

Grade 5 Module 6 Application Problems

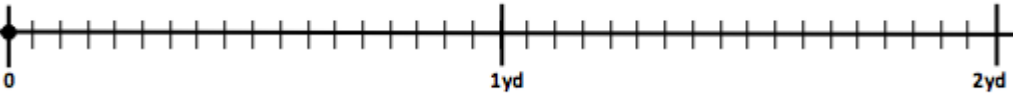


EngageNY  
&  
Eureka Math  
Grade 5  
Module 6  
Application Problems

(5.OA.3<sup>@</sup>, 5.G.1<sup>@</sup>, 5.G.2<sup>@</sup>)

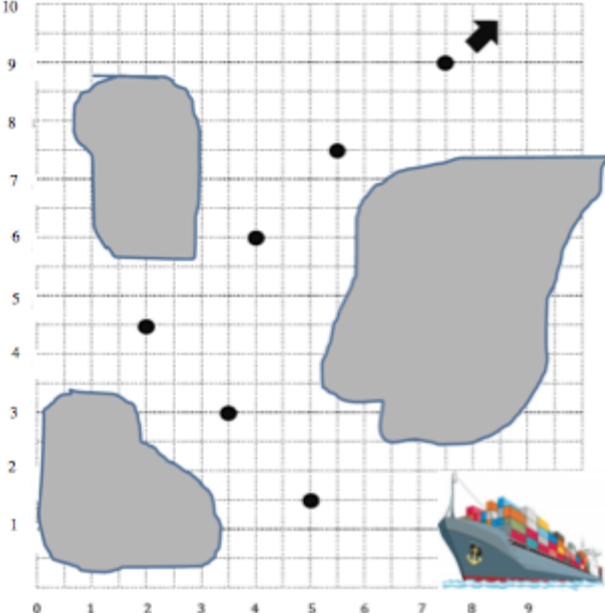
**Directions to the teacher:**

- Don't print this cover sheet. Only print the remaining pages.
- Each student will receive all the application problems in a single packet. Staple one of the lower corners...not the top corner.
- Each day, students will cut off the next application problem and glue into their math journal.

## Grade 5 Module 6 Application Problems

Lesson	Problem
1	<p>A landscaper is planting some marigolds in a row. The row is 2 yards long. The flowers must be spaced <math>\frac{1}{3}</math> yard apart so that they will have proper room to grow. The landscaper plants the first flower at 0. Place points on the number line to show where the landscaper should place the other plants. How many marigolds will git on this row?</p>  <p>The number line starts at 0 and ends at 2yd. Major tick marks are at 0, 1yd, and 2yd. There are 20 smaller tick marks between 0 and 1yd, and 20 smaller tick marks between 1yd and 2yd, representing intervals of <math>\frac{1}{3}</math> yard.</p>
2	<p>The picture shows an intersection in Stony Brook Village.</p> <p>a. The town wants to construct two new roads, Elm Street and King Street. Elm Street will intersect Lower Sheep Pasture Road, run parallel to Main Street, and be perpendicular to Stony Brook Road. Sketch Elm Street.</p>  <p>The map shows a horizontal Main Street and East Main Street. A vertical Stony Brook Road intersects them from the bottom. Two diagonal roads, Upper Sheep Pasture Road and Lower Sheep Pasture Road, intersect Main Street and East Main Street.</p> <p>b. King Street will be perpendicular to Main Street and begin at the intersection of Upper Sheep Pasture Road and East Main Street. Sketch King Street.</p>  <p>The map shows the same streets as in part (a). A new vertical line labeled King Street is drawn perpendicular to Main Street, starting at the intersection of Upper Sheep Pasture Road and East Main Street. A new horizontal line labeled Elm Street is drawn parallel to Main Street, intersecting Lower Sheep Pasture Road.</p>

