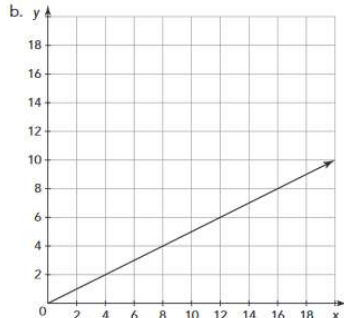


Module 2—T1L1---Post Secondary Proportions

Name: _____ Date: _____ Per. A B C D E F

<p>Warm-up: Solve each proportion</p>	$\frac{7}{16} = \frac{x}{48}$	$\frac{10}{p} = 1$	$250 = \frac{1000}{q}$
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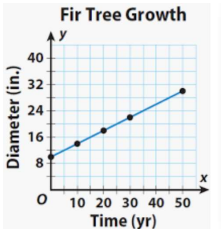
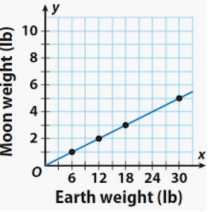
<p>Characteristics of Proportional Relationships</p>	<p>Proportional relationships are always:</p> <ol style="list-style-type: none"> _____ (straight line/have a constant rate of change) Passes through the _____ (0,0) The equation of a proportional relationship is $y=kx$ where k represents the <u>constant of proportionality</u>.
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<p>How to Find the Constant of Proportionality (k)</p> <ol style="list-style-type: none"> Graphs Equations Tables 	<p><u>GRAPH</u></p> <ol style="list-style-type: none"> Choose 2 points from the line. Find the $\frac{y}{x} = \frac{\text{how muc up or down}}{\text{how much rig or left}}$ Simplify if possible. <p>CAUTION: Make sure to read intervals appropriately</p> <div style="text-align: right;">k=_____</div> <div style="text-align: right;">  </div>
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	<p><u>EQUATIONS</u> $y=kx$</p> <p>The number is front of the x</p> <div style="text-align: right;"> $y = \frac{4}{5}x$ k=_____ </div>
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<p><u>TABLES</u></p> <p>The ratio $\frac{y}{x}$ is the same for all points</p> <p>(don't forget to simplify)</p>	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Number of Hours</th> <th>Number of portraits painted</th> </tr> <tr> <th>x</th> <th>y</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>5</td> </tr> <tr> <td>2</td> <td>10</td> </tr> <tr> <td>6</td> <td>30</td> </tr> <tr> <td>9</td> <td>45</td> </tr> </tbody> </table> <div style="text-align: right;">k=_____</div>	Number of Hours	Number of portraits painted	x	y	1	5	2	10	6	30	9	45
Number of Hours	Number of portraits painted												
x	y												
1	5												
2	10												
6	30												
9	45												

Module 2—T1L1---Post Secondary Proportions

<p>Are these Proportional Relationships?</p>		$y = \frac{4}{5}x + 3$	<table border="1" data-bbox="904 239 1102 422"> <tr> <th>X</th> <th>Y</th> </tr> <tr> <td>4</td> <td>6</td> </tr> <tr> <td>6</td> <td>9</td> </tr> <tr> <td>10</td> <td>15</td> </tr> </table>	X	Y	4	6	6	9	10	15		$y = 3x$
X	Y												
4	6												
6	9												
10	15												
<p>Getting Started: from M2-8</p> <p>Ratio: Compares 2 quantities</p> $\frac{y}{x}$	<p>Proportional: Yes No</p> <p>Why?</p> <p>Constant of Proportionality k= _____</p>	<p>Proportional: Yes No</p> <p>Why?</p> <p>Constant of Proportionality k= _____</p>	<p>Proportional: Yes No</p> <p>Why?</p> <p>Constant of Proportionality k= _____</p>	<p>Proportional: Yes No</p> <p>Why?</p> <p>Constant of Proportionality k= _____</p>	<p>Proportional: Yes No</p> <p>Why?</p> <p>Constant of Proportionality k= _____</p>								
<p>Government agencies and civil rights groups monitor enrollment data at universities to ensure that different groups are fully represented. One study focused on the enrollment of women at a certain university.</p>													
<p style="text-align: center;">The study found that 3 out of every 5 students enrolled were women.</p>													
<p>Use the findings of the study to write each ratio and equation.</p>													
<p>The number of enrolled female students to the total number of students.</p>		<p><u>Ratio in Words</u></p>	<p><u>Ratio in Numbers</u></p>	<p><u>Equation</u></p>									
<p>The number of enrolled male students to the total number of students.</p>													
<p>The number of enrolled female students to the number of enrolled male students.</p>													
<p>The number of enrolled male students to the number of enrolled female students.</p>													

