Activity: We will review the entire 7th grade curriculum by working through problems.

Weeks: June 8 – 19th Best strategy is to focus on small

I see 2 ways for these last 2 weeks to work best for you. #1.) You could use the June Learning packet and focus on Pages 55 – 77. If you get stuck on a problem you can do what you can, write up some questions, and bring questions to office hours (Monday and Thursday 11 AM). #2.) Go to YouTube and write out questions for 7th Grade Math Year in Review Parts 1 - 4. I had asked students to start this previously, but we are now in full review mode. I would write out question to be done, pause the question and do my work, and then watch the problem being worked

You Try: Right out of June Learning Packet:

#1) \(-4/5 + -1.7 = \) ____________

#2) \(-30 + (-9) = \) ______________

How do you know? Why is #1 harder?

Show me what you know (Proof of learning)

E-mail your teacher your work for the review. I think getting to #48 or #58 would be reasonable. If doing online get through section

In Grade 7, instructional time should focus on four critical areas: 1.) Developing understanding of proportional relationships. 2.) Developing understanding of operations with rational numbers and expressions and Linear Equations. 3.) Solving problems with scale drawings. 4.) Drawing inferences about populations based on samples.

What am I learning?

I am reviewing the big 4 components of 7th grade so that I am ready for Algebra as an 8th grader.

How do I know I learned?

I know where to start
I can defend my steps
I am using mathematical vocabulary
I can write my own problems and work with my family to solve them
7th Grade Accelerated Review
Find the missing number.

1. \( \frac{-4}{5} + -1.7 = ? \)
   a. -5.12
   b. -2.5
   c. -0.25
   d. -20

Find the sum.

2. \(-30 + (-9)\)
   a. -21
   b. 21
   c. 39
   d. -39

3. \(-1 + 7\)
   a. 8
   b. -6
   c. 6
   d. -8

Find the quotient.

4. \(8 \div (-4)\)
   a. -2
   b. \(\frac{1}{2}\)
   c. 2
   d. \(\frac{1}{2}\)

5. \(-16 \div (-8)\)
   a. \(-2\)
   b. \(\frac{1}{2}\)
   c. -2
   d. 2

6. \(-23 \div 0.5 = \)_____
   a. -11.5
   b. -46
   c. 11.5
   d. 46

Simplify the expression.

7. \(8 \div (-10) \div (-2)\)
   a. -4
   b. 160
   c. -82
   d. 28

8. \(37 - 45\)
   a. -82
   b. 82
   c. 8
   d. -8

9. \(12.94 \times -6.7\)
   a. -86.698
   b. -95.368
   c. 19.64
   d. -8.67

10. Name the opposite of the integer.
    -3

    a. \(-\frac{1}{3}\)
    b. 3
    c. -3
    d. \(\frac{1}{3}\)
11. The highest location in a certain country is 14,864 feet above sea level. The lowest point in the same country is 141 feet below sea level.
   a. Find the difference of the two elevations.
   b. A city is 7,642 feet above sea level. Is this elevation closer to the highest point or the lowest point?
   a. 15,005 ft; lowest  
   b. 14,723 ft; lowest  
   c. 14,723 ft; highest  
   d. 15,005 ft; highest

12. \( \frac{27}{4} \)
   a. 2.25; repeating
   b. 6.8; terminating
   c. 6.75\(\bar{5} \); repeating
   d. 6.75; terminating

13. \( \frac{4}{18} \)
   a. 1.2; terminating
   b. 0.2; terminating
   c. 0.2\(\bar{2} \); repeating
   d. 1.2\(\bar{2} \); repeating

14. Estimate the value of \( \sqrt{56} \) to the nearest whole number.
   a. 9
   b. 7
   c. 8
   d. 6

15. \( \sqrt[3]{1000} \)
   a. 1000
   b. 3,000
   c. 10
   d. 333.3

16. \( -\sqrt{25} \)
   a. -0.5
   b. 5
   c. -5
   d. -25

17. Classify 8 as a perfect square, a perfect cube, both, or neither.
   a. perfect square
   b. perfect cube
   c. both
   d. neither

18. The volume of a cube is 216 cubic inches. What is the length of each side of the cube?
   a. 6 in.
   b. 12 in.
   c. 108 in.
   d. 110 in.

