LINEAR RELATIONSHIPS

ACTIVITY LIST

TOPIC	ACTIVITY
IDENTIFYING FUNCTIONS*	CARD SORT
SLOPE AND RATE OF CHANGE*	HE SAID, SHE SAID
PROPORTIONAL VS. NON-PROPORTIONAL*	CARD SORT
GRAPHING LINEAR EQUATIONS*	SCAVENGER HUNT
MULTIPLE REPRESENTATIONS*	CUT AND PASTE
GRAPHING LINEAR EQUATIONS	SPINNER ACTIVITY
LINEAR RELATIONSHIPS UNIT REVIEW*	TASK CARDS
LINEAR RELATIONSHIPS UNIT REVIEW*	PERFORMANCE TASK

highlighted selections are included in this sample

*The student pages of these activities are also available in digital format for use with Google Slides™ or Google Forms ™.

SLOPE AND RATE OF CHANGE

"He Said She Said"

Students will be able to interpret and compare the slope and rate of change of relationships represented in different ways.

8.EE.5 Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways.

8.EE.6 Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation $y = mx$ for a line through the origin and the equation $y = mx + b$ for a line intercepting the vertical axis at b.

8.F.4 Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.

8.4B Graph proportional relationships, interpreting the unit rate as the slope of the line that models the relationship.

8.4C Use data from a table or graph to determine the rate of change or slope and y-intercept in mathematical and real-world problems.

8.4A Use similar right triangles to develop an understanding that slope, m, given as the rate comparing the change in y-values to the change in x-values is the same for any two points on the same line.

Ideas for Implementation: This activity is a fun way to get students to analyze others' work and apply their knowledge of slope and rate of change. Students will practice communication by providing justifications for their choices.

Instructions:

1) Print the 10 cards on cardstock. Cards could be placed around the room, or groups could be given a set of cards on binder rings.

2) Students will observe each card to see which student on the card made a correct statement.

3) Provide students with a recording sheet where they can explain their choices in the appropriate boxes.

Notes: The cards can be completed in any order. This activity works well in groups of 2-4 students.

Unit: Linear Relationships
He Said She Said

Name _____

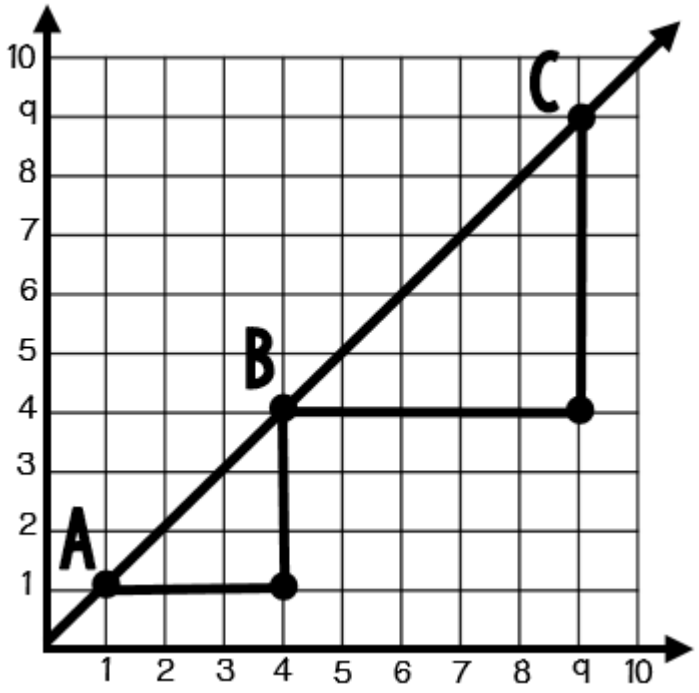
Date _____Pd_____

SLOPE AND RATE OF CHANGE

INSTRUCTIONS: Each of the 10 cards will have statements from two students. Read carefully and choose the name of the student who made the correct statement. Then justify your answer in the space provided.