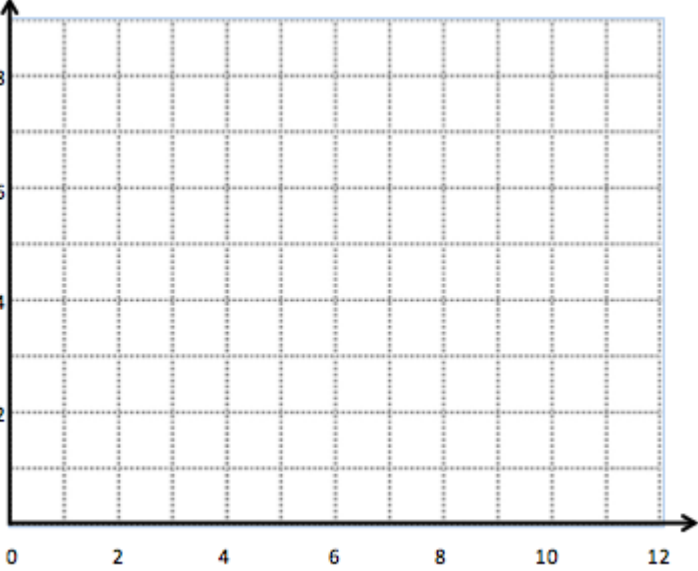
## Grade 5 Module 6 Application Problems

3	<p>The captain of a ship has a chart to help him navigate through the islands. He must follow points that show the deepest part of the channel. List the coordinates the captain needs to follow in the order he will encounter them.</p>  <p>1. (____,____)    2. (____,____)</p> <p>3.                    4.</p> <p>5.                    6.</p>
4	<p>Violet and Magnolia are shopping for boxes to organize the materials for their design company. Magnolia wants to get small boxes, which measure 16 in x 10 in x 7 in. Violet wants to get large boxes, which measure 32 in x 20 in x 14 in. How many small boxes will equal the volume of four large boxes?</p>
5	<p>A company has developed a new game. Cartons are needed to ship 40 games at a time. Each game is 2 inches high by 7 inches wide by 14 inches long.</p> <p>How would you recommend packing the board games in the carton? What are the dimensions of a carton that could ship 40 board games with no extra room in the box?</p>

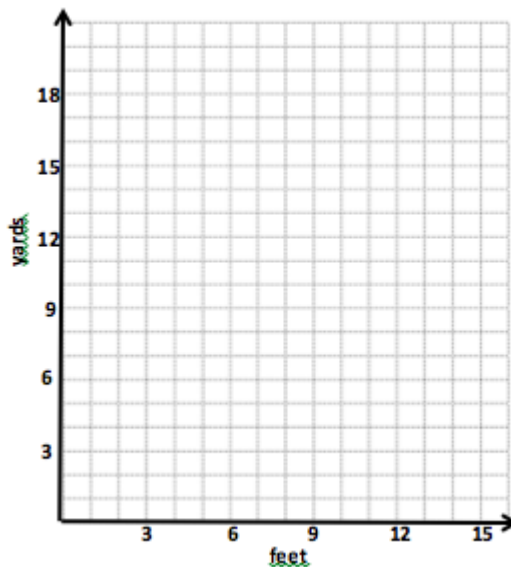
## Grade 5 Module 6 Application Problems

6	<p>Adam built a toy box for his children's wooden blocks.</p> <p>a. If the inside dimensions of the box are 18 inches by 12 inches by 6 inches, what is the maximum number of 2-inch wooden blocks that will fit in the toy box?</p> <p>b. What if Adam had built the box 16 inches by 9 inches by 9 inches? What is the maximum number of 2-inch wooden blocks that would fit in this size box?</p>
7	<p>An orchard charges \$0.85 to ship a quarter kilogram of grapefruit. Each grapefruit weighs approximately 165 grams. How much will it cost to ship 40 grapefruits?</p>
8	<p>The coordinate pairs listed locate points on two different lines. Write a rule that describes the relationship between the <math>x</math>- and <math>y</math>- coordinates for each line.</p> <p>Line <b>L</b>: <math>(3\frac{1}{2}, 7)</math>, <math>(1\frac{2}{3}, 3\frac{1}{3})</math>, <math>(5, 10)</math></p> <p>Line <b>M</b>: <math>(\frac{6}{3}, 1)</math>, <math>(3\frac{1}{2}, 1\frac{3}{4})</math>, <math>(13, 6\frac{1}{2})</math></p>
9	<p>Maggie spent \$46.20 to buy pencil sharpeners for her gift shop. If each pencil sharpener cost 60 cents, how many pencil sharpeners did she buy? Solve by using the standard algorithm.</p>
10	<p>A 12-man relay team runs a 45 km race. Each member of the team runs an equal distance. How many kilometers does each team member run? One lap around the track is 0.75 km. How many laps does each team member run during the race?</p>
11	<p>Michelle has 3 kg of strawberries that she divided equally into small bags with <math>\frac{1}{5}</math> kg in each bag.</p> <p>a. How many bags of strawberries did she make?</p> <p>b. She gave a bag to her friend, Sarah. Sarah ate half of her strawberries. How many grams of strawberries does Sarah have left?</p>
12	<p>Mr. Jones had 640 books. He sold <math>\frac{1}{4}</math> of them for \$2.00 each in the month of September. He sold half of the remaining books in October. Each book he sold in October earned <math>\frac{3}{4}</math> of what each book sold for in September. How much money did Mr. Jones earn selling books? Show your thinking with a tape diagram.</p>
13	None
14	<p>Drew's fish tank measures 32 cm by 22 cm by 26 cm. He pours 20 liters of water into it, and some water overflows the tank. Find the volume of water, in millimeters, that overflows.</p>

