Warm up

Set up Table of Contents Page

Beginning with the 3rd page, number notebook pages

COPY this problem on the back of page 1

\[
\frac{3x + 3 - 1}{4} = (x + 6) \frac{4}{4}
\]

\[
\begin{align*}
3x + 3 - 4 &= 4x + 24 \\
-3x &= -3x \\
3 - 4 &= x + 24 \\
-24 &= -24 \\
21 - 4 &= x \\
-25 &= x
\end{align*}
\]
Lancer Bell:
finish incomplete work from Thursday
**Applications**

Solve each of the following proportions.

1. \( \frac{n}{15} = \frac{4}{5} \)
   \[ n = \frac{4 \times 15}{5} = 12 \]
   \( \frac{60}{5} = \frac{50}{5} \)

2. \( \frac{12}{21} = \frac{y}{14} \)
   \[ y = \frac{12 \times 14}{21} = 8 \]

3. \( \frac{16}{x} = \frac{2}{7} \)
   \[ x = \frac{16 \times 7}{2} = 56 \]

4. \( \frac{105}{35} = \frac{27}{n} \)
   \[ n = \frac{27 \times 35}{105} = 9 \]

For each problem below, set up a proportion and solve it.

5. At the rate of 3 items for $16, how many items can you buy for $80?
   \[ \frac{3}{16} = \frac{x}{80} \]
   \[ x = \frac{3 \times 80}{16} = 15 \]

6. A recipe calls for 4 cups of flour to 6 tablespoons of shortening. How many tablespoons of shortening are needed for 8 cups of flour?
   \[ \frac{c}{4} = \frac{t}{6} = \frac{6}{x} \]
   \[ x = \frac{6 \times 8}{4} = 9 \]

7. A tree casts a shadow of 15 meters, while a 2-meter post nearby casts a shadow of 3 meters. How tall is the tree?
   \[ \frac{s_{\text{tree}}}{15} = \frac{3}{2} \]
   \[ s_{\text{tree}} = \frac{3 \times 15}{2} = 22.5 \]

8. If a scale distance of 3.5 centimeters on a map represents an actual distance of 175 kilometers, what actual distance does a scale distance of 5.7 centimeters represent?
   \[ \frac{cm}{3.5} = \frac{km}{175} = \frac{5.7}{285} \]

9. The girl’s soccer team scored 60 points in 10 games. If this trend were to continue, what would be the points scored in 15 games?
   \[ \frac{p_{10}}{60} = \frac{9}{15} = \frac{90}{15} \]
10. A train travels 90 miles in 1.5 hours. How many miles will the train go in 6 hours if it continues to travel at the same rate of speed?

\[
\frac{m}{n} = \frac{90}{1.5} \quad \frac{6}{x} = \frac{360}{x}
\]

11. If 3 tickets to a certain show cost $13.20, what would 7 tickets cost?

\[
\frac{L}{S} = \frac{3}{13.20} \quad \frac{7}{x} = \frac{30.80}{x}
\]

12. A 40-acre farm yields 600 bushels of wheat. At the same rate, how much wheat would a 75-acre farm yield?

\[
\frac{A}{W} = \frac{40}{600} \quad \frac{75}{x} = \frac{1,125}{x}
\]

13. A workman received $110 for working 20 hours. At the same rate of pay, how many hours must he work to earn $187?

\[
\frac{S}{H} = \frac{110}{20} \quad \frac{187}{x} = \frac{34}{x}
\]

14. In a certain school, there are 4 girls for every 5 boys. If there are 560 girls in the school, how many boys attend the school?

\[
\frac{G}{B} = \frac{4}{5} \quad \frac{560}{x} = \frac{700}{x}
\]

15. To make concrete, a person mixes 1 bag of cement to 4 bags of sand. How many bags of cement should be used with 100 bags of sand?

\[
\frac{C}{S} = \frac{1}{4} \quad \frac{x}{100} = \frac{25}{x}
\]
Name ________________________________  Block ________

Scale Factor- US Map

Part 1: Complete the table below by estimating the distance, in miles, between the given cities. Be sure to show all your work in the space provided. (Draw a line connecting the two cities, to help you better calculate the distance on the map.)