1) _____ is correct because…	**2) _____ is correct because…**
3) _____ is correct because…	**4) _____ is correct because…**
5) _____ is correct because…	**6) _____ is correct because…**
7) _____ is correct because…	**8) _____ is correct because…**
9) _____ is correct because…	**10) _____ is correct because…**

CARD #1:

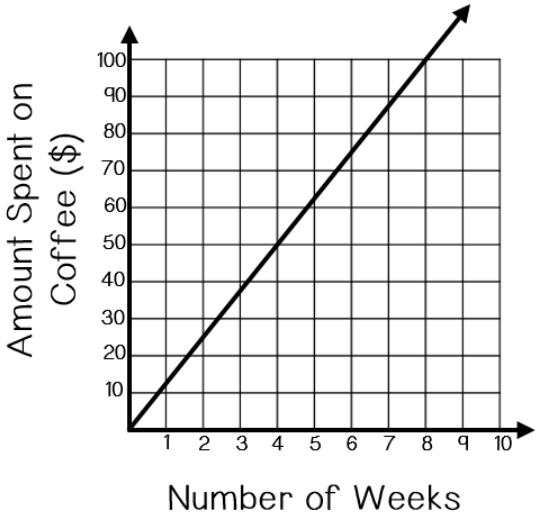


Kimani says that the slope of the line between points B and C is greater than the slope of the line between points A and B.

Kiara says that the slope of the line between points B and C is the same as the slope of the line between points A and B.

CARD #2:

Janie's goal is to spend no more than $13 each week on coffee. The graph shows the amount she has spent on coffee over the last several weeks.



Louis says that Janie has not met her goal.

Lily says that Janie has met her goal.

CARD #3:

A graphed line passes through the points (8, 6) and (-8, 4).

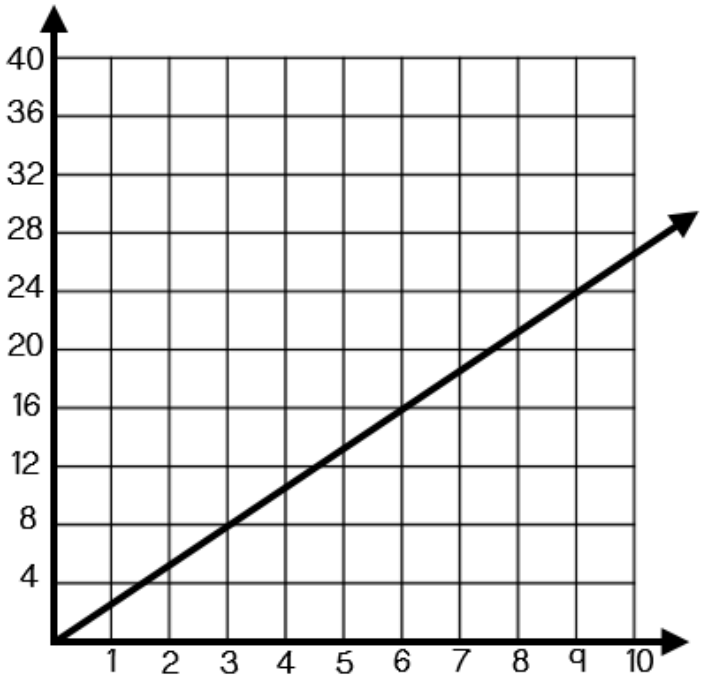
Mason says the slope can be found by calculating the following:

$$\frac{6 - 4}{8 - (-8)}$$

Monica says the slope can be found by calculating the following:

$$\frac{8 - (-8)}{6 - 4}$$

CARD #4:



Nolan says the rate of change shown on the graph is $\frac{2}{3}$.

Nadia says the rate of change shown on the graph is $\frac{8}{3}$.

CARD #5:

Sweet Treats sells candy by the pound as shown in the table:

Amount (lbs)	Cost
3	$11.97
5	$19.95
7	$27.93
9	$35.91

Oscar says the unit rate is $3.99 per pound of candy.

Olivia says the unit rate is $7.98 per pound of candy.

CARD #6:

A graphed line passes through the points (12, 5) and (12, 9).

Paul says the slope of the line is zero.

Phoebe says the slope of the line is undefined.

CARD #7:

A local DJ charges customers a set-up fee plus an hourly rate. For a 3-hour event, the DJ charges $275. For a 5-hour event, the DJ charges $425.

Raymond says the DJ charges $75 an hour.

Rosie says the DJ charges $92 an hour.

