Grade 6: End of Year Problems

Name:___________________________

6.RP.1, 2

1. Which of the following is an equivalent ratio to 3:9?

   A  1:3
   B  1:27
   C  3:18
   D  6:12

2. A high-speed elevator can rise 480 feet in 30 seconds. Find the unit rate, in feet per minute, of the elevator.

   A  \( \frac{1}{16} \)
   B  16
   C  240
   D  960

6.RP.3

3. The ratio of nitrogen to potassium in a sample of soil is 12:9. The sample has 36 units of nitrogen. How much potassium does the sample have?

   A  21 units
   B  27 units
   C  33 units
   D  48 units

Understand ratio concepts
RP.1, 2        4 3 2 1 0

Use ratio concepts to solve problems
RP.3        4 3 2 1 0
4. A laundry detergent is sold at four stores.

<table>
<thead>
<tr>
<th>Store</th>
<th>Size (ounces)</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hawkin’s Store</td>
<td>60</td>
<td>$6.50</td>
</tr>
<tr>
<td>Don’s Store</td>
<td>54</td>
<td>$5.50</td>
</tr>
<tr>
<td>Allen’s Market</td>
<td>48</td>
<td>$5.61</td>
</tr>
<tr>
<td>Value Market</td>
<td>40</td>
<td>$4.50</td>
</tr>
</tbody>
</table>

Which store has the lowest price per ounce?

A Hawkin’s Store  
B Don’s Store     
C Allen’s Market  
D Value Market

5. A company that makes boxes finds that 3 out of 20 boxes are damaged. What percent of the boxes are damaged?

A 12%    
B 15%    
C 25%    
D 34%
6.NS.1

6. A rectangular parking lot has an area of \(\frac{2}{3}\) of a square kilometer. The width is \(\frac{1}{2}\) of a kilometer. What is the length, in kilometers, of the parking lot?

A. \(\frac{1}{3}\)

B. \(\frac{2}{3}\)

C. \(1\frac{1}{3}\)

D. \(1\frac{2}{3}\)

7. Omar has \(2\frac{3}{4}\) cups of dough to make dumplings. If he uses \(\frac{3}{16}\) cup of dough for each dumpling, how many whole dumplings can Omar make?

A. 4

B. 6

C. 8

D. 14

6.NS.2

8. If the area of a rectangular store is 6,764 square feet and the length of the store is 89 feet, what is the width of the store?

A. 601,996

B. 68

C. 70

D. 76
6.NS.3

9. Find the sum of 8.971 and 29.43

A 11.914  B 38.401  C 38.301  D 119.14

10. The price of a theater ticket increased from $7.50 to $7.75. The theater sold 315 tickets at the higher price. With the price increase, how much more did the theater earn on the tickets?

A $78.00  
B $78.25  
C $78.50  
D $78.75

6.NS.4

11. Machine S and T were both cleaned this week.
   - Machine S is cleaned every 12 weeks.
   - Machine T is cleaned every 8 weeks.

What is the fewest number of weeks that will pass before both machines are cleaned again in the same week?

A 4  
B 24  
C 32  
D 96
12. Which of the following rational numbers has the greatest value?

A $\frac{3}{2}$  B -1.2  C -1.8  D $-\frac{5}{4}$

13. Matt had a balance of $130. He withdrew $20 and then deposited $40. What is his bank balance now?

A $190$  B $70$  C $60$  D $150$

14. Which point on the number line represents the number $-4\,\frac{1}{2}$?

A P  B Q  C R  D S
15. A trapezoid in a coordinate plane has vertices (-2, 5), (-3, -2), (2, -2), and (1, 5). What is the height of the trapezoid?
   A 3 units
   B 5 units
   C 7 units
   D 9 units

16. The coordinates of the vertices of a rectangle are (-2, 3), (4, 3), (4, -4) and (-2, -4). What is the area of the rectangle?
   A 6 square units
   B 14 square units
   C 2 square units
   D 42 square units
6.EE.1,2

17. Which can be represented by the expression $17 - 2x$?

A 17 less than twice a number $x$
B the difference between 17 and twice a number $x$
C a number $x$ squared, subtracted from 17
D 17 less than a number $x$ multiplied by 2

18. What is the value of $\frac{1}{3}x^2 + 2$, when $x = 3$?

A 3
B 4
C 5
D 6

6.EE.3,4

19. Which expression is equivalent to $5y + 2y + 6x + 2y - x$?

A $5x + 6y$
B $5x + 7y$
C $5x + 9y$
D $7x + 7y$

20. Which choice is equivalent to the expression $4(x + 2y)$?

A $4x + 8y$
B $4x + 2y$
C $x + 8y$
D $8xy$
21. Diana can use the equation \( y = 7x \) to calculate her pay, where \( y \) represents the amount of pay, and \( x \) represents the number of hours worked. How many hours did Diana work if she was paid $45.50?

A 5.5 hours  
B 6 hours  
C 6.5 hours  
D 7 hours

22. If \( y - 18 = 14 \), what is the value of \( 3(y + 5) \)?

A 27  
B 32  
C 96  
D 111

23. Suppose that a stove and a freezer together weigh at least 370 pounds. The weight of the stove is 170 pounds. Which inequality correctly describes these conditions for the weight of the freezer, \( f \)?

A \( f \geq 200 \)  
B \( f > 200 \)  
C \( f \leq 200 \)  
D \( f < 200 \)
24. Heather earns $8.00 per hour for walking a dog. How many hours must she work to earn $256.00?

A 42
B 32
C 248
D 2048

25. What is the area, in square meters, of the trapezoid shown below? The height of the figure is 4 meters.

A 28 square meters
B 112 square meters
C 92 square meters
D 1800 square meters
26. The right rectangular prism below is made up of 8 cubes. Each cube has an edge length of $\frac{1}{2}$ inch. What is the volume of this prism?

A 1 cubic inch
B 2 cubic inches
C 4 cubic inches
D 8 cubic inches

27. A box in the shape of a right rectangular prism has a length of 8.5 inches, a width of 4.5 inches, and a height of 4 inches. What is the volume, in cubic inches, of the box?

A. 52
B. 153
C. 180.5
D. 1,530