The scale factor of the map is $\text{1 in} = 300 \text{ mi}$.

<table>
<thead>
<tr>
<th>City 1</th>
<th>City 2</th>
<th>Distance on Map</th>
<th>Work</th>
<th>Estimate of actual distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trenton, NJ</td>
<td>Harrisburg, PA</td>
<td>$\frac{3}{8} \text{ in}$</td>
<td>$\frac{3}{8} \times 300$</td>
<td>112.5</td>
</tr>
<tr>
<td>Baton Rouge, LA</td>
<td>Austin, TX</td>
<td>$\frac{1}{4} \text{ in}$</td>
<td></td>
<td>375</td>
</tr>
<tr>
<td>Washington, DC</td>
<td>Sacramento, CA</td>
<td>$\text{7.5}$</td>
<td></td>
<td>2250</td>
</tr>
<tr>
<td>Olympia, WA</td>
<td>Tallahassee, FL</td>
<td>$\text{7.5}$</td>
<td></td>
<td>2250</td>
</tr>
<tr>
<td>St. Paul, MN</td>
<td>Baton Rouge, LA</td>
<td>$3\frac{1}{4}$</td>
<td></td>
<td>975</td>
</tr>
<tr>
<td>Pick your own:</td>
<td>Pick your own:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pick your own:</td>
<td>Pick your own:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Part 2: Calculate the distance the cities would be on the map, based on their actual distance. (Use the same scale factor from part 1).

1) The distance from London, England to New York City is about 3472 miles. If they were both on this map, how far apart would they be on it?

\[
\frac{\text{in}}{\text{miles}} \times \frac{1}{300} = \frac{11.57 \text{ in}}{3472}
\]

2) The distance from Greenland to Antarctica is about 11115 miles. If they were both on this map, how far apart would they be on it?

\[
37.05\text{ in}
\]

3) The distance from the Eiffel Tower (Paris, France) to the Washington Monument (Washington, DC) is about 3841 miles. If they were both on this map, how far apart would they be on it?

\[
12.9\text{ in}
\]

4) The distance from Miss Kamin’s house to Crossroads North is about 10 miles. If they were both on this map, how far apart would they be on it?

\[
0.3\text{ in}
\]
What Goes Ha! Ha! Ha! Thud?

Scale → 2 cm : 3 m

This is a scale drawing of one floor in a European castle. Do each exercise and find your answer in the adjacent answer column. Write the letter of the answer in each box containing the number of the exercise.

I. One dimension is given for each room. Measure to find the other dimension to the nearest tenth of a centimeter.

1. ballroom 4.3 cm by __________
2. library 3.2 cm by __________
3. parlor 2.8 cm by __________
4. foyer 2.8 cm by __________
5. gallery 6.0 cm by __________

II. Find the actual room dimensions. (Length" refers to the longer dimension and "width" to the shorter dimension.)

6. length of the ballroom __________
7. width of the ballroom __________
8. length of the library __________
9. width of the library __________
10. length of the parlor __________
11. width of the parlor __________
12. length of the foyer __________
13. width of the gallery __________

| 12 | 8 | 12 | 2 | 10 | 12 | 4 | 9 | 13 | 6 | 2 | 9 | 13 | 6 | 1 | 13 | 5 | 12 | 7 | 3 | 11 | 11 |
|----|---|----|---|----|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8  | 8 | 12 | 2 | 10 | 12 | 4 | 9 | 13 | 6 | 2 | 9 | 13 | 6 | 1 | 13 | 5 | 12 | 7 | 3 | 11 | 11 |
\[
\frac{\text{cm}}{\text{m}} \cdot \frac{2}{3} = \frac{9.1}{x}
\]
What Sort of Monkeys Make the Best Wine?

- Measure the length and width of each room in centimeters to the nearest 0.1 cm. (Check to be sure that each of your measurements is in the "Measure Checker" below.)
- Convert each measurement to meters. The scale is 3 cm = 5 m. Round to the nearest 0.1 m.
- Use your rounded measurements to find the area of the room. Round your answer to the nearest 0.1 m². Find your answer at the bottom of the page and cross out the letters above it.