

Review for Test: Linear Equations

8th Grade Math

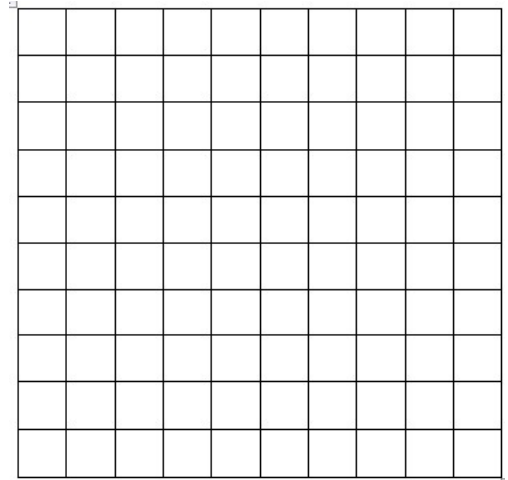
Cluster: Understand the connections between proportional relationships, lines, and linear equations.

1. The table below shows the miles traveled by a car. Graph the information and answer the questions below.

Gallons	Distance (miles)
0	0
4	80
8	160
12	240
16	320

a) What is the slope in this situation **and** what does it represent?

b) What is the y-intercept **and** what does it represent?



c) Write the equation for this problem.

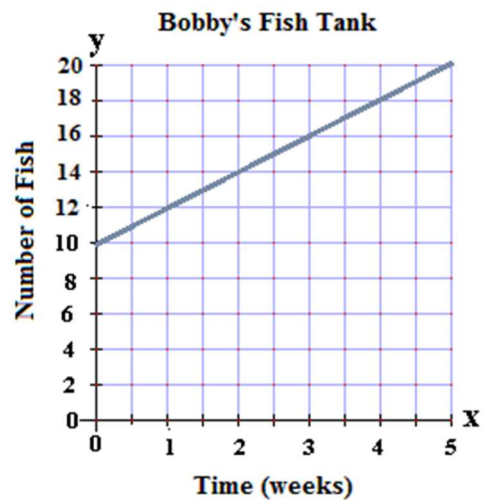
d) Use your equation to find the distance traveled when you use 24 gallons?

2. The graph below records the number of Fish in Bobby's fish tank. Complete the table and answer the questions below.

Time (weeks)	Number of Fish
0	
1	
2	
3	
4	

a) What is the slope in this situation **and** what does it represent?

b) What is the y-intercept **and** what does it represent?



c) Write an equation for this problem

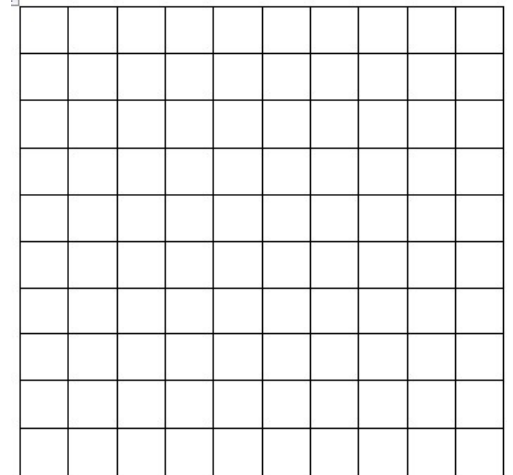
3. The table below shows the new students at Georgia Middle school over a period of 8 months.

Time (Months)	Students
0	
2	16
4	
6	24
8	

a) What is the slope in this situation **and** what does it represent?

b) What is the y-intercept in this situation **and** what does it represent?

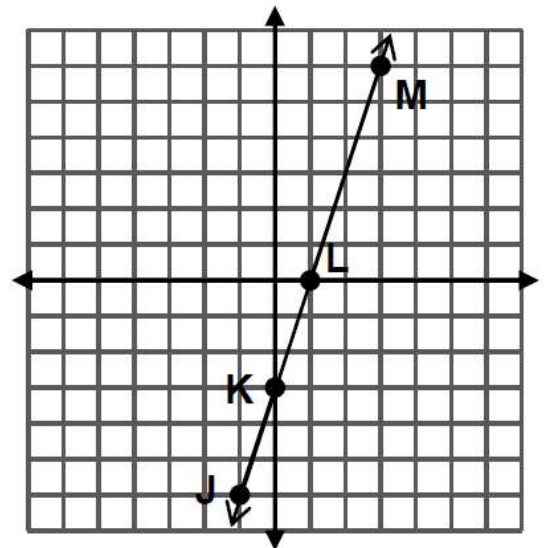
c) Write the equation for this problem



4. a) Create a slope triangle between points J and K **and** a slope triangle between points L and M.

