lesson twenty-five - student resource sheet

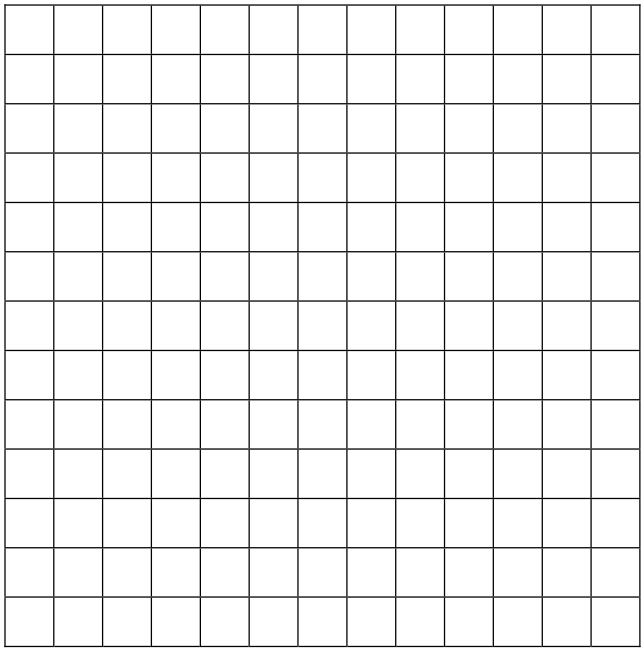
Lesson Objective: Write an equation of a line using the slope-intercept form, or using the slope and point on the line. Write an equation of a line given two points on the line.

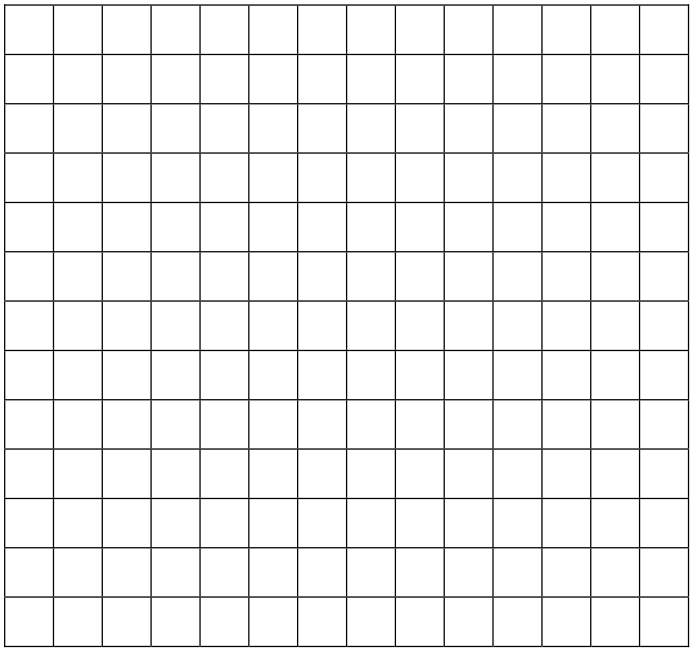
Vocabulary Box

slope – The steepness of a line expressed as a ratio. It is also called the rise over run, or the ratio of the vertical change to the horizontal. The slope can be found using any two points on the line. Example: The slope of the line through the points (1, 2) and (5, –6) is –2, $\frac{(-6)-2}{5-1} = \frac{-8}{4} = -2$.

y-intercept – The value of *y* at the point where a line crosses the *y*-axis and *x* equals zero. Example: A line crossing the *y*-axis at (0, 3) has a *y*-intercept of 3.

slope-intercept form – A linear equation in the form $y = mx + b$, where m is the slope and b is the *y*-intercept. Example: $y = 3x – 2$, where the slope is 3 and the *y*-intercept is –2.





Guided Practice

You will complete the following practice problems with your partner. Then your teacher will review the answers.

Directions: Find the equation of each line in slope-intercept form.

1. slope of –1 and y-intercept of –2

2. slope of 5 and point on line of (6, –1)

3. two points on line of (9, –5) and (6, 7)

4. slope of $\frac{7}{8}$ and point on line of (4, 2)

5. two points on line of (4, 2) and (6, –1)

lesson twenty-five - student resource sheet

Summary/Closure

A. Vocabulary Words

Directions: Match each item in the left column with its best match in the right column.