19. Which of these is equivalent to \( \frac{1}{5^4} \)?
   a. \( (-5)^4 \)
   b. \( 5^4 \)
   c. \( -5^4 \)
   d. \( \frac{1}{5^4} \)

20. Simplify \( 4^0 \).
   a. 1
   b. 4
   c. \( \frac{1}{4} \)
   d. 0

21. Multiply \( (1.9 \times 10^7)(3 \times 10^6) \). Express the result in scientific notation.
   a. \( 5.7 \times 10^{13} \)
   b. \( 5.7 \times 10^{12} \)
   c. \( 5.7 \times 10^{42} \)
   d. \( 5.7 \times 10^{43} \)
The diameter of Mercury is about $3.0 \times 10^3$ miles. The diameter of Jupiter, the largest planet, is about $8.8 \times 10^4$ miles. What is the difference between the diameters of these planets expressed in scientific notation?

a. $5.8 \times 10^7$ miles
b. $5.8 \times 10^1$ miles
c. $8.5 \times 10^2$ miles
d. $8.5 \times 10^4$ miles

Write the decimal as a fraction or a mixed number in simplest form.

23. $3.4$
   a. $\frac{4}{9}$
   b. $\frac{4}{3.9}$
   c. $\frac{2}{5}$
   d. $\frac{4}{11}$

24. $4.86$
   a. $\frac{86}{99}$
   b. $\frac{43}{50}$
   c. $\frac{86}{99}$
   d. $\frac{41}{86}$

25. Find the length of the side of a square with an area of 16.
   a. 8
   b. 16
   c. 4
   d. 256

26. Suzanne wants to put a fence around her square garden. If the garden covers an area of 100 ft$^2$, how many feet of fencing does she need?
   a. 20 ft
   b. 10 ft

Solve for $x$.

27. $x^2 = 144$
   a. $x = \pm 11$
   b. $x = \pm 72$
   c. $x = \pm 12$
   d. $x = \pm 6$

28. $x^3 = -216$
   a. $x = -72$
   b. $x = \pm 72$
   c. $x = -6$
   d. $x = \pm 6$

29. Which number is irrational?
   a. $\sqrt{81}$
   b. $\sqrt{169}$
   c. $\sqrt{156}$
   d. $\sqrt{144}$

30. 0.80880888...
   a. rational
   b. irrational

31. Write $3.15 \times 10^{-5}$ in standard notation.
   a. 0.00315
   b. 0.00000315
   c. 0.000315
   d. 0.0000315

32. Write $0.56 \times 10^4$ in scientific notation.
   a. $56 \times 10^2$
   b. $0.56 \times 10^3$
   c. $5.6 \times 10^3$
   d. $56 \times 10$

33. Write 806,000,000 in scientific notation.
   a. $8.06 \times 10^8$
   b. $8.06 \times 10^7$
   c. $8.06 \times 10^9$
   d. $8.06 \times 10^{10}$
34. Write 0.000000474 in scientific notation.
   a. $4.74 \times 10^{-9}$
   b. $4.74 \times 10^{-7}$
   c. $4.74 \times 10^{-8}$
   d. $4.74 \times 10^{-6}$

35. The maximum speed of a jet (in meters per hour) is $10^6$. The maximum speed of a cockroach (in meters per hour) is $10^2$.
   a. The maximum speed of the jet is how many times as fast as the maximum speed of the cockroach?
   b. What is the speed of the jet in kilometers per hour? (Hint: 1 km = 1000 m)
      a. $10^{12}$ times as fast; 1,000 km/h
      b. $10^4$ times as fast; 1,000 km/h
      c. $10^6$ times as fast; 100 km/h
      d. $10^4$ times as fast; 10,000 km/h

Write the expression using a single exponent.