Module 2—T1L1---Post Secondary Proportions

Activity 1.1—
Representing
Proportional
Relationships
(M2-9—M2-11)

Enrollment in the
University

3 women

2 men

5 Total

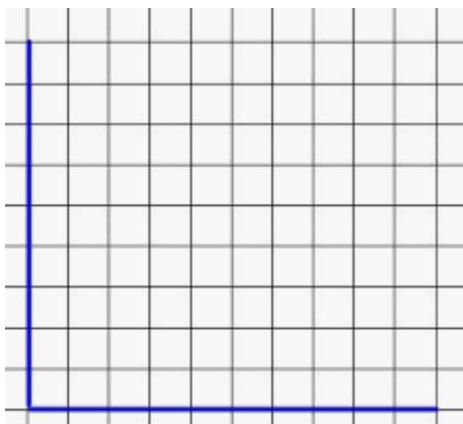
Use the findings from the enrollment study on the previous page to make predictions.

1. Find the total number of enrolled female students, if there are 4000 total students.
2. If there are 250 total students enrolled in the university, how many males are enrolled in the university.
3. If there are 6000 males enrolled at the university, how many total students are enrolled?
4. How many female students are there if 800 students enrolled are male?
5. Write an equation to represent the number of enrolled female students (F) to the number of enrolled male students (M).

Create graphs to
display each ratio

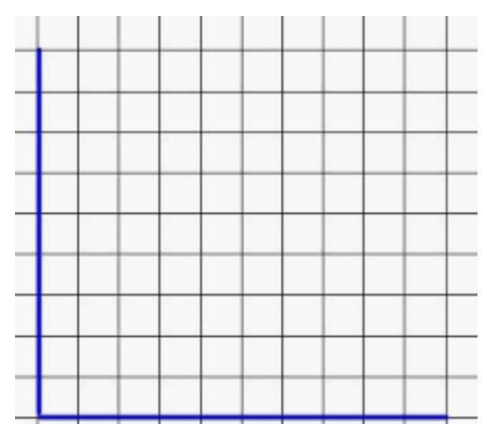
Describe the
similarities and
Differences
between the 2
graphs.

The total number of female students (y) to
the total number of students enrolled (x)



Equation: _____

The total number of male student (y), to
the total number of students enrolled (x)



Equation: _____

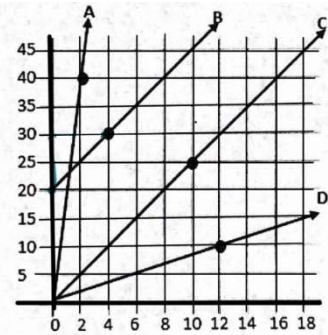
Module 2—T1L1---Post Secondary Proportions

Activity 1.2 Warm-up

Identify the constant of proportionality for each line

A _____ C _____

B _____ D _____



Comparing Ratios and Graphs

Examine the graph below. What is the major difference between the two lines on the graph?

Use the graph on the right to answer the following questions.

Line y_1 :
Proportional: Yes No

Why?

