

TEST NAME: **NAMSIM1314F-IF.6**
TEST ID: **130105**
GRADE: **09**
SUBJECT: **Mathematics**
TEST CATEGORY: **My Classroom**

Student: _____

Class: _____

Date: _____

1. The table below shows the total number of computer parts Donavon can assemble during a 4-hour work shift.

Hours Worked	Parts Assembled
0	0
1	512
2	1,024
3	1,490
4	1,972

What is Donavon's average number of parts per hour for his entire 4-hour shift?

- A. 493 parts per hour
 - B. 512 parts per hour
 - C. 657 parts per hour
 - D. 1,972 parts per hour
2. Sam and Jason run the two-mile race for the school track team. The table below shows their times for the first 4 races.

Race	Sam	Jason
1	17.6 minutes	18.5 minutes
2	16.5 minutes	17.3 minutes
3	16.3 minutes	16.2 minutes
4	15.2 minutes	15.8 minutes

What is the difference between Jason's average rate of change and Sam's average rate of change from race 1 to race 4?

- A. 0.9 minutes
- B. 0.6 minutes
- C. 0.4 minutes
- D. 0.1 minutes

3. The table below shows the number of hours a gas station was open and the number of gallons of gas sold.

Hours Opened	Gallons of Gas Sold
1	368
3	1,009
6	2,664
8	3,445

What is the average rate of change in the amount of gas sold between hours 3 and hours 8?

- A. 390.5 gallons per hour
 - B. 439.6 gallons per hour
 - C. 487.2 gallons per hour
 - D. 890.8 gallons per hour
4. The table below shows the cost to rent a movie for different numbers of days at a movie rental store.

Days	Total Cost
3	\$6.00
5	\$8.50
6	\$9.75
9	\$13.50

What is the meaning of the rate of change for the data?

- A. The cost to rent a movie increases by \$1.25 for each additional day the movie is rented.
- B. The cost to rent a movie increases by \$2.00 for each additional day the movie is rented.
- C. The cost to rent a movie increases by \$2.50 for each additional day the movie is rented.
- D. The cost to rent a movie increases by \$2.75 for each additional day the movie is rented.

5. What is the average rate of change of the function $f(x) = 2x^2 + 4$ over the interval $[-4, -1]$?
- A. -3
B. -4
C. -6
D. -10
6. A volleyball camp charges \$150 per camper for 10 campers. When a team brings 15 campers, the rate is reduced to \$125 per camper. What is the rate of change in cost per camper?
- A. \$2.50
B. \$5.00
C. \$8.34
D. \$10.00
7. The table below shows the amount of time Tyler studied before 4 math tests, and the grade he earned on each test.

Minutes Studied (x)	Test Grade (y)
0	80
5	81
20	84
60	92

Which statement correctly describes the average rate of change?

- A. Tyler's test grades improved 1 point for every 2 minutes he studied.
B. Tyler's test grades improved 1 point for every 5 minutes he studied.
C. Tyler's test grades improved 2 points for every 1 minute he studied.
D. Tyler's test grades improved 5 points for every 1 minute he studied.

8. The function $f(x) = 125(0.80)^x$ models the retail price of a CD player x years since it was first produced. What is the average rate of change in the retail price between years 2 and 4?
- A. \$28.80 per year
 - B. \$14.40 per year
 - C. -\$28.80 per year
 - D. -\$14.40 per year
9. The population of one variety of frogs in a nature preserve is listed in the table below.

Year	Population
1990	1,750
1995	1,900
2000	1,950
2005	2,180
2010	2,240

What was the average rate of change in the population between 1990 and 2000?

- A. 20 frogs per year
- B. 24.5 frogs per year
- C. 28.7 frogs per year
- D. 30 frogs per year

10. The table below shows the number of people that visited a state park over a period of 4 days.

Day	Number of People (thousands)
1	5
2	9
3	13
4	17

What is the meaning of the rate of change for the data?

