	6	12	24	48	72
$d(t)$ hair follicles	20,000	19,800	15,000	10,000	7,500

a. $6 \leq t \leq 48$

b. $12 \leq t \leq 72$

c. $6 \leq t \leq 72$

Estimate the rate of change of each function at the given point.

6. $f(x) = \frac{1}{3x}$ at $x = 4$

7. $f(x) = 2x^2 + 1$ at $x = -2$

8. $f(x) = 7\sqrt{x}$ at $x = 2$

9. $f(x) = \ln(2x)$ at $x = 3$

State whether the situation represents a positive or negative rate of change.

7. A candy company uses pints of chocolate to make candy. The more chocolate they use, the more boxes of candy are produced.

8. The amount of money in Josh's savings account decreases for each semester he attends college.

9. As the number of cats Mr. Sullivan owns increases, the number of mice in his barn decreases.

10. As the amount of water Mr. Brust drinks decreases, the fewer trips to the restroom he needs to make.

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1.2 Test Prep

11. A continuous function f is defined on the closed interval $-5 < x < 6$ and is shown in the graph below. For how many values of b , $-5 < b < 6$, is the average rate of change of f on the interval $[b, 5]$ equal to 0? Give a reason for your answer.