b) Calculate the slope of each triangle

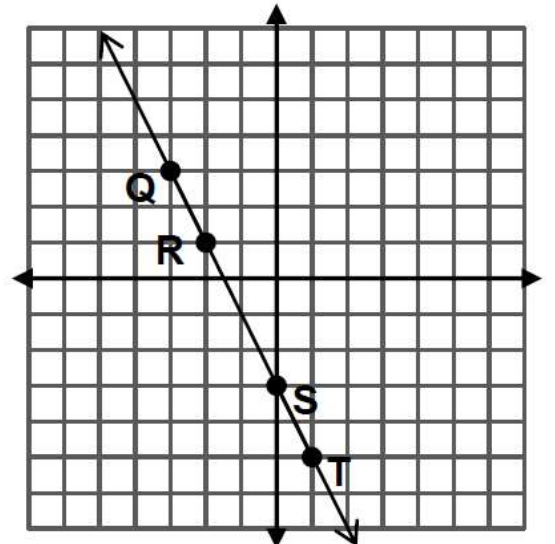
c) Are the slopes equivalent? Why or why not? Support your answers with mathematical reasoning.



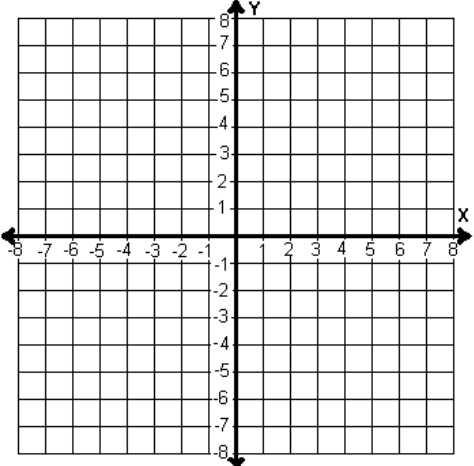
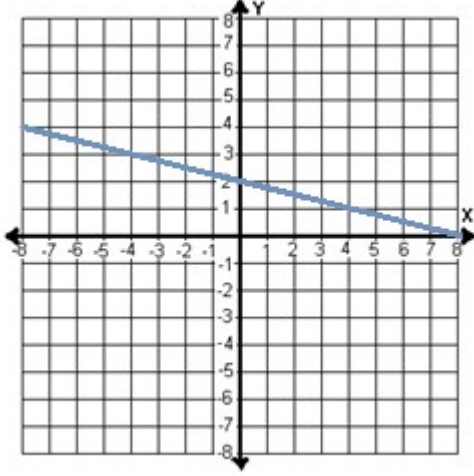
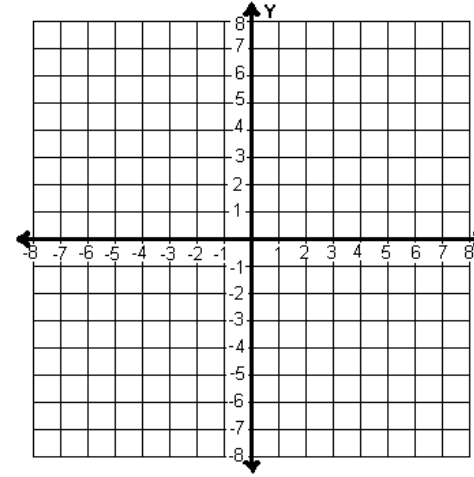
5. a) Create a slope triangle between points Q and T **and** a slope triangle between points R and S.

b) Calculate the slope of each triangle.

c) Are the slopes equivalent? Why or why not? Support your answers with mathematical reasoning.