- A. The park had an decrease in attendance of 4,000 people per day.
 - B. The park had an decrease in attendance of 4 people per day.
 - C. The park had a increase in attendance of 4,000 people per day.
 - D. The park had a increase in attendance of 4 people per day.
11. What is the **approximate** average rate of change for $f(x) = 15(1.5)^x$ from $x = 2$ to $x = 5$?
- A. 16
 - B. 23
 - C. 27
 - D. 69

12. The table below shows the number of miles Paul ran over five days.

Day	Miles Ran
1	1.5
2	0.75
3	2.5
4	1.25
5	2.5

What is the **approximate** average rate of change in the number of miles Paul ran from day 2 to day 5?

- A. 0.4
- B. 0.6
- C. 1.7
- D. 1.8

13. Which expression is equivalent to the average rate of change of the function $f(x)$ over the interval $[4, 9]$?

- A. $\frac{f(4) - f(9)}{4 - 9}$
- B. $\frac{4 - 9}{f(4) - f(9)}$
- C. $\frac{4 + 9}{f(4) + f(9)}$
- D. $\frac{f(4) + f(9)}{4 + 9}$

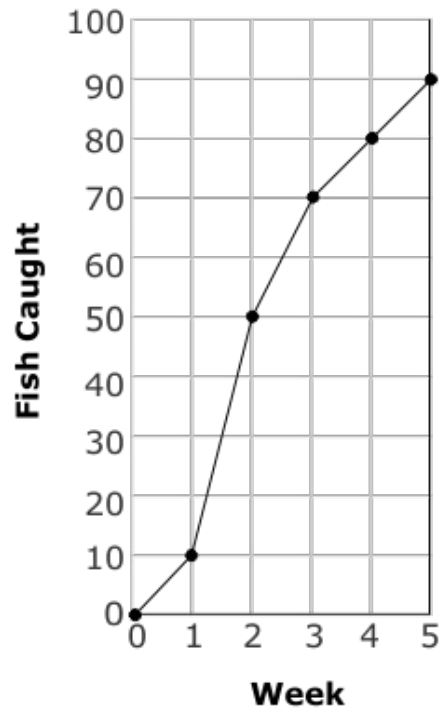
14. A function is shown in the table below.

x	$f(x)$
0	1,750
3	1,900
7	1,950
9	2,180
11	2,240

During which interval was the average rate of change the greatest?

- A. 0 to 3
- B. 3 to 7
- C. 7 to 9
- D. 9 to 11

15. The graph below shows the total number of fish that a fisherman caught over a 5-week time period.



What was the average rate of change in the number of fish caught per week between weeks 2 and 5?

- A. about 13 fish per week
 - B. about 18 fish per week
 - C. about 32 fish per week
 - D. about 40 fish per week
16. What is the average rate of change for the function $f(x) = 4(0.5)^x$ over the interval $-1 \leq x \leq 2$?
- A. 9
 - B. $\frac{1}{9}$
 - C. $-\frac{3}{7}$
 - D. $-\frac{7}{3}$

17. Jamie bought a new video game. The table below shows her score after playing the game different numbers of times.

Times Played	Score
1	10,865
2	11,189
3	11,513
4	11,837
5	12,161
6	12,485

What was Jamie's average rate of change between game 3 and game 6?

- A. 162 points per game
 - B. 270 points per game
 - C. 324 points per game
 - D. 972 points per game
18. Fredrick recorded the temperature on five separate days during the month of July. The data is shown in the table below.

Date in July	Temperature
1	89°F
6	93°F
10	91°F
18	95°F
29	°F

Between which two dates did the temperature increase at the fastest rate?

- A. 1 and 6
- B. 6 and 10
- C. 10 and 18
- D. 18 and 29

19. The table below shows the number of minutes Leo played basketball and the total number of calories he burned.

Time (minutes)	Total Calories Burned
15	100
25	116
40	250
50	350
70	500

What is the **approximate** average rate of change in the total calories Leo burned between 40 and 70 minutes?

- A. 7.71
 - B. 8.21
 - C. 8.33
 - D. 8.75
20. The table below shows the distance Russell rolled a ball after different amounts of time.

Time (seconds)	Distance (feet)
1	4.5
2	6
3	8.5
4	12
5	16.5

What is the average rate of change in the distance Russell rolled the ball between 1 and 5 seconds?

- A. 2.4 feet per second
- B. 3.0 feet per second
- C. 3.3 feet per second
- D. 4.0 feet per second