1. b
2. m
3. $y = mx + b$
4. $\frac{y_2 - y_1}{x_2 - x_1}$
5. the y value of (0, –4)
6. a linear equation

A. slope

B. y-intercept

C. slope-intercept form

B. Summarize What We Learned Today

Directions: Write a linear equation in slope-intercept form for the following three conditions: given the slope and y-intercept, given the slope and a point on the line, given two points on the line. Then explain each process. You will use this explanation as your own reference sheet.

lesson twenty-six - student resource sheet

Lesson Objective: Write an equation of a line using the slope-intercept form, or using the slope and point on the line. Write an equation of a line given two points on the line.

Vocabulary Box

slope – The steepness of a line expressed as a ratio. It is also called the rise over run, or the ratio of the vertical change to the horizontal. The slope can be found using any two points on the line. Example: The slope of the line through the points (1, 2) and (5, –6) is –2, $\frac{(-6)-2}{5-1} = \frac{-8}{4} = -2$.

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slope-intercept form – A linear equation in the form $y = mx + b$, where m is the slope and b is the *y*-intercept. Example: $y = 3x - 2$, where the slope is 3 and the *y*-intercept is –2.

Independent Practice

Please complete the following practice problems on your own. Your teacher will review the answers.

Directions: Find the equation of each line.

1. slope is 4 and y-intercept is $\frac{2}{5}$

2. slope is $\frac{5}{6}$ and point on the line is (12, 18)

3. two points on the line are (–6, –7) and (–8, –9)

4. slope is –8 and point on the line is (–2, 2)

5. two points on the line are (–4, 0) and (–3, –1)

6. slope is 2 and y-intercept is –5

7. two points on the line are (–10, 4) and (5, –5)

Directions: Find the equation of each line.

A. x-intercept of 5 and y-intercept of –6

B. two points on line of (3, 4) and (5, 4)

C. two points on line of (–2, 6) and (–2, 11)

lesson twenty-six - student resource sheet

Graph the following lines on the same coordinate grid.

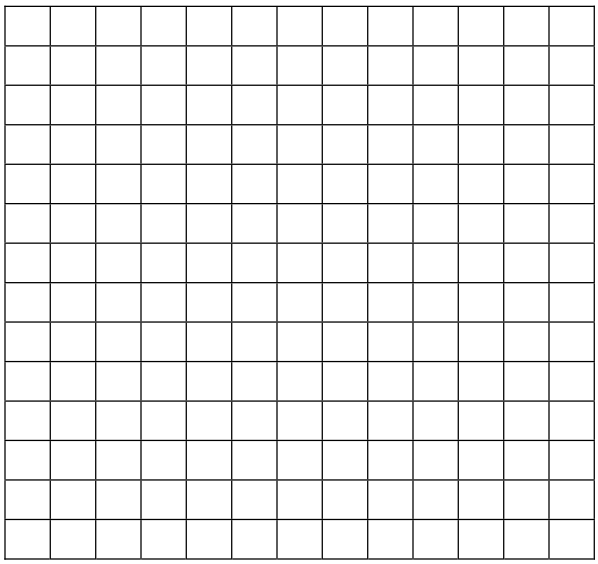
- $y = \frac{4}{3}x - 2$
- $y = 2$
- $x = 6$

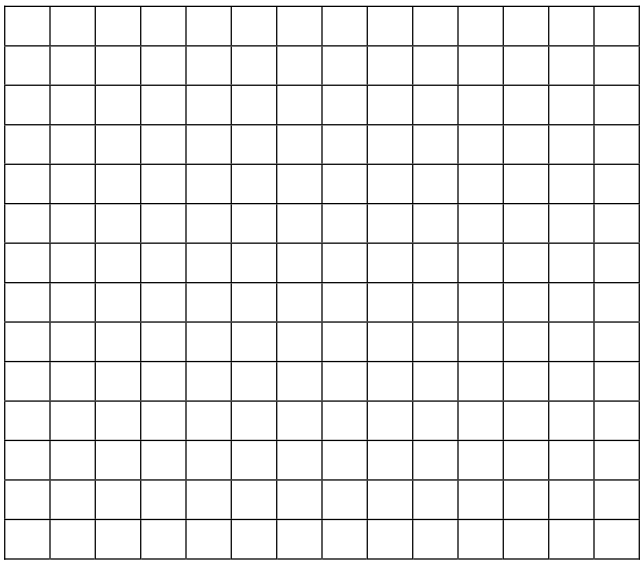
1. Find the area of the right triangle enclosed by these three lines.