6. Fill in the missing table values, graphs, and/or equations.

Table	Graph	Equation												
<p>a.</p> <table border="1"> <thead> <tr> <th>x</th> <th>y</th> </tr> </thead> <tbody> <tr> <td>-2</td> <td>-8</td> </tr> <tr> <td>-1</td> <td>-4</td> </tr> <tr> <td>0</td> <td>0</td> </tr> <tr> <td>1</td> <td>4</td> </tr> <tr> <td>2</td> <td>8</td> </tr> </tbody> </table>	x	y	-2	-8	-1	-4	0	0	1	4	2	8		<p>Slope _____</p> <p>Y-intercept _____</p> <p>Equation: _____</p>
x	y													
-2	-8													
-1	-4													
0	0													
1	4													
2	8													
<p>b.</p> <table border="1"> <thead> <tr> <th>x</th> <th>y</th> </tr> </thead> <tbody> <tr> <td>-8</td> <td></td> </tr> <tr> <td>-4</td> <td></td> </tr> <tr> <td>0</td> <td></td> </tr> <tr> <td>4</td> <td></td> </tr> <tr> <td>8</td> <td></td> </tr> </tbody> </table>	x	y	-8		-4		0		4		8			<p>Slope _____</p> <p>Y-intercept _____</p> <p>Equation: _____</p>
x	y													
-8														
-4														
0														
4														
8														
<p>c.</p> <table border="1"> <thead> <tr> <th>x</th> <th>y</th> </tr> </thead> <tbody> <tr> <td>-2</td> <td></td> </tr> <tr> <td>0</td> <td></td> </tr> <tr> <td>2</td> <td></td> </tr> <tr> <td>4</td> <td></td> </tr> <tr> <td>6</td> <td></td> </tr> </tbody> </table>	x	y	-2		0		2		4		6			<p>Slope _____</p> <p>Y-intercept _____</p> <p>Equation: $y = -\frac{3}{2}x + 5$</p>
x	y													
-2														
0														
2														
4														
6														

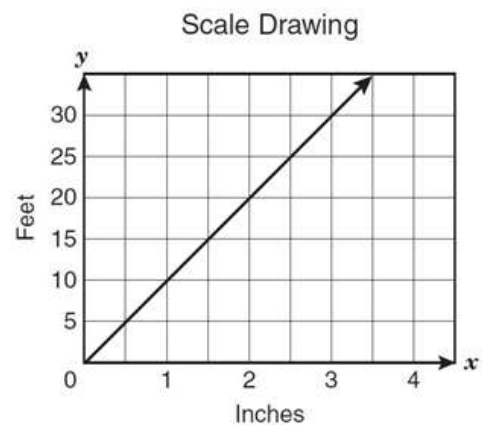
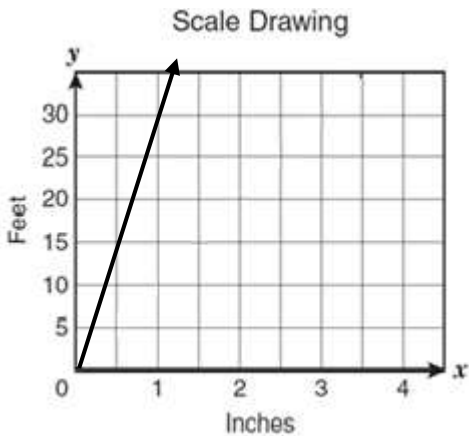
7. Elizabeth can choose from several month cell phone plans. The cost of each plan is a linear function of the number of minutes that are included in the plan and a monthly fee. One plan she could have 200 minutes included in the plan for \$33. In another plan she could have 500 minutes included for a cost of \$48.

Use this information to answer the questions below.

