

1.3.D1 – FUNCTIONS REPRESENTED BY TABLES

Problems 1 – 8: Let f and g be defined by the following table:

x	$f(x)$	$g(x)$
-2	6	0
-1	3	4
0	-1	1
1	-4	-3
2	0	-6

Evaluate:

- $f(0)$
- $g(0)$
- $f(-1)$
- $g(2)$

Solve:

- $f(?) = 0$
- $g(?) = 0$
- $f(?) = 3$
- $g(?) = 4$

9. A function is shown in the table. If included in this table, which ordered pair, $(-4, 1)$ OR $(1, -4)$, would result in a relation that is no longer a function? Explain your reasoning.

x	$f(x)$
-4	2
-1	-4
0	-2
3	16

10. The costs to fill-up a car's tank with gas and get a car wash are shown in the table.

Tank Size (gal) (x)	Total Cost (\$) $f(x)$
11	21.45
15	28.25
17	31.65

- Calculate the average rate of change to determine the price of a gallon of gas.
 - How much does the car wash cost?
 - Find the cost of a fill-up and a car wash for a customer with a truck whose tank size is 22 gallons.
11. The distance needed to stop a car after applying the brakes varies directly with the square of the car's speed. The table below shows stopping distances for various speeds.

Speed (mph)	10	20	30	40	50	60	70
Distance (ft)	6.25	25	56.25	100	156.25	225	306.25

- Determine the average rate of change in braking distance between one car traveling at 50 mph and one traveling at 70 mph.
- Predict the braking distance when a car is traveling 55 mph.

12. The movie *Ice Age: The Meltdown* was introduced on March 31, 2006. The table shows the gross receipts for selected weekends within the first 9 weeks that the movie was shown in U.S. theaters.

Weekend w	Gross Receipts (in millions) G
1	\$68.0
3	\$20.0
6	\$4.2
9	\$0.8

Source: www.the-numbers.com

- Calculate the average rate of change for the third and sixth weekends. *Round to 2 decimal places.*
- Use the average rate of change to estimate the gross receipts on the fifth weekend.

13. The table shows the number of bankruptcy filings in Japan from 1994 until 2002.

Year d	Number of Filings (in thousands) N
1994	45.0
1998	100.0
2000	149.0
2002	225.0

- Calculate the average rate of change for the entire interval. *(Round to the nearest whole number.)*
- Explain the meaning of the average rate of change in the context of the data.
- Estimate the number of bankruptcy filings in 2012.