36. $7^5 \cdot 7^6$
   a. $49^{30}$
   b. $7^{30}$
   c. $49^{11}$
   d. $7^{11}$

37. $\frac{144^{14}}{144^2}$
   a. $144^{16}$
   b. $144^{12}$
   c. $144^{28}$
   d. $\frac{144^7}{144^2}$

38. $\left(19^8\right)^6$
   a. $19^2$
   b. $19^8$
   c. $19^{14}$
   d. $19^{48}$

39. Which equation represents a proportional relationship?
   a. $y = 5x - 1$
   b. $y = \frac{1}{2}x + 3$
   c. $y = 0.3x$
   d. $y = x + 4$

40. A dozen apples costs $2.55. At this rate, how much would 8 apples cost?
   a. $20.40$
   b. $3.83$
   c. $0.21$
   d. $1.70$

41. One can of Mountain Dew costs $1.25 in a vending machine.
    A 12-pack of Mountain Dew costs $3.49 at the grocery store.
    How much money would you save by purchasing a dozen cans of Mountain Dew at the grocery store instead of a dozen at the vending machine?
    a. $2.24$
    b. $0.96$
    c. $11.51$
    d. $12.49
The graph represents the distance a slug traveled over time.

42. Name the constant of proportionality.
   a. 0.4
   b. 1.4
   c. 0.8
   d. 0.2

43. How far will the slug travel in 2 minutes?
   a. 5.8 m
   b. 1.0 m
   c. 0.8 m
   d. 2.8 m

44. Does the graph show a proportional relationship? Explain.
   a. Yes, the relationship between time and distance traveled is proportional.
   b. No, the graph should not go through the point (0, 0).

45. Does the table show a proportional relationship? If so, what is the value of y when x is 9?

<table>
<thead>
<tr>
<th>x</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>y</td>
<td>10</td>
<td>15</td>
<td>20</td>
<td>25</td>
</tr>
</tbody>
</table>

   a. yes, 90
   b. yes, 45
   c. yes, 40
   d. no

46. Is the relationship between the number of boxes of golf balls and the number of golf balls proportional? Explain.

<table>
<thead>
<tr>
<th>number of boxes</th>
<th>number of balls</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>24</td>
</tr>
<tr>
<td>4</td>
<td>48</td>
</tr>
<tr>
<td>5</td>
<td>60</td>
</tr>
<tr>
<td>8</td>
<td>96</td>
</tr>
</tbody>
</table>

   a. no
   b. yes, each ratio is equivalent to \( \frac{1}{12} \)

47. The ratio of teachers to students is 1 to 26. Find an equivalent ratio.
   a. 52 to 2
   b. 11 to 36
   c. 26 to 1
   d. 5 to 130

48. 91.8% of 648 toy robots on an assembly line will be approved by the quality-control inspector. Write and solve a proportion to find how many robots will be approved.
   a. \( \frac{n}{648} = \frac{91.8}{100} \); 595 robots
   b. \( \frac{n}{100} = \frac{91.8}{648} \); 327 robots
   c. \( \frac{n}{100} = \frac{91.8}{648} \); 14 robots
   d. \( \frac{n}{648} = \frac{91.8}{100} \); 59 robots
49. The sales tax rate is 6.9%.
   a. Find the tax paid for a pair of boots with a list price of $128.
   b. What is the total cost of the pair of boots?
      a. $8.83; $128.88       c. $0.88; $136.83
      b. $8.83; $136.83       d. $0.88; $128.88

50. While walking outside on a field trip 75%, or 15, of the students in the class wore jackets. Find the number of students in the entire class.
    a. \( \frac{15}{s} = \frac{75}{100} \); 20 students
    b. \( \frac{15}{s} = \frac{75}{100} \); 66 students
    c. \( \frac{s}{15} = \frac{75}{100} \); 11 students
    d. \( \frac{s}{15} = \frac{75}{100} \); 113 students

51. What percent of 40 is 24?
    a. \( 24 = p \cdot 40; 6\% \)
    b. \( 40 = p \cdot 24; 17\% \)
    c. \( 24 = p \cdot 40; 60\% \)
    d. \( 40 = p \cdot 24; 167\% \)

Use an equation to solve the problem.