## Grade 5 Module 6 Application Problems

15	None										
<p>16</p> <p>may want to insert a graph for students to plot coordinate pairs.</p>	<p>a. Complete the table for the rule <i>y is 1 more than half x</i>, graph the coordinate pairs and draw a line to connect them.</p> <p>b. Give the y coordinate for the point on this line whose x- coordinate is <math>4\frac{1}{4}</math>.</p> <p>Bonus: Give the x-coordinate for the point on this line whose y-coordinate is <math>5\frac{1}{2}</math>.</p> <table border="1" data-bbox="274 583 589 898"> <thead> <tr> <th>x</th> <th>y</th> </tr> </thead> <tbody> <tr> <td><math>\frac{1}{2}</math></td> <td></td> </tr> <tr> <td><math>1\frac{1}{2}</math></td> <td></td> </tr> <tr> <td><math>2\frac{1}{4}</math></td> <td></td> </tr> <tr> <td>3</td> <td></td> </tr> </tbody> </table>	x	y	$\frac{1}{2}$		$1\frac{1}{2}$		$2\frac{1}{4}$		3	
x	y										
$\frac{1}{2}$											
$1\frac{1}{2}$											
$2\frac{1}{4}$											
3											
17	<p>Plot (10, 8) and (3, 3) on the coordinate plane, connect with a straightedge, and label as C and D.</p> <p>a. Draw a segment parallel to segment CD.</p> <p>b. Draw a segment perpendicular to segment CD.</p> 										
18	<p>Denis buys 8 m of ribbon. He uses 3.25 m for a gift. He uses the remaining ribbon equally to tie bows on 5 boxes. How much ribbon did he use on each box?</p>										

## Grade 5 Module 6 Application Problems



19

Three feet are equal to 1 yard. The following table shows the conversion.

Feet	Yards
3	1
6	2
9	3
12	4

Use the information to complete the following tasks:

1. Plot each set of coordinates.
2. Use a straightedge to connect each point.
3. Plot one more point on this line and write its coordinates.
4. 27 feet can be converted to how many yards? \_\_\_\_\_
5. Write the rule that describes the line.

20-  
25

None

## Grade 5 Module 6 Application Problems

26	The market sells watermelons for \$0.39 per pound and apples for \$0.43 per pound. Write an expression that shows how much Carmen spends for a watermelon that weighs 11.5 pounds and a bag of apples that weigh 3.2 pounds.
27-30	None

## Grade 5 Module 6 Application Problems

31	<p>Materials: Protractor, white paper, ruler</p> <p>Step 1 Draw <math>\overline{AB}</math> 3 inches long centered near the bottom of a blank piece of paper.</p> <p>Step 2 Draw <math>\overline{AC}</math> 3 inches long, such that <math>\angle BAC</math> measures <math>108^\circ</math>.</p> <p>Step 3 Draw <math>\overline{CD}</math> 3 inches long, such that <math>\angle ACD</math> measures <math>108^\circ</math>.</p> <p>Step 4 Draw <math>\overline{DE}</math> 3 inches long, such that <math>\angle CDE</math> measures <math>108^\circ</math>.</p> <p>Step 5 Draw <math>\overline{EB}</math>.</p> <p>Step 6 Measure <math>\overline{EB}</math>.</p> <p>T: What is the length of <math>\overline{EB}</math>?</p> <p>S: 3 inches.</p> <p>T: What shape have you drawn?</p> <p>S: Pentagon.</p>
32	<p>Look at the Fibonacci sequence you just wrote. Analyze which numbers are even. Is there a pattern to the even numbers? Why? Think about the spiral of squares that you made yesterday.</p>
33	None
34	<p>Steven is a _____ who had \$280. He spent <math>\frac{1}{4}</math> of his money on a _____ and <math>\frac{5}{6}</math> of the remainder on a _____. How much money did he spend altogether?</p>