Unit 4
Cumulative Skill Practice

1. Miki is putting together bags of groceries to donate to charity. She has 18 boxes of macaroni and cheese and 12 cans of vegetables. Miki wants to divide them up evenly, so that each bag has the same contents and no items are left over. What is the greatest number of bags of groceries Miki can put together?

   GCF: 6
   18 \div 3 = 6
   12 \div 2 = 6
   6 bags

2. Find the LCM and GCF for 6, 32, 48

   \[ \begin{align*}
   &\quad 2 \big| \begin{array}{c}
   6 \\
   32 \\
   48
   \end{array} \\
   &\quad 3 \big| \begin{array}{c}
   3 \\
   16 \\
   24
   \end{array} \\
   &\quad 2 \big| \begin{array}{c}
   1 \\
   8 \\
   12
   \end{array} \\
   &\quad 2 \big| \begin{array}{c}
   1 \\
   4 \\
   6
   \end{array}
   \]

   GCF = 2
   LCM = 2 \cdot 3 \cdot 16 \cdot 24
   LCM = 2304

   Use the distributive property to rewrite the expression (if you’re stuck, try using a rectangle or area model).

3. \(4(m - 20)\)

   4m - 80

4. \(\frac{2}{3}(x - \frac{1}{2})\)

5. \(9(j - 7)\)

Evaluate the exponent.

6. \(3^5\)

   \[ 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 = 243 \]

7. \(15^2\)

   \[ 15 \cdot 15 = 225 \]

8. \(\left(\frac{1}{2}\right)^4\)

   \[ \frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} = \frac{1}{16} \]

Evaluate each expression.

9. \(2^3 \times (8 + 4 - 10)\)

   \[ 2^3 \times (2) = 8 \times 2 = 16 \]

10. \((3 \times 2^2) \div (6 - 4)\)

    \[ (3 \times 4) \div (2) = 12 \div 2 = 6 \]

11. \((4^2 \times 2) \div (10 - 5 + 3)\)

    \[ (16 \times 2) \div 8 = 32 \div 8 = 4 \]

Evaluate each expression.

12. \(z(p + 2)\) when \(z = 5\) and \(p = 7\)

    \[ 5(7 + 2) = 5(9) = 45 \]

13. \(4(6 - t)\), when \(t = 10\)

    \[ 4(6 - 10) = 4(-4) = -16 \]

   Don’t count this one!
Fill in each blank with <, >, or = to make each sentence true.
14. $\frac{1}{5} \, \, \, > \, \, \, \frac{2}{11}$  
15. $0.0045 \, \, \, > \, \, \, 0.004$  
16. $9.201 \, \, \, > \, \, \, 9.15$  
17. $\frac{5}{8} \, \, \, < \, \, \, -0.6$

\[\frac{11}{55} \, \, \, > \, \, \, \frac{10}{55}\]

Write the numbers in order from least to greatest.
18. $\frac{1}{8}, 11\%, \frac{3}{20}, 0.172, 7\%, 0.7, \frac{1}{3}$  
19. $0.375, 4\%, \frac{5}{6}, -0.43, \frac{1}{4}, 32\%, \frac{3}{4}$

\[-\frac{1}{3}, -0.172, 7\%, 11\%, \frac{1}{8}, \frac{3}{20}, 0.7\]

\[-0.43, -\frac{1}{4}, 4\%, 32\%, 0.375, \frac{3}{4}, \frac{5}{6}\]

20. Liam’s office recycled a total of 8 kilograms of paper over 2 weeks. After 3 weeks, how many kilograms of paper will Liam’s office have recycled? Solve using a rate table and unit rates.

\[\frac{8}{2} = \frac{?}{3}\]

21. Nathan took a total of 6 quizzes over the course of 3 weeks. After attending 5 weeks of school this quarter, how many quizzes will Nathan have taken in total? Solve using a rate table and unit rates.

