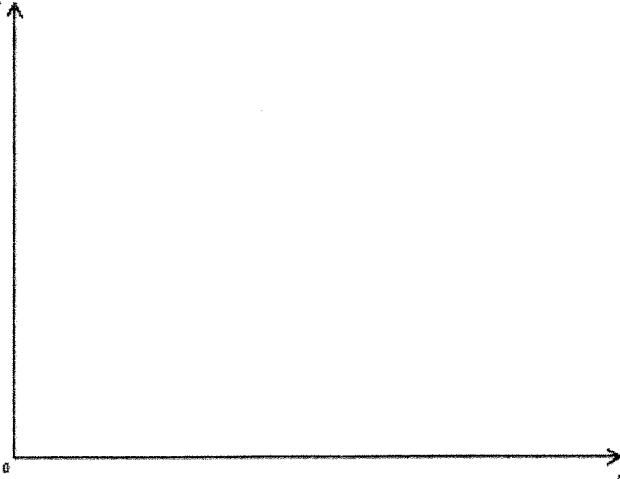


## Proportional Relationships and Linear Functions $y = kx$

Work in groups of two or three.

On Saturday Juan went to the market to buy a watermelon. They were on sale for \$0.40 per pound (if a watermelon weighs, say, 8.2 pounds, we write it as 8.2 lbs. or 8.2“libras”).

Fill out the graphic organizer and answer the questions that follow.

<p><b>Context:</b> (word problem or situation)</p>     <p><b>Symbols or variables used:</b></p> <p>Let <math>y</math> be the price (in dollars) of a watermelon weighing <math>x</math> pounds.</p>	<p><b>Table:</b></p> <table border="1"><thead><tr><th><math>x =</math></th><th><math>y =</math></th></tr></thead><tbody><tr><td></td><td>1.20</td></tr><tr><td>5.0</td><td></td></tr><tr><td>8.0</td><td></td></tr><tr><td>11.0</td><td></td></tr><tr><td>12.5</td><td></td></tr><tr><td></td><td></td></tr></tbody></table>	$x =$	$y =$		1.20	5.0		8.0		11.0		12.5			
$x =$	$y =$														
	1.20														
5.0															
8.0															
11.0															
12.5															
<p><b>Equation:</b></p> <p><math>y =</math></p>  <p><b>Equivalent Equation(s):</b></p>	<p><b>Graph:</b></p> 														

1. Is  $y$  proportional to  $x$ ? If so, what is the constant of proportionality or unit rate? What is its meaning?

2. Explain why the relationship between the weight of a watermelon and its price is a multiplicative relationship.

3. What does the graph look like? How, if at all, does the unit rate show up on this graph?

4. Juan has \$3.50, and wants to know what would be the heaviest watermelon that she could buy with her money.

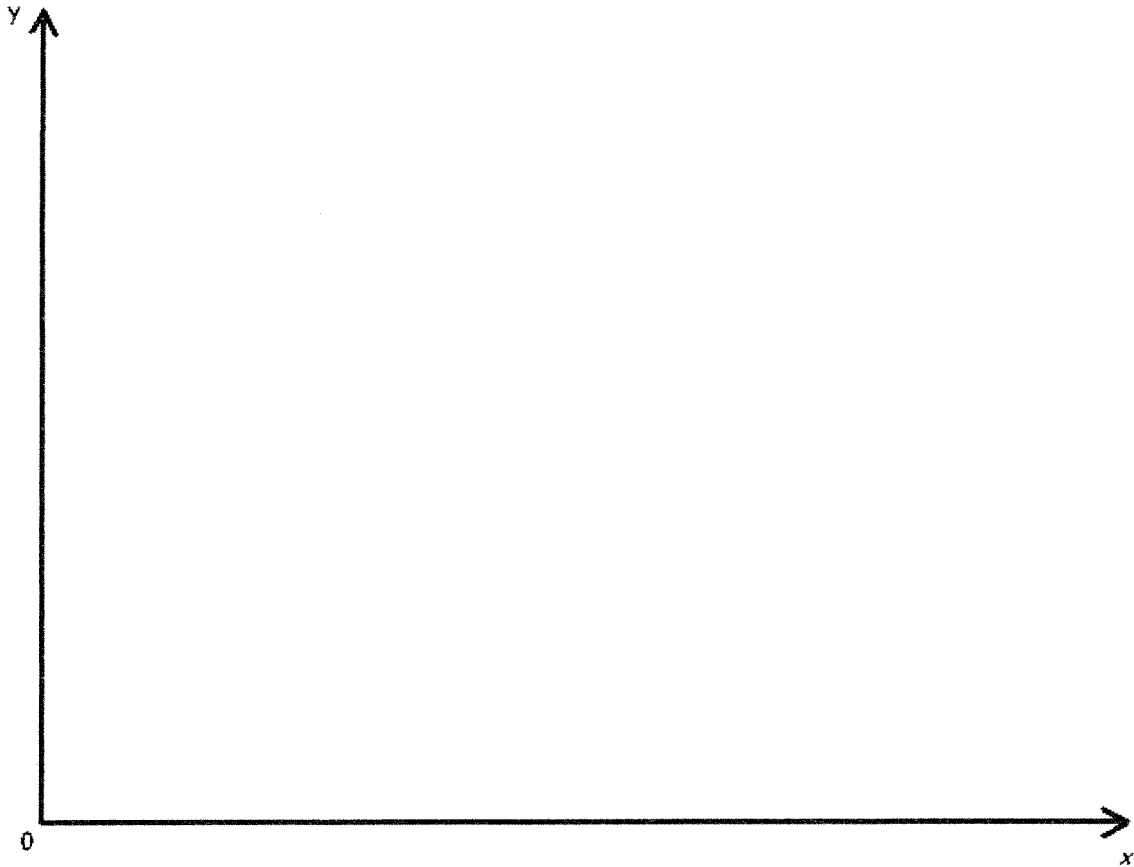
4a. Use the equation to find out the answer.

4b. Explain how you can use the graph to find out the answer.

Carlos went to the market on Monday, and the sale was over: the price for watermelons was \$0.60 per pound. Again let  $y$  be the price of a watermelon weighing  $x$  pounds.

5. Write an equation expressing  $y$  in terms of  $x$  that Carlos can use on Monday.

6. Graph both equations on the same set of axes: the one for Saturday, and the one for Monday. Use different colors and label each clearly.



7. Explain the relationship between the constant of proportionality and what the corresponding graph looks like.