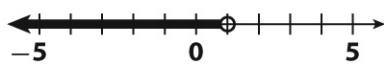
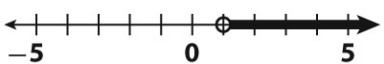

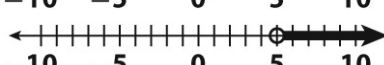
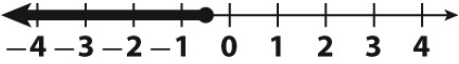


For full credit, show all work. You do not need to check unless the problem asks you to.

**Write an inequality for each sentence.**

1.	You need to score at least 30 points to take the lead.	$x \geq 30$
2.	The bus seats at most 60 people.	$x \leq 60$
3.	The coupon is good for any item that costs more than \$10.	$x > 10$

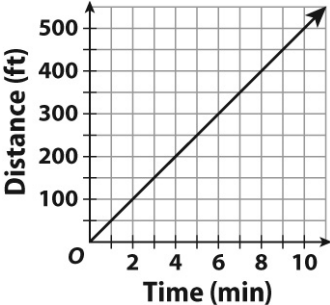
4.	For which inequality below does $x = 4$ make the inequality true?  A $\frac{x}{6} \geq 36$ B $\frac{6}{x} \leq 1$ C $\frac{x}{6} \leq 1$ D $\frac{6}{x} > 11$	C
5.	Which number line represents the solution to the inequality $x - 3 > 2$ ?  A  B  C  D 	D
6.	Sue Ling gave her dad a \$50 gift certificate. He plans to buy a \$12 book on home repair and as many drill bits as he can for \$1.79 each. Choose the inequality that shows $x$ , the number of drill bits he can buy.  A $12x + 1.79 \geq 50$ C $12x + 1.79 \leq 50$ B $12 + 1.79x \geq 50$ D $12 + 1.79x \leq 50$	D
7.	What is the solution to the inequality $-2x - 4 \leq 11$ ?	$x \geq -\frac{15}{2}$
8.	Wallace has a \$506 budget for a pizza party. Pizza pies cost \$12 each. He will also purchase drinks for \$30, paper plates for \$15 and napkins for \$6. Write and solve an inequality that shows the largest number of whole pizza pies Wallace can purchase.  A 8      B 21      C 37      D 38	C
9.	Berries are \$3 per pound. Which inequality shows the number $n$ of pounds of berries you can buy if you have \$20 and also buy a \$5 fruit basket?  A $3 + n \leq 20 - 5$ C $3n + 5 \leq 20$ B $3 + 5n \leq 20$ D $3n + 5n \leq 20$	C

10.	<p>Which inequality has the graphed solution below?</p>  <p>A <math>-2x - 4 \geq -5</math>                      C <math>2x - 4 \leq -5</math>  B <math>-2x - 4 \geq 5</math>                         D <math>2x - 4 \leq 5</math></p>	C
11.	Solve: $3x - \frac{1}{2} < 12 - \frac{3}{4}x$	$x < \frac{10}{3}$
<p><b>Use this situation for the two questions below.</b>  Bill and Angie are selling gift baskets at a craft fair. Their costs are \$75 for the table and \$12 per basket. They sell each basket for \$20.</p>		
12.	How many baskets must they sell to break even?	10
13.	<p>Which inequality shows the situation in which they make a profit?</p> <p>A <math>12b &lt; 20b + 75</math>                      C <math>20b &lt; 12b + 75</math>  B <math>12b &gt; 20b + 75</math>                      D <math>20b &gt; 12b + 75</math></p>	D
14.	Gayle and Ernie are going to sell canvas backpacks. They spend \$75 for a used sewing machine and estimate the canvas will cost \$15 per backpack. They plan to sell the backpacks for \$30. Write and solve an inequality to find when they will start making a profit.	$x > 5$
15.	What is the solution to the inequality: $7.8 - 2.5x < 16.3 - 7.5x$	$x < 1.7$
16.	What is the solution to the inequality: $2(t - 12) \geq 32$	$t \geq 28$

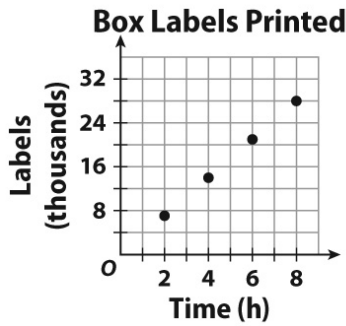
**Define a variable, write an inequality for each situation and then solve.**

17.	Two is added to an integer. The result is multiplied by $-4$ . What is the greatest possible integer such that the answer is greater than $-20$ ?	2
-----	---	---