CARD #8:

At Fromazing, frozen yogurt costs $0.50 per ounce. The cost of frozen yogurt per ounce at Frotastic is shown below:

Amount (oz)	Cost
5	$2.40
8	$3.84
11	$5.28
14	$6.72

Silas says Frotastic is a better deal.

Sterling says Fromazing is a better deal.

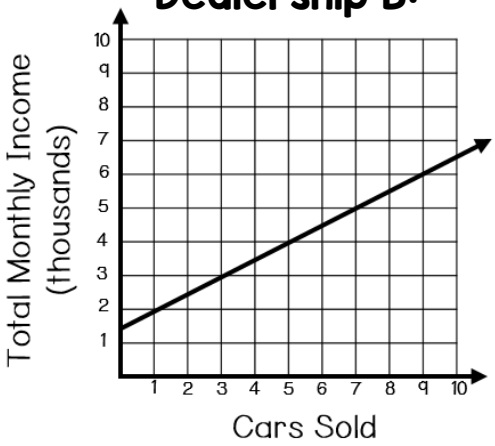
CARD #9:

Two car dealerships pay their employees a monthly salary plus a commission on cars that they sell.

Dealership A:

Cars Sold	Monthly Income
1	$1900
4	$3850
7	$5800
10	$7750

Dealership B:



Tyson says that Dealership A pays a higher commission on cars sold.

Tyra says that Dealership B pays a higher commission on cars sold.

CARD #10:

Two friends are saving money to take a vacation over Spring Break.

Jim's account can be represented by $y = 250 + 120x$ where x is the number of weeks and y is the total amount in his savings account. Josh's savings account balance is shown in the table below:

Number of Weeks	Total Amount in Savings
2	$520
4	$740
6	$960
8	$1180

Vince says that Josh is saving money at a greater rate.

Vivian says that Jim is saving money at a greater rate.

MULTIPLE REPRESENTATIONS

Cut and Paste Activity

Students will be able to match equations, tables and graphs.

8.EE.6 Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation y = mx for a line through the origin and the equation y = mx + b for a line intercepting the vertical axis at b.

8.F.4 Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.

8.4C Use data from a table or graph to determine the rate of change or slope and y-intercept in mathematical and real-world problems.

8.5I Write an equation in the form y = mx + b to model a linear relationship between two quantities using verbal, numerical, tabular, and graphical representations.

8.5A Represent linear proportional situations with tables, graphs, and equations in the form of y = mx + b, where b ≠ 0.

Ideas for Implementation: This cut and paste matching activity is a great reinforcement activity, as well as an easy way to assess your students' skills. Students enjoy the "hands-on" nature of the activity!

Instructions:

1) Print and copy activity for each student.
2) Have students cut out the equations and tables.
3) Students should glue the equation and table next to the matching graph. (Students will not use all of the cards.)

Notes: Each card is lettered for easier grading! This activity could also be done in partners or small groups.

Linear Relationships
Cut and Paste Activity

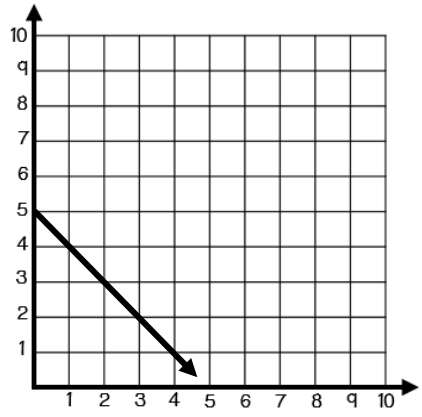
Name _____

Date _____Pd_____

MULTIPLE REPRESENTATIONS

Instructions: Cut the cards apart. Then glue the cards next to the correct graph.

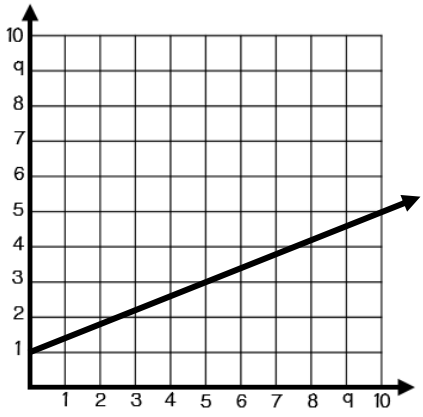
❶



[EQUATION]

[TABLE]