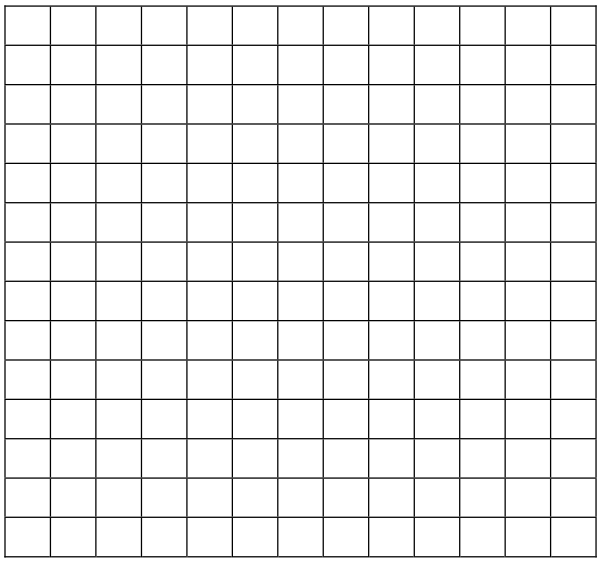
2. Write the equations of three lines that will enclose a triangle with an area of 24 square units. Graph these lines, and justify your answer.

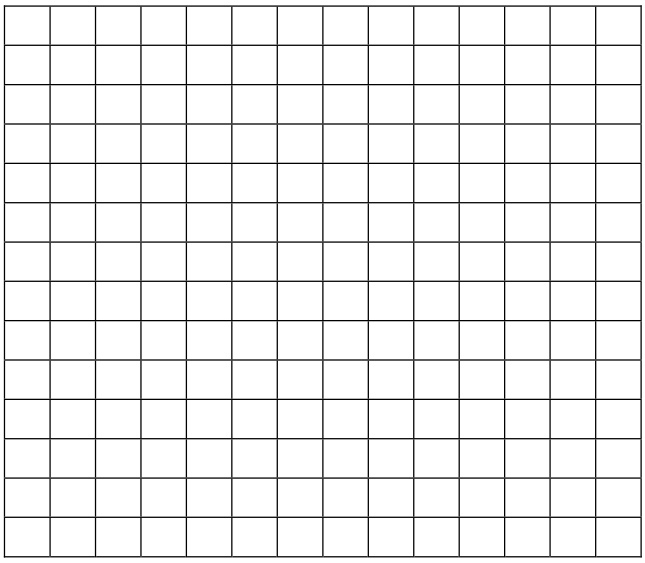
3. Write the equations of three lines that will enclose a triangle with an area of 30 square units. Graph these lines, and justify your answer.

4. Write the equations of four lines that will enclose a rectangle with an area of 32 square units. Graph these lines, and justify your answer.









lesson twenty-six - student resource sheet

Directions: Find the equation of each line.

1. slope of 4 and y-intercept of –1

2. slope of –6 and point on line of (2, –10)

3. two points on line of (–4, 3) and (8, 6)

lesson twenty-seven - student resource sheet

Lesson Objective: Draw a scatter plot from given data; find the line of best fit, and make predictions or decisions.

