Operations and Algebraic Thinking

Solve.  

1 Simplify the expression shown below. **PEMDAS**

$$6 + (4 \div 2) \div (6 + 2)$$

2 Using numbers and symbols, write an expression for the phrase shown below.

subtract 3 from 5, then multiply by 2

$$2(5-3) \text{ or } (5-3) \times 2$$

3 Write a phrase to represent the numerical expression shown below.

$$10 \times (6 - 1)$$

subtract 1 from 6, then multiply by 10

Complete the table. Then graph the relationship on the grid.

<table>
<thead>
<tr>
<th>x</th>
<th>y</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>
Number and Operations in Base Ten

Perform the indicated operation.

10. \[700 \times 10 = 7000\]

11. \[26 \div 7 = 3\]

12. \[73 \times 508 = 37084\]

13. \[3)9324\]

14. \[32 \times 45 = 1440\]

15. \[10)2000\]

16. \[3.6 - 1.92 = 1.68\]

17. \[5.4 \times 7.02 = \frac{37908}{2808} + 35100 = 37908\]

18. \[11.91 + 3 = 3.97\]

19. \[8.07 + 12.16 = 20.23\]

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Solve.

20 Compare. Write <, >, or =.

\[
6.301 \quad \underline{<} \quad 6.327
\]

21 Round 3.051 to the nearest tenth. \(3.1\)

Write the value of the underlined digit.

22 43,197 \(3,000\)

23 8.025 \(0.02 \text{ or } \frac{2}{100}\)
Number and Operations – Fractions

Perform the indicated operation. Show your work.

24 \( \frac{5}{6} + \frac{1}{6} = \frac{6}{10} = 1 \)

25 \( \frac{7}{8} - \frac{3}{8} = \frac{4}{8} = \frac{1}{2} \)

26 \( \frac{5}{2} \cdot \frac{2}{5} = \frac{1}{10} \)

\( \frac{5}{10} - \frac{4}{10} = \frac{1}{10} \)

27 \( \frac{4}{3} \cdot \frac{3}{4} = \frac{1}{12} \)

\( \frac{8}{12} + \frac{9}{12} = \frac{17}{12} = 1 \frac{5}{12} \)

28 \( 6 \cdot \frac{2}{3} = 4 \)

29 \( \frac{3}{4} \div 3 = \frac{1}{4} \)

30 \( 8 + \frac{1}{2} = 10 \)

\( \frac{6}{1} \cdot \frac{2}{3} = \frac{12}{3} = 4 \)

\( \frac{3}{4} \div \frac{3}{1} = \frac{3}{12} = \frac{1}{4} \)

\( \frac{8}{1} \div \frac{1}{2} = \frac{16}{1} = 16 \)
Solve.

35. How many \( \frac{1}{3} \)-cup servings can be poured from a pitcher that contains 6 cups of juice?
   
   18 servings

36. Suppose 6 volunteers want to equally share 50 hours of community service. How many hours should each person work?
   
   \( 8 \frac{1}{3} \) hours

37. The measures of two sides of a rectangle are 5 cm and \( \frac{9}{10} \) cm. What is the area of the rectangle?
   
   \( 4 \frac{1}{2} \) cm

38. Marissa swims for 2 hours every Monday. She swims for \( \frac{3}{4} \) of that time every Thursday. Does Marissa swim for more or less time every Thursday? Explain your answer.
   
   She swims less time on Thursdays because \( 1 \frac{1}{2} \) hours is less than 2.

39. If you multiply \( \frac{4}{1} \) by \( \frac{5}{2} \), will the product be greater or less than 4? Explain your answer.
   
   greater than - multiplying a whole number by a fraction results in a greater product.
Solve.

31 At lunch, \( \frac{1}{3} \) of the students ordered egg salad and \( \frac{2}{5} \) of the students ordered tuna salad. What fraction of the students ordered egg salad or tuna salad?

\[
\frac{11}{15} \text{ of the students}
\]

32 Kevin ordered \( \frac{1}{2} \) of a pizza. He ate \( \frac{5}{12} \) of a pizza. What fraction of a pizza is left?

\[
\frac{1}{12} \text{ pizza}
\]

33 Yang has \( 2 \frac{1}{4} \) pounds of apples. She needs \( 1 \frac{1}{2} \) times as many apples to bake a pie. How many pounds of apples does Yang need?

\[
3 \frac{3}{8} \text{ pounds}
\]

34 A recipe for 12 muffins calls for \( \frac{3}{4} \) cup of raisins. What amount of raisins would be needed to make only \( \frac{1}{2} \) of the recipe?

\[
\frac{3}{8} \text{ cup raisins}
\]
Measurement and Data

The table below shows the number of days the students in a class were absent during January. Use the table for numbers 40 and 41.

<table>
<thead>
<tr>
<th>Days Absent</th>
<th>Number of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>1/2</td>
<td>2</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>1 1/2</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>2 1/2</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

40. Draw a line plot of the data at the right.

43. In simplest form, what fraction of the students in the class were not absent during January?

\[
\frac{8}{20} = \frac{2}{5}
\]

Solve.

42. In the standing jump competition, Jorge jumped 205 centimeters. What was the distance of Jorge’s jump in meters?

\[
\frac{205 \text{ cm}}{100 \text{ cm}} = \frac{205}{100} = 2.05 \text{ m}
\]

43. A football field is 360 feet in length. What is the length of the field in yards?

\[
\frac{360 \text{ ft}}{1} = \frac{360}{3} = 120 \text{ yards}
\]
Solve.

44 Calculate the volume of this rectangular prism.

\[ V = l \cdot w \cdot h \]
\[ V = 10 \cdot 4 \cdot 5 \]
\[ V = 200 \text{ cm}^3 \]

200 cm³

45 Each edge of a cube measures 6 inches.
Find the volume of the cube.

\[ V = l \cdot w \cdot h \]
\[ V = 6 \cdot 6 \cdot 6 \]
\[ V = 216 \text{ in}^3 \]

46 Calculate the volume of the prism below.

1. \[ V = l \cdot w \cdot h \]
   \[ V = 3 \cdot 3 \cdot 7 \]
   \[ V = 9 \cdot 7 \]
   \[ V = 63 \text{ m}^3 \]

2. \[ V = l \cdot w \cdot h \]
   \[ V = 6 \cdot 3 \cdot 3 \]
   \[ V = 6 \cdot 9 \]
   \[ V = 54 \text{ m}^3 \]

\[ \frac{63 + 54}{117} \text{ m}^3 \]

12 GRADE 6 Prerequisite Skills | Inventory Test
Geometry

Solve.

47 How many right angles does a right triangle have?

1 right angle

48 Look at the descriptions listed below. Circle those that are true for the rectangle at the right.

- opposite sides congruent
- opposite sides parallel
- opposite sides perpendicular
- adjacent sides perpendicular
- opposite angles congruent
- 90° angles
- acute angles
- obtuse angles
- right angles

49 On the graph at the right, Plot Point A at (2, 7), Point B at (5, 7), Point C at (7, 2), and Point D at (4, 2).

Draw line segments to connect the points in the order they were plotted, and then draw a line segment from Point D to Point A.

What figure is formed by the line segments?

parallelogram
A model of a baseball field is shown on the coordinate plane. In the infield, there are four bases that form a square. Points $A$, $B$, and $D$ each represent a base. What are the coordinates of Point $C$, the missing base?

Point $C$ $(4,6)$