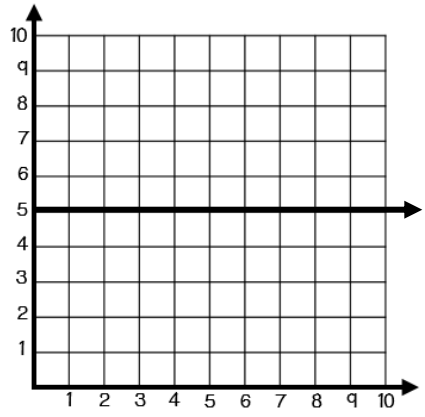
❷



[EQUATION]

[TABLE]

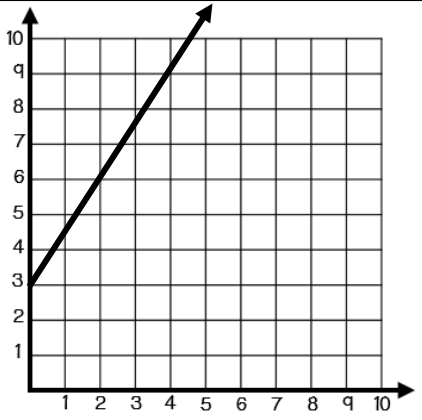
❸



[EQUATION]

[TABLE]

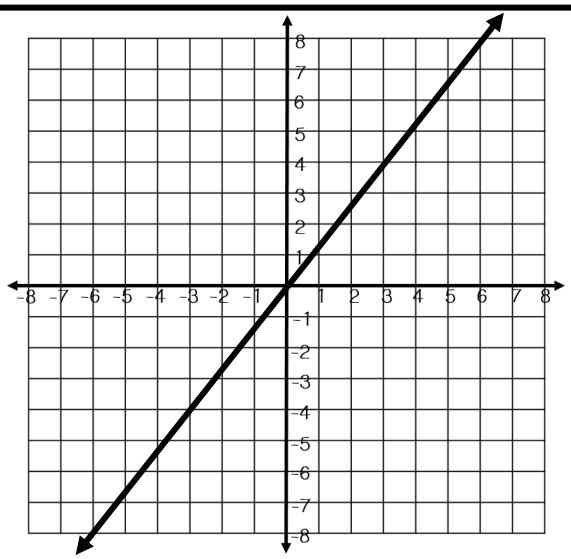
❹



[EQUATION]

[TABLE]

❺



[EQUATION]

[TABLE]

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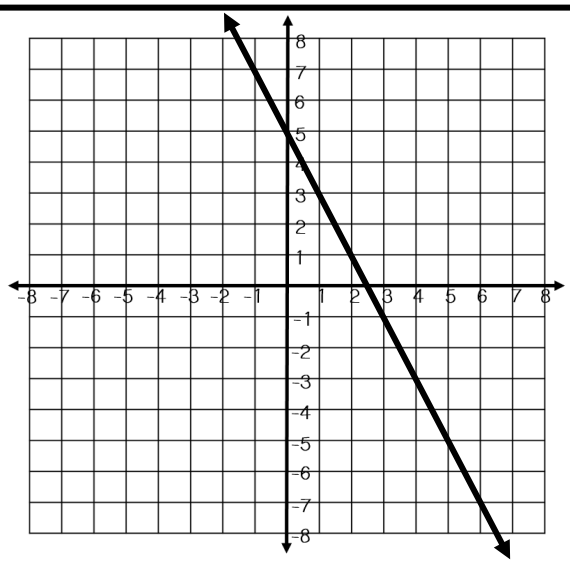

[EQUATION]

[TABLE]