52. 224 is 25% of what number?
    a. \( 224 \cdot 0.25 = w; 560 \)
    b. \( 224 = 0.25 \cdot w; 896 \)
    c. \( 224 \cdot 0.25 = w; 56 \)
    d. \( 224 = 0.25 \cdot w; 90 \)

53. Doug is a salesperson in a retail store and earns $75 per week plus 15% of his weekly sales. If Doug makes $555 one week, what are his sales that week?
    a. $3,200
    b. $627
    c. $566
    d. $1,914

54. 32 to 40
    a. an increase of 20%
    b. an increase of 25%
    c. an increase of 8%
    d. a decrease of 20%

55. The sales of KIDZ sneakers rise from $1.5 billion to $2.8 billion. Find the percent of increase. Round to the nearest tenth of a percent where necessary.
    a. 18.7%
    b. 0.5%
    c. 86.7%
    d. 46.4%

56. A department store purchases a dress for $80. To sell the dress to customers, the price is marked up by 19%. You hand the clerk $110. How much change will you get back?
    a. $30.00
    b. $95.20
    c. $14.80
    d. $15.20

Write the expanded form of the expression.

57. \( 5(2t - 5) \)
    a. \( 10t - 5 \)
    b. \( 7t - 25 \)
    c. \( 10t - 25 \)
    d. \(-15t \)

58. \(-6.4(-n + 2 + 4.9n) \)
    a. \(-6.4n \)
    b. \(-7.4n - 12.8 \)
    c. \(-24.96n + 2 \)
    d. \(-24.96n - 12.8 \)
59. \(-6 - 7(c + 10)\)
   a. \(-64 - 7c\)
   b. \(-76 - 7c\)
   c. \(4 - 13c\)
   d. \(-16 - 13c\)

60. \(9a - b - 2a - 10b\)
   a. \(-7a + 11b\)
   b. \(11a + 9b\)
   c. \(-11a - 9b\)
   d. \(7a - 11b\)

61. \(q + 12q\)
   a. \(-13q\)
   b. \(-11q\)
   c. \(11q\)
   d. \(13q\)

62. \(7d + 12 - 4d - 3\)
   a. \(19d - 7\)
   b. \(3d^2 + 9\)
   c. \(3d^2 + 9\)
   d. \(12d\)

63. To print tickets, a printer charges a $70 setup fee plus $1.25 per ticket. Write an algebraic expression for the cost of \(t\) tickets. What is the cost of 650 tickets?
   a. \(1.25t + 70; \$882.50\)
   b. \(1.25t + 70; \$812.50\)
   c. \(1.25t - 70; \$742.50\)
   d. \(1.25t - 70; \$882.50\)

64. Evaluate.
   \(3(10m + 3z + 12)\) for \(m = 3\) and \(z = 6\)
   a. 120
   b. 180
   c. 185
   d. 156

65. You have $20 to spend. You buy socks that cost $3 per pair.
   a. Write an expression for the amount of money you have left after buying \(s\) pairs of socks.
   b. How many pairs of socks did you buy if you have $8 left?
   a. \(20s - 3; 6\) pairs
   b. \(3s + 20; 4\) pairs
   c. \(20 - 3s; 4\) pairs
   d. \(20 - 3s; 3\) pairs

66. \(12w + 6\)
   a. \(6(2w + 1)\)
   b. \(6w(2 + 1)\)
   c. \(6(2w + 6)\)
   d. \(w(12 + 1)\)

67. \(280z - 25y - 30\)
   a. \(5(56z - 5y - 6)\)
   b. \(40(8z - 19y - 6)\)
   c. \(5(56z - 5y - 6)\)
   d. cannot be factored

68. The width of a rectangle is \(7.1x - 3.2\) feet and the length is \(1.5x + 6.4\) feet. Find the perimeter of the rectangle.
   a. \(8.6x + 3.2\) ft.
   b. \(17.2x + 6.4\) ft.
   c. \(17.2x + 3.2\) ft.
   d. \(8.6x + 6.4\) ft.