18.	<p>Which table shows a constant rate of change?</p> <p>A</p> <table border="1" data-bbox="277 218 732 317"> <tr><td>Days</td><td>6</td><td>12</td><td>18</td></tr> <tr><td>Earnings (\$)</td><td>225</td><td>450</td><td>750</td></tr> </table> <p>C</p> <table border="1" data-bbox="813 218 1268 317"> <tr><td>Days</td><td>6</td><td>12</td><td>20</td></tr> <tr><td>Earnings (\$)</td><td>225</td><td>500</td><td>750</td></tr> </table> <p>B</p> <table border="1" data-bbox="277 365 732 464"> <tr><td>Days</td><td>6</td><td>12</td><td>18</td></tr> <tr><td>Earnings (\$)</td><td>225</td><td>500</td><td>750</td></tr> </table> <p>D</p> <table border="1" data-bbox="813 365 1268 464"> <tr><td>Days</td><td>6</td><td>12</td><td>20</td></tr> <tr><td>Earnings (\$)</td><td>225</td><td>450</td><td>750</td></tr> </table>	Days	6	12	18	Earnings (\$)	225	450	750	Days	6	12	20	Earnings (\$)	225	500	750	Days	6	12	18	Earnings (\$)	225	500	750	Days	6	12	20	Earnings (\$)	225	450	750	D
Days	6	12	18																															
Earnings (\$)	225	450	750																															
Days	6	12	20																															
Earnings (\$)	225	500	750																															
Days	6	12	18																															
Earnings (\$)	225	500	750																															
Days	6	12	20																															
Earnings (\$)	225	450	750																															
19.	An object travels $\frac{4}{5}$ miles in one-half hour. What is its speed (miles per hour)?	$1\frac{3}{5}$ mph																																
20.	<p>A student reads at a rate of 16 pages per day. Which ordered pair would be on a graph of this relationship?</p> <p>A (1.5, 26)    B (2.25, 30)    C (5.5, 88)    D (7.25, 110)</p>	C																																
21.	<p>The greatest distance across the continental United States is a bit less than 5,000 km. If you want to fit a map on a standard size piece of paper (8.5 in. <math>\times</math> 11 in.) while making it as large as possible, what would be the best scale to use?</p> <p>A 1 in = 600 km    C 1 in = 400 km  B 1 in = 500 km    D 1 in = 300 km</p>	B																																

22.	<div style="text-align: center;">  </div> <p>The graph above shows Marnie's rate while walking. Which of the following is an ordered pair on the graph?</p> <p>A (2, 100)    B (3, 200)    C (4, 250)    D (8, 500)</p>	A
-----	--	---

Use the graph for next two questions.



23. Draw a line through the points. Why does this line show a proportional relationship?  
 A It is not curved.                      C It connects all the dots.  
 B It is a vertical line.                    D It goes through the origin.

D

24. What is the constant of proportionality for the relationship on the graph?

3.5

25. Find  $k$ , the constant of proportionality, to write an equation for relationship in the table below.

$x$	25	50	75	100
$y$	160	320	480	640

$y = 6.4x$

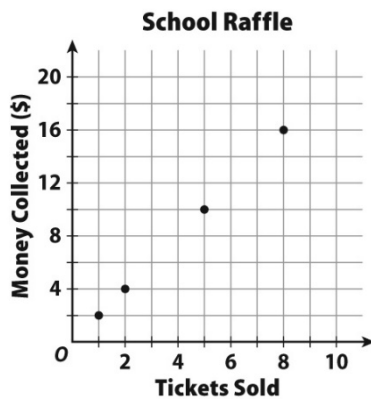
26. Why does this table **not** show a proportional relationship?

<b>Time in Weeks (<math>x</math>)</b>	2	4	6	8
<b>Savings in Dollars (<math>y</math>)</b>	60	120	240	480


- A The ratio  $x : y$  equals 1 : 30.
- B The ratio  $x : y$  is not constant.
- C The savings does not stay constant.
- D The savings is not increasing fast enough.

B

27. Write an equation for the relationship shown on this graph if the price per ticket is doubled.



$y = 4x$

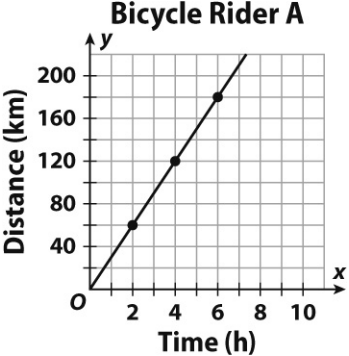
28.	<p>Based on the proportional relationship shown in the graph below, how many weeks would it take to have \$165 in the savings account?</p> <div style="text-align: center;">  </div>	11 weeks
29.	<p>To make a fruit salad to serve 12 people, Mr. Mangham combined <math>4\frac{1}{4}</math> cups of strawberries, <math>3\frac{1}{4}</math> cups of bananas, and <math>2\frac{1}{2}</math> cups of apples. If Mr. Mangham wants to make enough fruit salad to serve 20 people, which proportion can he use to determine how many cups of strawberries, <math>s</math>, he will need?</p> <p style="text-align: center;">       A <math>\frac{12}{4.25} = \frac{20}{s}</math>      B <math>\frac{12}{10} = \frac{20}{s}</math>      C <math>\frac{12}{2.5} = \frac{20}{s}</math>      D <math>\frac{12}{4.25} = \frac{s}{20}</math> </p>	A
30.	<p>Rohan ate <math>12\frac{1}{2}</math> hot dogs in <math>7\frac{1}{2}</math> hours while watching a Batman movie marathon. He determined that he was eating at a rate of more than <math>1\frac{1}{2}</math> hot dogs per hour. Is he correct?</p> <p style="text-align: center;">       A Yes, because <math>12\frac{1}{2} - 7\frac{1}{2} &gt; 1\frac{1}{2}</math>      C No, because <math>7\frac{1}{2} + 1\frac{1}{2} &lt; 12\frac{1}{2}</math>        B Yes, because <math>12\frac{1}{2} \div 7\frac{1}{2} &gt; 1\frac{1}{2}</math>      D No, because <math>7\frac{1}{2} \div 12\frac{1}{2} &lt; 1\frac{1}{2}</math> </p>	B
31.	<p>Caitlin earns \$95 for 5 hours of babysitting Avery. Which of the following is earning a higher hourly rate than Caitlin?</p> <p style="text-align: center;">       A \$65 for <math>3\frac{1}{2}</math> hours of work      C \$150 for <math>8\frac{1}{2}</math> hours of work        B \$120 for <math>6\frac{1}{2}</math> hours of work      D \$210 for <math>10\frac{1}{2}</math> hours of work     </p>	D
32.	<p>To make one of his famous desserts Mr. Mangham mixes 5.5 cups of chocolate with 2.5 cups of peanut butter. At this rate, how much chocolate should he use if 4 cups of peanut butter are used?</p>	8.8 c

