

UNIT 2 • LINEAR FUNCTIONS

F-IF.6*

Lesson 2.4: Calculate and Interpret the Average Rate of Change

Practice 2.4: Calculate and Interpret the Average Rate of Change

A

Use the interval $2 \leq x \leq 5$ to find the average rate of change in problems 1–3.

1. $f(x) = 2x - 3$

2. $f(x) = x^2 + 4x - 1$

3. $f(x) = 2(3^x)$

4. Find the average rate of change in the following table on the interval of $0 \leq x \leq 3$.

x	0	1	2	3	4
$f(x)$	3	6	12	24	48

5. Use the function $f(x) = 3^x$ to determine which of the following intervals has the greatest average rate of change: $0 \leq x \leq 1$, $1 \leq x \leq 2$, or $2 \leq x \leq 3$. Predict what will happen when the interval is $9 \leq x \leq 10$.

The following table lists the high temperatures (T) in Charlotte, N.C., for the first 10 days (D) of February 2017. Use the table to complete problems 6 and 7.

D	1	2	3	4	5	6	7	8	9	10
T	73	67	54	45	62	68	73	66	61	53

6. Find the average rate of change in temperature for all 10 days.

7. Which interval has the fastest decrease in temperature? Which interval had the fastest increase in temperature?

continued

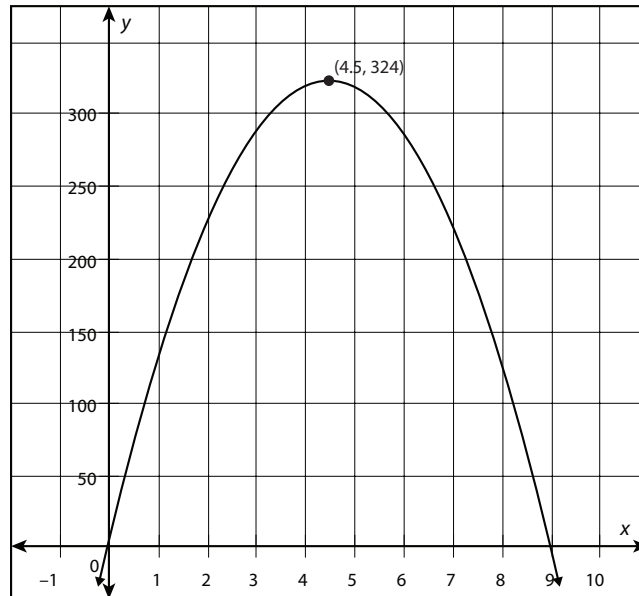
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Use the following information and graph to complete problems 8–10.

A ball tossed in the air from ground level is modeled by the function $h(t) = 144t - 16t^2$, where h is the height in feet of the ball in the air and t is the time in seconds.



8. On what time interval will the ball's height in the air decrease?

9. Find the average rate of change from the launch to the ball's maximum height in the air.

10. Compare the average rate of change on the intervals $0 \leq x \leq 4.5$ and $4.5 \leq x \leq 9$. Do you expect the rate of change to be the same for both intervals? Explain your reasoning.