69. \(\frac{x}{2} + 2 = 12\)
   a. -20
   b. -22
   c. -26
   d. -28
Solve the inequality.

70. \( q - 12 \geq -13 \)
   a. \( q \geq 1 \)
   b. \( q \geq -1 \)
   c. \( q \geq 25 \)
   d. \( q \geq -25 \)

71. \( \frac{w}{-15} - 13 \geq 8 \)
   a. \( w \leq -75 \)
   b. \( w \geq 315 \)
   c. \( w \leq -315 \)
   d. \( w \geq 75 \)

72. \(-7p - 16 > 82 \)
   a. \( p < -9 \)
   b. \( p < -14 \)
   c. \( p > -14 \)
   d. \( p > 9 \)

73. \( \frac{1}{4} c < 8 \)
   a. \( c < -4 \)
   b. \( c < 32 \)
   c. \( c > 32 \)
   d. \( c > 12 \)

Write and solve an inequality.

74. An airline requires carry-on luggage to weigh at most 40 pounds. Your suitcase currently weighs 10 pounds. Write and solve an inequality to find the number of pounds \( p \) that are available for you to fill your suitcase with other items.
   a. \( p - 10 \leq 40; p \leq 50 \)
   b. \( 40 - p < 10; p < 30 \)
   c. \( p + 10 \geq 40; p \geq 30 \)
   d. \( 10 + p \leq 40; p \leq 30 \)

Solve the equation or inequality.

75. \( 78 = -2(m + 3) + m \)
   a. \( -28 \)
   b. \( -42 \)
   c. \( -72 \)
   d. \( -84 \)

76. \( \frac{5}{4} (x - 8) = \frac{2}{3} \)
   a. \( \frac{14}{15} \)
   b. \( \frac{1}{15} \)
   c. \( \frac{8}{15} \)
   d. \( \frac{2}{3} \)

77. \( 0.6(y + 3) = 4.8 \)
   a. \( 5 \)
   b. \( 3 \)
   c. \( 13 \)
   d. \( 1.8 \)

78. \( -3n + 4 - 2n > -36 \)
   a. \( n < 10 \)
   b. \( n > 8 \)
   c. \( n < 8 \)
   d. \( n > -8 \)

79. \( 6x + 1 = 2(x + 8) - 5x \)
   a. \( \frac{7}{9} \)
   b. \( \frac{2}{3} \)
   c. \( \frac{7}{9} \)
   d. \( \frac{2}{3} \)

80. The 9 officers of the Student Council are going on a trip to an amusement park. Each student must pay an entrance fee plus $5 for meals. The total cost of the trip is $225. Solve the equation \( 9(e + 5) = 225 \) to find the cost \( e \) of the entrance fee for each student.
   a. $20
   b. $45
   c. $25
   d. $14
Graph the linear equation.

81. \( y = -6x \)

a. 

b. 

c. 

d.
82. \( y = \frac{3}{4}x - 1 \)

a.

b.

c.

d.
83. Write the equation of the line.

\[ y = 5x \]
\[ y = -5x \]
\[ y = \frac{1}{5}x \]
\[ y = -\frac{1}{5}x \]

84. 

\[ y = -\frac{2}{5}x \]
\[ y = \frac{5}{2}x \]
\[ y = \frac{2}{5}x \]
\[ y = -\frac{5}{2}x \]

85. The data in the table are linear. Use the table to find the slope.

<table>
<thead>
<tr>
<th>x</th>
<th>2</th>
<th>4</th>
<th>6</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>y</td>
<td>1</td>
<td>-2</td>
<td>-5</td>
<td>-8</td>
</tr>
</tbody>
</table>

\[ \frac{3}{2} \]
\[ -\frac{3}{2} \]
\[ \frac{2}{3} \]
\[ \frac{2}{3} \]

86. The sum of three consecutive integers is 21. What are they? Use the variable \( n \) for the value of the smallest integer.