Constant of Proportionality

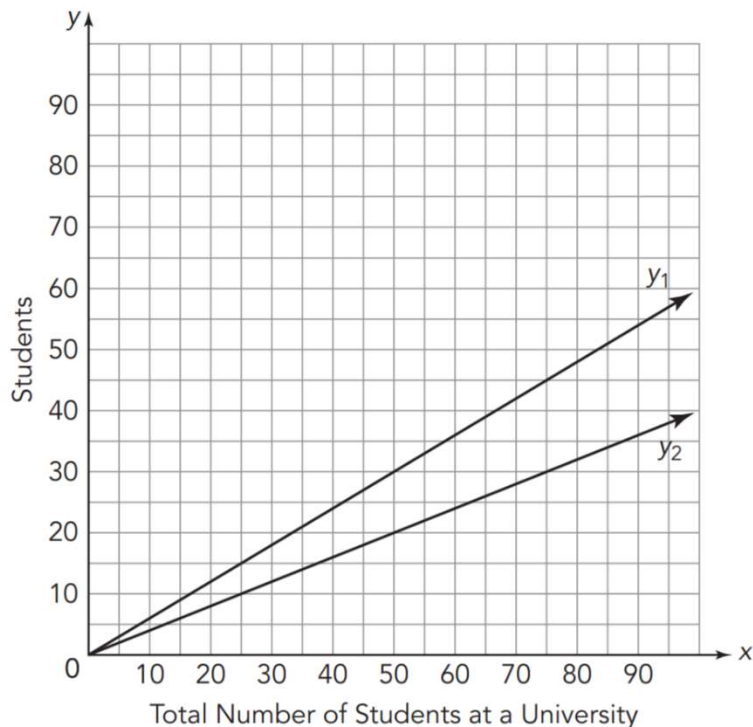
$k =$ _____

Line y_2 :
Proportional: Yes No

Why?

Constant of Proportionality

$k =$ _____



Which line represents males? _____ females? _____ How do you know? Label the lines on the graph.

The ratio of the number of students who enjoy music to the total number of students is slightly more than the ratio of female students to the total number of students. Draw a line that represents this and label it y_3 or music lovers.

The ratio of students who work full time to the total students is less than the number of females enrolled to total students, but more than the ratio of males enrolled to total students. Draw a line that represents this and label it y_4 or full-time.

Module 2—T1L1---Post Secondary Proportions

Activity 1.3 Comparing Speeds

Distance
Time

What does the point (0,0) mean for the context of this problem?

Daisa

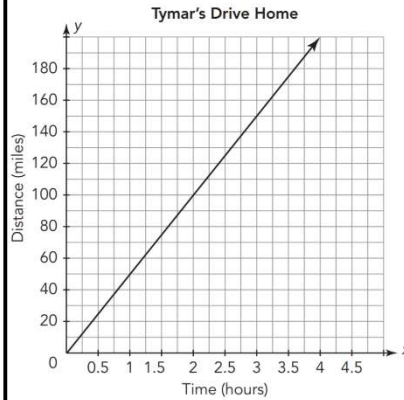
Daisa attends college in another state. During summer break, she drives home from college to visit her family and friends. She decides to keep track of the time it takes her to drive home from school. She records her distance after various numbers of hours. Her data is shown in the table below.

Daisa's Drive Home

Time (hours)	Distance (miles)
3	180
2	120
1.5	90
2.5	150

Tymar

Tymar goes to school with Daisy. He also drives home, but takes a different route. His trip is shown in the graph.



Alisha

Alisha also goes to the same school. She offers to drive Daisa and Tymar home to save on gas money. When asked how fast she drives, she says the distance traveled, y , for the time, x , can be expressed as $y=57x$

Are these relationships proportional?
How do you know?

Write a ratio for distance to time.
(how fast is each person driving?)

Compare their speeds.

Rank the friends in order from slowest driver to fastest driver.

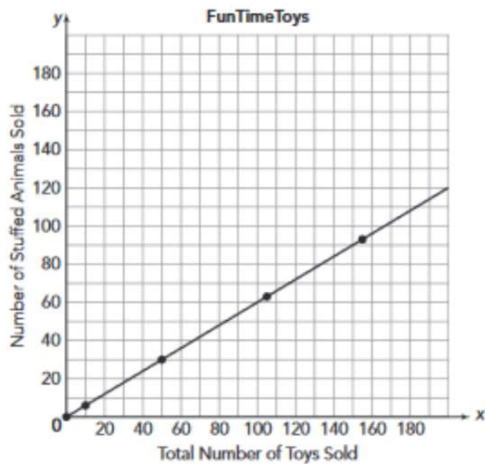
Module 2—T1L1---Post Secondary Proportions

Three toy stores review their inventory to represent the relationship between the total number of stuffed animals sold to the total number of toys sold.

$$\frac{\text{Total Stuffed Animals}}{\text{Total Toys}}$$

Each toy store represented their relationship in different ways. Find the constant of proportionality for each store.

Fun Time Toys



Toy Soldiers

$$y = \frac{1}{2}x$$

k= _____

The Toy Box

Total Number of Toys Sold	Number of Stuffed Animals Sold
0	0
12	8
54	36
102	68
156	104

k= _____

Which toy store had the greatest ratio (constant of proportionality) of stuffed animals to total toys?

Which toy store had the smallest ratio (constant of proportionality) of stuffed animals to total toys?