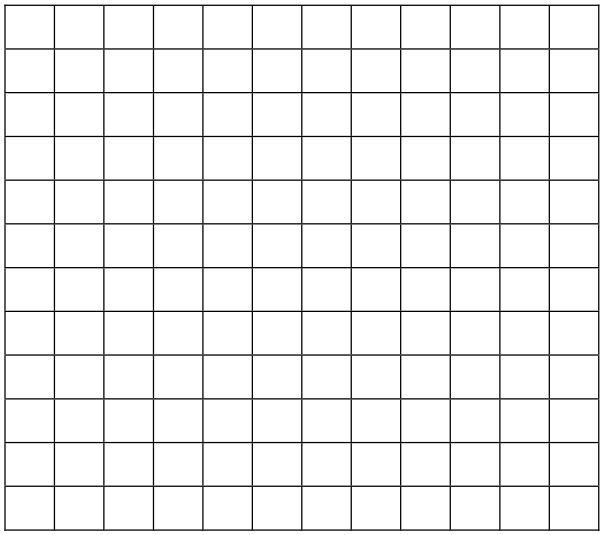
Vocabulary Box

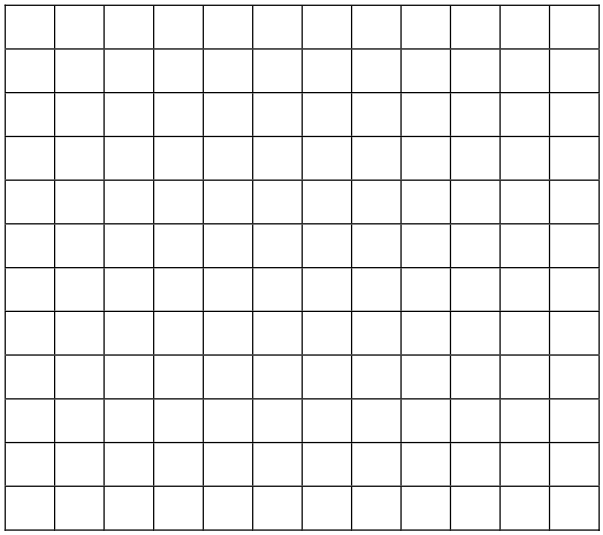
scatter plot – A graph with two sets of data plotted as ordered pairs on a coordinate plane.

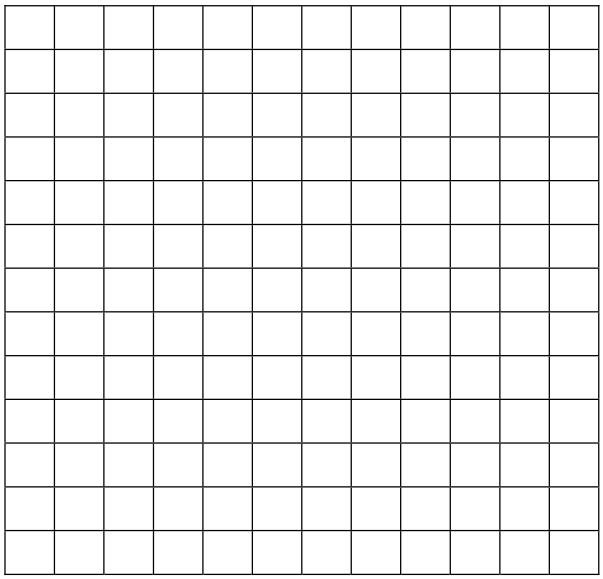
line of best fit – A line that lies as close as possible to the points in a scatter plot.

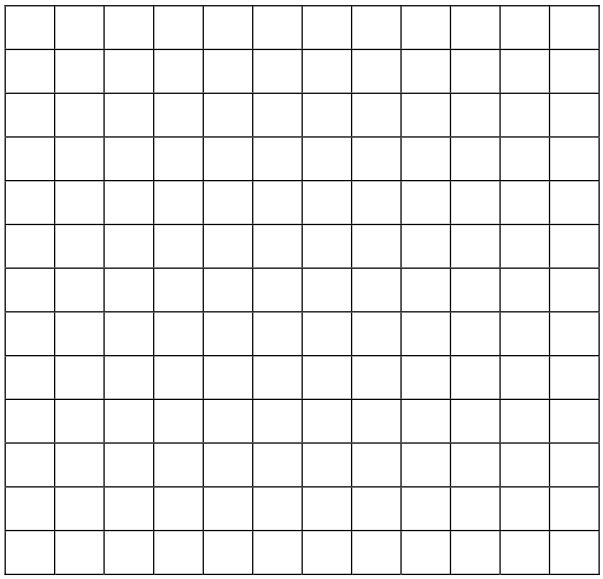
interpolate – Estimate values that lie between two known values.

extrapolate – Estimate values that lie beyond a known set of values.









Guided Practice

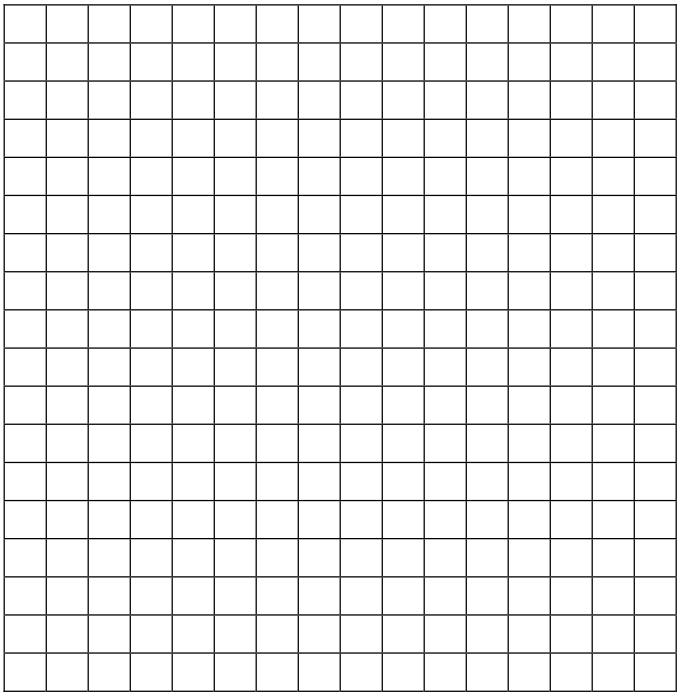
Complete the following practice problems with your partner. Then your teacher will review the answers.

