Part 2. Arithmetic Review

Questions A–H (TG p. 1)

A. 343  
B. 2329  
C. 4000  
D. 829  
E. 585  
F. 684  
G. Answer will vary. Possible response for A: 
   \(50 \div 11003\) 7 = 350; 350 – 7 = 343  
H. Strategies will vary. The product is less than 650 because \(65 \times 10 = 650\).
**Part 3. Factor Trees and Exponents**

Questions 1–4 (TG p. 2)

1. \(2 \times 2 \times 13 = 52\). Students might draw a factor tree as shown below.

   \[
   \begin{array}{c}
   52 \\
   \downarrow \\
   4 \\
   \downarrow \\
   2 \quad 13
   \end{array}
   \]

2. \(5 \times 17 = 85\). Students might draw a factor tree as shown below.

   \[
   \begin{array}{c}
   85 \\
   \downarrow \\
   5 \quad 17
   \end{array}
   \]

3. \(2 \times 2 \times 2 \times 2 \times 7 = 224\). Students might draw a factor tree as shown below.

   \[
   \begin{array}{c}
   224 \\
   \downarrow \\
   8 \\
   \downarrow \\
   4 \quad 28 \\
   \downarrow \\
   4 \quad 2 \quad 4 \quad 7 \\
   \downarrow \downarrow \\
   2 \quad 2 \quad 2 \quad 2
   \end{array}
   \]

4. A. \(4^2 \times 2 = 32\)
   
   B. \(5^2 \times 2 = 50\)
   
   C. \(2^3 \times 3 = 24\)

**Part 4. What's Missing?**

Questions A–L (TG p. 48)

A. 900  B. 941  C. 994  
D. 98  E. 8  F. 21  
G. 75  H. 13  I. 70  
J. 30  K. 31  L. 6  
M. Possible response: I think of quarters. \(75¥ - 25¥ = 50¥\).
Part 5. Area and Perimeter

Questions 1–2 (TG p. 3)

1. A. 13 square centimeters
   B. 20 centimeters

2. A. Possible response:
   B. Perimeters will vary: Example 2A is 16 cm.
   C. 
   D. 28 centimeters

Part 6. Big Base-Ten Hoppers

Questions 1–3 (TG p. 4)

1. A. 490, 500, 1000
   B. 512
   C. Answers will vary.

2. A. Possible response:
   B. Number sentences will vary.

3. A. 238
   B. 238; 238
Part 7. Bouncing Balls

Questions 1–4 (TG p. 5)

1. Basketball: 43, Kickball: 67, Tennis Ball: 51
2. Type of Ball, categorical
3. Bounce Height, numerical
4. Think about these questions before you graph the median bounce height for each type of ball.
   • What variables will you put on the horizontal axis and vertical axis?
   • How will you scale and label the axes?
   • What type of graph is appropriate? A point graph or a bar graph?

Compare the graphs in Part 7 and DPP item X. When both of the variables to be graphed are numerical, as in the 200-meter Backstroke graph in DPP item X, a point graph is often the appropriate way to represent the data. Since the values for both of these variables are numbers and since it makes sense to talk about values between the data points, such as 1969, 1970, etc., we can use points and lines. However, in Part 7, it does not make sense to talk about values between the values on the horizontal axis (basketball, kickball, and tennis ball). A bar graph is an appropriate type of graph for representing categorical data. The values (basketball, kickball, and tennis ball) on the graph in Part 7 can also be placed in any order on the graph unlike the numerical values on the horizontal axis in the graph in DPP item X.

### Part 7: Bouncing Balls
A class experimented with 3 kinds of balls to find out which one bounced highest. They dropped each type of ball from the same height.

<table>
<thead>
<tr>
<th>Type of Ball</th>
<th>Trial 1</th>
<th>Trial 2</th>
<th>Trial 3</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basketball</td>
<td>43</td>
<td>41</td>
<td>41</td>
<td>41</td>
</tr>
<tr>
<td>Kickball</td>
<td>69</td>
<td>65</td>
<td>67</td>
<td>67</td>
</tr>
<tr>
<td>Tennis Ball</td>
<td>52</td>
<td>51</td>
<td>51</td>
<td>51</td>
</tr>
</tbody>
</table>

### Answers

1. Find the median bounce height for each type of ball. Complete the table.
2. What is the manipulated variable? Is it a categorical or numerical variable?
3. What is the responding variable? Is it a categorical or numerical variable?
4. Think about these questions before you graph the median bounce height for each type of ball.
   • What variables will you put on the horizontal axis and vertical axis?
   • How will you scale and label the axes?
   • What type of graph is appropriate? A point graph or a bar graph?