\[ n + 1 + n + 2 + n + 3 = 21; 5, 6, 7 \]
\[ n + n + 1 + n + 2 = 21; 6, 7, 8 \]
\[ n + n + 2 + n + 4 = 21; 5, 7, 9 \]
\[ n + n + 1 + n + 2 = 21; 8, 9, 10 \]
87. Work-Out Corner has 5 more than 3 times as many exercise bicycles as The Gym. Together they have 21 bicycles. Solve the equation \( x + 3x + 5 = 21 \) to find the number of bicycles at Work-Out Corner.
   a. 4 bicycles
   b. 17 bicycles
   c. 7 bicycles
   d. 25 bicycles

88. Jonah needs to purchase gallons of sports drink for his soccer team. While shopping, Jonah discovers the following prices for comparable gallons of sports drink. Which offers the best deal?

   **Choice A**
   6 gallons for $21.90

   **Choice B**

   ![Graph showing cost per gallon vs. number of gallons]

   a. Choice B is the better deal.
   b. Both deals are equal.
   c. Choice A is the better deal.

89. The points \((-9, -10)\) and \((-2, -5)\) form a proportional relationship. Find the slope of the line that passes through these two points.
   a. \(\frac{5}{7}\)
   b. \(\frac{7}{5}\)
   c. \(\frac{5}{7}\)
   d. \(-\frac{7}{5}\)
Find the slope of the line. Describe how one variable changes in relation to the other.

90.

A scale model of a car is 8 in. long. The actual car is 12 ft long. What is the scale of the model?

a. 1 in.: 1.5 in.
b. 1 in.: 18 in.
c. 1 in.: 18 ft
d. 1 in.: 24 in.

93. Which angles are adjacent angles?

94. Find the circumference of the circle with the given radius or diameter. Round to the nearest unit.
95. Find the radius of a circle with the circumference of 273 inches. Use 3.14 for \( \pi \). Round to the nearest tenth.
   a. 43.5 in.
   b. 136.7 in.
   c. 87 in.
   d. 5,944.7 in.

Find the area of the circle to the nearest tenth.

96.

\[
\text{area} = \pi r^2
\]

a. 44 m\(^2\)
   b. 153.9 m\(^2\)
   c. 615.8 m\(^2\)
   d. 38.5 m\(^2\)

97. Find the area of a circular table top with a diameter of 17 inches. Round to the nearest square inch.
   a. 908 in.\(^2\)
   b. 113 in.\(^2\)
   c. 227 in.\(^2\)
   d. 713 in.\(^2\)

98. When Tyson opens a cereal box and lays it out flat, he sees that both the top and the bottom of the box measure 3 inches by 9 inches. Both sides of the box measure 3 inches by 12 inches, and both the front and back of the box measure 9 inches by 12 inches. What is the surface area of the cereal box?
   a. 171 in.\(^2\)
   b. 342 in.\(^2\)
   c. 306 in.\(^2\)
   d. 234 in.\(^2\)

Find the surface area of the prism.

99.

100.

a. 330 m\(^2\)
   b. 386 m\(^2\)
   c. 176 m\(^2\)
   d. 193 m\(^2\)

101. A rectangular prism has a volume of 120 cm\(^3\). Its length is 5 cm and its width is 8 cm. What is the prism's height?
   a. 40 cm
   b. 3 cm
   c. 24 cm
   d. 15 cm
Find the volume of the solid to the nearest unit.

102.

![Triangular Prism]

- 13 ft
- 6 ft
- 7 ft

drawing not to scale

a. $546 \text{ ft}^3$

b. $1092 \text{ ft}^3$

c. $273 \text{ ft}^3$

d. $422 \text{ ft}^3$

103.

![Rectangular Prism]

- 6 cm
- 3 cm
- 3 cm
- 11 cm

a. $77 \text{ cm}^3$

b. $594 \text{ cm}^3$

c. $153 \text{ cm}^3$

d. $75 \text{ cm}^3$

104.