Solve for  $x$ . Show all work using the butterfly method.

33.	$\frac{4}{10} = \frac{x-2}{25}$	$x = 12$	34.	$\frac{x-2}{8} = \frac{x+4}{20}$	$x = 6$
-----	---------------------------------	----------	-----	----------------------------------	---------

35.	On a map the scale listed is 0.75 inches = 12 miles. If Johnsville and Snowville are 54 miles apart in real-life, how far apart are they on the map?	3.375 in.
36.	A recipe that makes 36 cookies calls for $\frac{3}{4}$ cup of sugar. How much sugar is needed to make 4 dozen cookies using this recipe?	1 c

37.	<b>Mr. Mangham's Guinea Pig-Walking Business</b>				\$90
	Time (hr)	2	5	8	
	Charge (\$)	36		144	234
	Mr. Mangham charges a constant unit rate for walking people's guinea pigs. What is the missing number in the table?				
38.	Using the table in the question above, determine the constant of proportionality and write an equation that shows the relationship.				$k = 18$ $y = 18x$
39.					Line $k$
	Which line has a slope of $-3$ ?				
40.	In the graph above, what is the slope of line $n$ ?				$m = \frac{1}{2}$

41.	<p>Which equation below shows direct variation?</p> <p>A <math>y = \frac{1}{2}x</math>      B <math>y = x + 2</math>      C <math>y = \frac{2}{x}</math>      D <math>y = \frac{1}{2} + x</math></p>	A								
42.	<p>This graph shows a bicyclist moving at a constant rate.</p> <div style="text-align: center;">  </div> <p>This table shows another bicyclist.</p> <div style="text-align: center;"> <table border="1" data-bbox="492 848 982 989"> <caption><b>Bicycle Rider B</b></caption> <tr> <td><b>Time (h)</b></td> <td>3</td> <td>5</td> <td>8</td> </tr> <tr> <td><b>Distance (km)</b></td> <td>72</td> <td>120</td> <td>192</td> </tr> </table> </div> <p>How much faster is the unit rate of bicyclist A than bicyclist B?</p>	<b>Time (h)</b>	3	5	8	<b>Distance (km)</b>	72	120	192	6 km/hr
<b>Time (h)</b>	3	5	8							
<b>Distance (km)</b>	72	120	192							
43.	Write a direct variation equation for bicyclist A.	$y = 30x$								
44.	Write a direct variation equation for bicyclist B.	$y = 24x$								
45.	How much longer does it take bicyclist B to go 150 km than bicyclist A?	1.25 hr								
46.	Carla is renting a canoe. It costs \$80 for 2 hours and \$110 for 4 hours. What is the rate of change for this situation?	\$15/hr								
47.	<p>Use the data in the table. Which equation shows the number of trees planted per day? Use a 5-day workweek.</p> <div style="text-align: center;"> <table border="1" data-bbox="479 1566 993 1675"> <tr> <td><b>Time (weeks)</b></td> <td>2</td> <td>5</td> <td>10</td> </tr> <tr> <td><b>Trees Planted</b></td> <td>130</td> <td>325</td> <td>650</td> </tr> </table> </div> <p>A <math>y = 13x</math>      B <math>y = 65x</math>      C <math>y = 130x</math>      D <math>y = 325x</math></p>	<b>Time (weeks)</b>	2	5	10	<b>Trees Planted</b>	130	325	650	A
<b>Time (weeks)</b>	2	5	10							
<b>Trees Planted</b>	130	325	650							

48. Draw a line through the origin that has a slope of  $-\frac{2}{3}$ .

49. Find the slope of the given line.

**Car Trip**

$m = 50$

50. What is the slope of the data in the table?

$x$	5	7.5	12.5	15
$y$	2	3	5	6

$m = 0.4$