22. Complete the table.

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Fraction</th>
<th>Decimal</th>
</tr>
</thead>
<tbody>
<tr>
<td>120%</td>
<td>(\frac{120}{100} = \frac{6}{5} = \frac{12}{10})</td>
<td>1.26</td>
</tr>
<tr>
<td>68%</td>
<td>(\frac{68}{100} = \frac{34}{50} = \frac{17}{25})</td>
<td>0.68</td>
</tr>
<tr>
<td>62.5%</td>
<td>(\frac{5}{8})</td>
<td>0.625</td>
</tr>
<tr>
<td>72%</td>
<td>(\frac{72}{100} = \frac{36}{50} = \frac{18}{25})</td>
<td>0.72</td>
</tr>
<tr>
<td>58%</td>
<td>( \frac{7}{12} )</td>
<td>0.58</td>
</tr>
<tr>
<td>-----</td>
<td>----------------</td>
<td>-------</td>
</tr>
<tr>
<td>40%</td>
<td>( \frac{40}{100} = \frac{20}{50} = \frac{2}{5} )</td>
<td>0.40</td>
</tr>
</tbody>
</table>

Solve. Write your answer in simplest form.

23. \( \frac{1}{6} + \frac{1}{14} \) = \( \frac{84}{84} + \frac{6}{84} \) = \( \frac{90}{84} \) = \( \frac{15}{20} = \frac{3}{5} \)

24. \( \frac{3}{4} - \frac{1}{5} \)

25. \( 5\frac{1}{2} - 3\frac{1}{3} \)

26. \( 8\frac{4}{5} + 7\frac{1}{3} \)

27. \( \frac{20}{3} - \frac{7}{4} \)

28. \( 33 - 23\frac{2}{9} \)

29. \( \frac{3}{2} \times 4\frac{1}{2} \)

30. \( \frac{3}{7} \div 4\frac{1}{7} \)

31. \( \frac{1}{6} \times \frac{3}{4} \)

32. \( 1\frac{3}{5} + 5 \)

Solve for \( N \). Write your answer in simplest form.

33. \( N + \frac{3}{4} = \frac{19}{20} \)

34. \( \frac{2}{3} \times N = 4\frac{1}{2} \)

35. \( N \div \frac{1}{4} = \frac{3}{8} \)

36. \( N - \frac{5}{9} = 1\frac{1}{7} \)

37. Carletta bought 14 yards of green string to make shoelaces in the school color for her basketball team. She estimates that it takes \( \frac{2}{3} \) yard to make one shoelace. How many shoelaces can she make?

\[
\frac{14}{\frac{2}{3}} = \frac{14 \times 3}{2} = \frac{42}{2} = 21
\]

\[
\frac{14}{1} \times \frac{5}{2} = \frac{70}{2} = 35
\]
38. Mr. Cisneros is cooking for an apple celebration. He uses $10\frac{3}{8}$ pounds of apples to bake pies and $5\frac{1}{4}$ pounds of apples to make applesauce. How many more pounds of apples does he use for the pies than for applesauce?

\[ \frac{10 \frac{3}{8}}{-5 \frac{1}{4}} \]

\[ \frac{10 \frac{3}{8}}{-21 \frac{1}{4}} \]

\[ \frac{10 \frac{3}{8}}{-42 \frac{1}{8}} \]

\[ \frac{111}{16 \frac{1}{2}} \text{ or } 5 \frac{1}{8} \text{ pounds} \]

39. Find the mean, median, mode, and range. Also, create a box plot for the data.

\[
\begin{array}{c|cccccccc}
\text{Data} & 32 & 10 & 15 & 4 & 20 & 11 & 25 & 14 & 10 & 24 & 22 \\
\end{array}
\]

What can you say about this data in terms of a typical data value (measure of center) and how spread apart the data is (variability)?

\[ \text{The data is fairly distributed evenly. There is a little cluster in the 10, 15, 16 range.}\]

\[ \text{I would use the mean to best represent the data.}\]

\[ \text{Please understand this info but you don't need to count it in your score.}\]

40. Find the area and perimeter of the rectangle.

\[
\begin{align*}
\text{Area} &= \ell w \\
A &= 16 \cdot 6 \\
A &= 96 \text{ m}^2
\end{align*}
\]

41. For the rectangle below, find the missing width. Then find the area.
Perimeter = 56 m

\[ P = 16 + 16 + w + w \]
\[ 56 = 32 + w + w \]
\[ 32 - 32 \]
\[ 24 = w + w \]

"w" must equal \(12\) m

\[ A = lw \]
\[ = (16)(12) \]
\[ A = 192 \text{ m}^2 \]

Be sure to have the correct units!