![Triangular Pyramid]

- 3 ft
- 6 ft
- 5 ft

drawing not to scale

- a. $180 \text{ ft}^3$
- b. $60 \text{ ft}^3$
- c. $120 \text{ ft}^3$
- d. $135 \text{ ft}^3$
The dot plot shows a random sample of number of miles completed in a session by two different running clubs. Compare the mean values of the dot plots. Round to the nearest tenth.

107. You notice the sign below at a mall.

<table>
<thead>
<tr>
<th>Shoe Bargain Corner</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Types</strong></td>
</tr>
<tr>
<td>Walking</td>
</tr>
<tr>
<td>Basketball</td>
</tr>
<tr>
<td>Cross-Trainer</td>
</tr>
<tr>
<td>Badminton</td>
</tr>
<tr>
<td>Baseball</td>
</tr>
</tbody>
</table>

a. How many different type/color combinations does the store offer?

b. Suppose the store has equal numbers of each shoe. You select a shoe at random. What is the probability of selecting a baseball shoe?
   a. \( \frac{5}{25} \)
   b. \( \frac{1}{5} \)
   c. \( \frac{10}{25} \)
   d. \( \frac{1}{5} \)

108. A coin is tossed. If heads appears, a spinner that can land on any number from 1 to 4 is spun. If tails appears, a second coin is tossed instead of spinning the spinner. What are the possible outcomes?
   a. H1 H2 H3 H4
   b. H1 H2 H3
   c. H1 H2 H3 H4 TH TT
   d. HH HT

You randomly select one marble from a barrel containing 9 blue, 10 yellow, 3 red, 8 green, and 2 purple marbles.
109. Find the experimental probability of randomly selecting a marble that is NOT yellow.
   a. \( \frac{11}{16} \)
   b. \( \frac{5}{8} \)
   c. \( \frac{17}{32} \)
   d. \( \frac{16}{17} \)

110. Below are the results of tossing a number cube 7 times. Find the experimental probability of tossing an even number.
   6 4 3 2 5 3 3
   a. \( \frac{3}{7} \)
   b. \( \frac{2}{7} \)
   c. \( \frac{1}{2} \)
   d. \( \frac{4}{7} \)

111. What is the probability of spinning a multiple of 4 on the spinner below?

112. The probability of rolling a 6 on a regular number cube is \( \frac{1}{6} \). If Jacob tosses a number cube 24 times, how many times would he expect to roll a 6?
   a. 2
   b. 4
   c. 3
   d. 5

113. Find the experimental probability of tossing heads.

   **Coin Toss Results**

<table>
<thead>
<tr>
<th>H = Heads</th>
<th>T = Tails</th>
</tr>
</thead>
<tbody>
<tr>
<td>T H T H T H T T</td>
<td></td>
</tr>
<tr>
<td>T T H T H T T</td>
<td></td>
</tr>
</tbody>
</table>

   a. \( \frac{5}{8} \)
   b. \( \frac{1}{3} \)
   c. \( \frac{2}{3} \)
   d. 2

114. Use arrow notation to write a rule for finding the coordinates of a point \( P(x, y) \) after a rotation of 270° about the origin.
   a. \( P(x, y) \rightarrow P'(x, 2y) \)
   b. \( P(x, y) \rightarrow P'(x, -y) \)
   c. \( P(x, y) \rightarrow P'(-x, -y) \)
   d. \( P(x, y) \rightarrow P'(y, -x) \)
115. Rectangle $ABCD$ has vertices $A(-3, 1), B(-3, 2), C(-2, 1),$ and $D(-2, 2)$. Graph $ABCD$ and its translation 2 units to the right and 4 units down.

a. 

b. 

c. 

d.

116. Write a rule to describe the translation of $\triangle ABC$ to $\triangle A'B'C'$.

a. $(x, y) \rightarrow (x - 3, y + 4)$  
b. $(x, y) \rightarrow (x + 3, y - 4)$  
c. $(x, y) \rightarrow (x + 4, y - 3)$  
d. $(x, y) \rightarrow (x - 4, y + 3)$
117. In the diagram $a \parallel b$. Use the diagram to answer the question. (Diagram not to scale.)