Directions: Complete the following for the table below.

Weight of Ice Cream Cone (in ounces)	**Time Taken to Eat Cone** (in minutes)
6	12
6	13
7	15
7.5	16
8	15
8.5	17
9	18
9	19

1. Write ordered pairs for the values in the table.

2. Choose an appropriate scale and graph the ordered pairs.



3. Draw a line of best fit for the data.

4. Find an equation for your line of best fit.

5. Approximate how long it would take to eat a cone with a weight of 6.5 ounces.

6. Approximate how long it would take to eat a cone with a weight of 1 pound (if you didn't get sick and it didn't melt!).

Summary/Closure

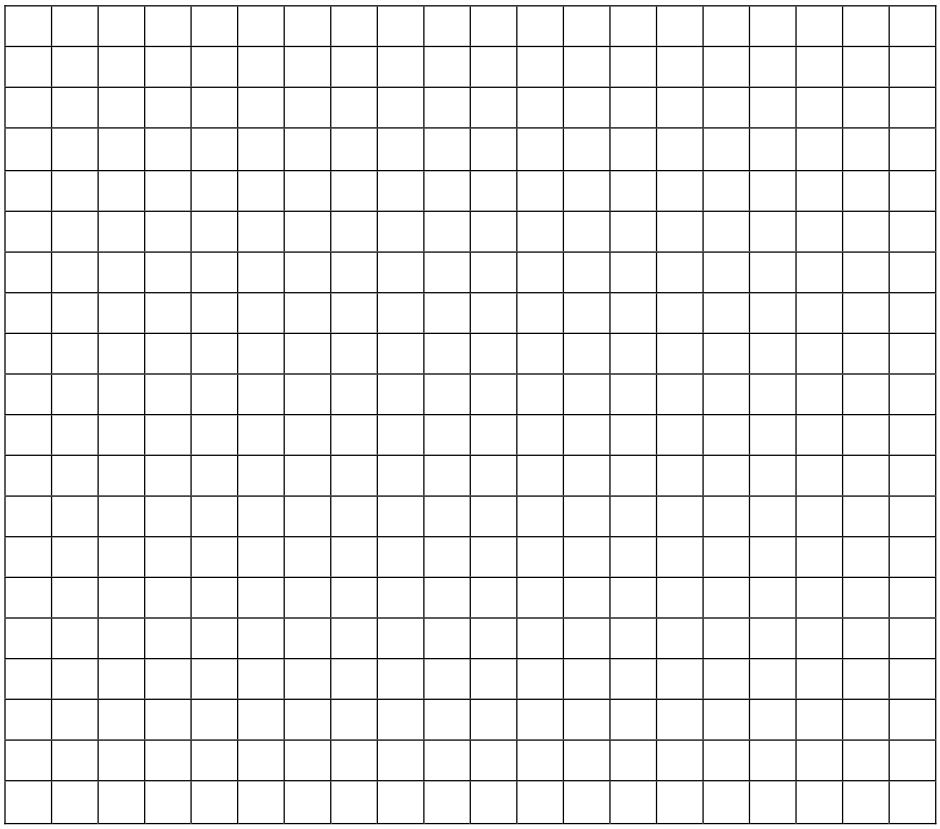
A. Vocabulary Words
Directions: Describe each of the following terms in your own words.

1. scatter plot

2. line of best fit

3. interpolate

4. extrapolate

B. Summarize What We Learned Today

Directions: Graph six ordered pairs that lie approximately but not exactly in a line. Then draw a line of best fit. Find an equation of your line of best fit. Then explain the process of determining a line of best fit for a scatter plot. You will use this explanation as a personal reminder.