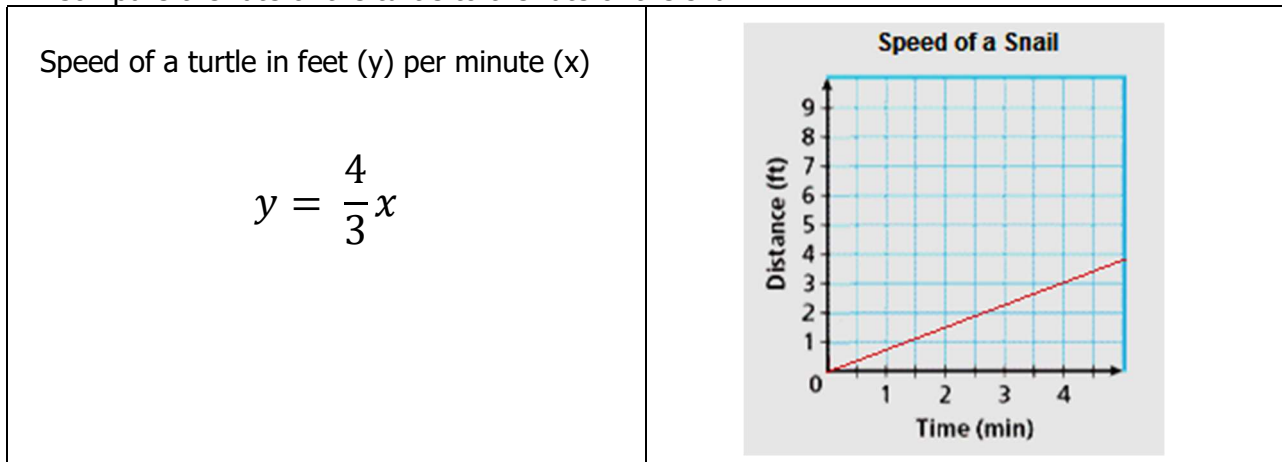
Minutes, Included, x	100	200	300	400	500
Cost of Plan (\$), y		33			48

- What is the slope?
- What does the slope represent in the context of this problem?
- What is the y -intercept?
- What does the y -intercept represent in the context of this problem?
- Write an equation for this problem.

8. Oscar made a scale drawing of his backyard. In his drawing $\frac{1}{3}$ inch represents 10 feet. Circle the graph that accurately represents this relationship?



9. The graph and equation below represent distance over time relationships for a snail and turtle. Compare the rate of the turtle to the rate of the snail.



a) Who is moving at a faster rate the turtle or the snail? How do you know?

b) How far will they have traveled after 4 minutes?

Turtle:

Snail:

10. The table below shows the amount earned by Josie selling chocolate chip cookies. The equation represents the amount Jade earned for selling peanut butter cookies.

<p style="text-align: center;">Josie's Chocolate Chip Cookie Sales</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="padding: 5px;">Cookies sold</th> <th style="padding: 5px;">Money earned (\$)</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">2</td> <td style="padding: 5px;">2.50</td> </tr> <tr> <td style="padding: 5px;">4</td> <td style="padding: 5px;">5.00</td> </tr> <tr> <td style="padding: 5px;">6</td> <td style="padding: 5px;">7.50</td> </tr> <tr> <td style="padding: 5px;">8</td> <td style="padding: 5px;">10.00</td> </tr> </tbody> </table>	Cookies sold	Money earned (\$)	2	2.50	4	5.00	6	7.50	8	10.00	<p style="text-align: center;">Jade's Peanut Butter Cookies:</p> <p style="text-align: center;">x = cookies sold y = money earned</p> $y = 1.50x$
Cookies sold	Money earned (\$)										
2	2.50										
4	5.00										
6	7.50										
8	10.00										

What is the slope of each relationship?

Josie:

Jade:

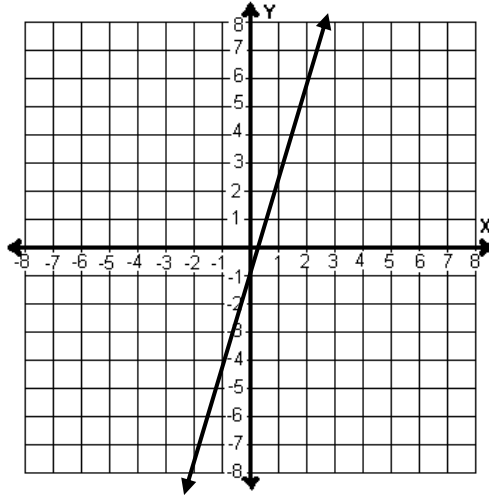
Who is earning more per cookie?

11. Fill in the missing table values, graphs, and/or equations.

a.

Given the Equation and graph:

$$y = 3x - 1$$



Is it a function?

Is this a linear function or a nonlinear function?

b.

Given the Equation:

$$y = x^2 - 3$$

x	y
-2	-1
-1	0
0	-1
1	0
2	3

Is it a function?

Is this a linear function or a nonlinear function?

c.

Given the Equation:

$$y = -2x - 2$$

Is it a function?

Is this a linear function or a nonlinear function?

Complete the table

x		y
-2		
-1		
0		
1		
2		

Complete the graph