If $m\angle 4 = (3x)^\circ$ and $m\angle 8 = (x + 40)^\circ$, what is the measure of $\angle 4$?

a. $20^\circ$  
b. $60^\circ$  
c. $40^\circ$  
d. $120^\circ$

118. Is line $l$ parallel to line $m$? Explain.

Not drawn to scale

a. No; corresponding angles are not congruent.
b. Yes; alternate interior angles are congruent.
c. No; alternate interior angles are not congruent.
d. Yes; corresponding angles are congruent.
119. The dashed figure is a dilation of the original figure. Find the scale factor. Classify the dilation as an enlargement or a reduction.

```
y
10

-10 10

x

-10
```

a. scale factor $\frac{1}{3}$, reduction
b. scale factor 4, enlargement
c. scale factor 3, enlargement
d. scale factor $\frac{1}{4}$, reduction

120. Are the two figures congruent or not congruent?

```
a. Not congruent; the corresponding sides are not equal to the corresponding angles.
b. Congruent; the corresponding sides are congruent and the corresponding angles are congruent.
c. Congruent; the corresponding sides are equal to the corresponding angles.
d. Not congruent; the corresponding sides are not congruent.
```
121. Describe a way to show that \( \triangle RST \cong \triangle ABC \).

   a. A reflection over the x-axis  
   b. A translation \((x, y) \rightarrow (x - 5, y + 3)\)  
   c. A translation \((x, y) \rightarrow (x + 3, y - 5)\)  
   d. A reflection over the line \(x = y\).

122.

Find the values of \(x\), \(y\), and \(z\).

   a. \(x = 79^\circ; y = 101^\circ; z = 0^\circ\)  
   b. \(x = 101^\circ; y = 79^\circ; z = 42^\circ\)  
   c. \(x = 59^\circ; y = 121^\circ; z = 42^\circ\)  
   d. \(x = 101^\circ; y = 36^\circ; z = 42^\circ\)

123. The measures of two angles of a triangle are 75° and 62°. Find the measure of the third angle.

   a. 13°  
   b. 43°  
   c. 47°  
   d. 137°

124. Find the value of \(x\). The diagram is not to scale.

   a. 151  
   b. 45  
   c. 74  
   d. 135
125. For what value of \( x \) are \( \triangle XYZ \) and \( \triangle JKL \) similar?

\[ X \quad J \quad K \]
\[ (3x) \quad 54^\circ \]
\[ Y \quad Z \quad L \]

Not drawn to scale

a. \( x = 12 \)
b. \( x = 18 \)
c. \( x = 36 \)
d. \( x = 54 \)

126. Find the surface area of the sphere to the nearest square unit. Use a calculator.

\[ \text{Volume } V = 150.72 \]

Height = ?

a. 2.7 cm
b. 12.56 cm
c. 4 cm
d. 1.3 cm

127. What is the surface area of the can of soup?

- a. 157.07 cm\(^2\)
- b. 628.32 cm\(^2\)
- c. 164.93 cm\(^2\)
- d. 282.74 cm\(^2\)

128. Find the missing dimension. Round to the nearest unit. Use 3.14 for \( \pi \).

\[ \text{Height } h, \quad \text{Radius } r = 6 \text{ cm} \]

- a. 2.7 cm
- b. 12.56 cm
- c. 4 cm
- d. 1.3 cm
Find the volume of the cone to the nearest cubic unit. Use a calculator.

129.

![Diagram of a cone with dimensions 9 in. and 4 in.]

a. 1,810 in.³
b. 151 in.³
c. 452 in.³
d. 276 in.³

130. Find the volume of the cylinder to the nearest cubic foot. Use a calculator.

![Diagram of a cylinder with dimensions 5 ft and 3 ft]

a. 236 ft³
b. 942 ft³
c. 75 ft³
d. 251 ft³

131. What is the approximate volume of a sphere with a diameter of 4 centimeters?

a. 268 cm³
b. 134 cm³
c. 75 cm³
d. 33.5 cm³