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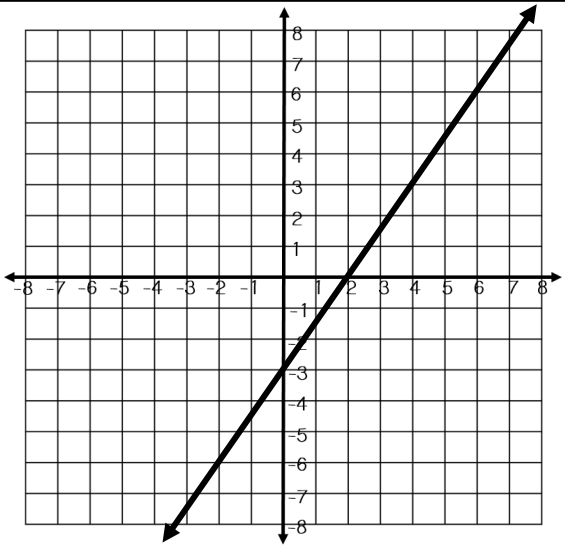
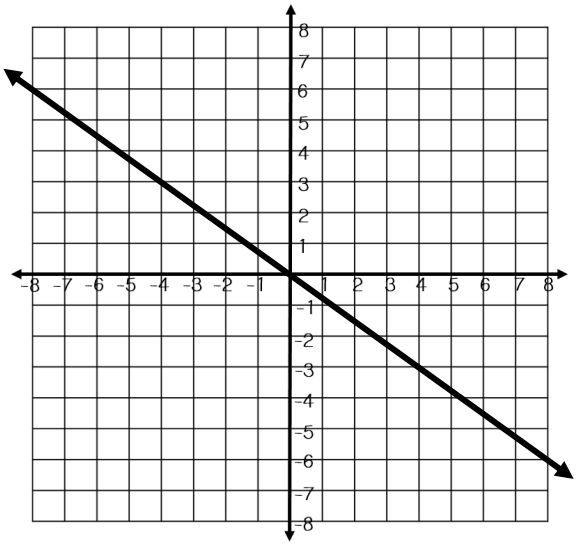


[EQUATION]

[TABLE]

❽



[EQUATION]

[TABLE]

A $y = -\frac{3}{4}x$	**B** $y = 5x$	**C** $y = -x + 5$
D $y = \frac{4}{3}x$	**E** $y = 5$	**F** $y = x + 5$
G $y = \frac{3}{2}x + 3$	**H** $y = \frac{2}{5}x + 1$	**I** $y = -5x + 2$
J $y = \frac{3}{2}x - 3$	**K** $y = \frac{5}{2}x + 1$	**L** $y = -2x + 5$

M

x	-6	-3	0	3	6
y	-8	-4	0	4	8

N

x	-4	-2	0	2	4
y	5	5	5	5	5

O

x	-4	-2	0	2	4
y	-9	-6	-3	0	3

P

x	-10	-5	0	5	10
y	-2	-1	0	1	2

Q

x	0	1	2	3	4
y	5	6	7	8	9

R

x	-2	-1	0	1	2
y	7	6	5	4	3

S

x	-10	-5	0	5	10
y	-3	-1	1	3	5

T

x	-8	-4	0	4	8
y	6	3	0	-3	-6

U

x	-4	-2	0	2	4
y	-3	-1	1	3	5

V

x	-3	-1	0	1	3
y	11	7	5	3	-1

W

x	-4	-2	0	2	4
y	-3	0	3	6	9

X

x	5	5	5	5	5
y	0	1	2	3	4

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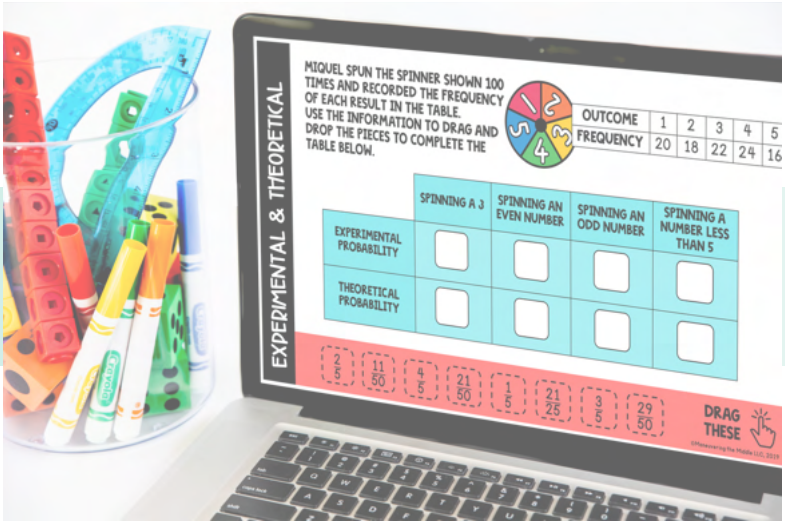

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