

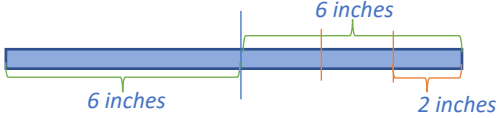
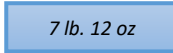
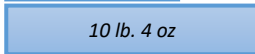
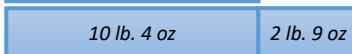

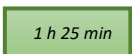

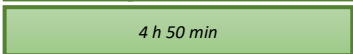
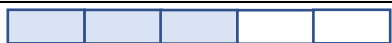

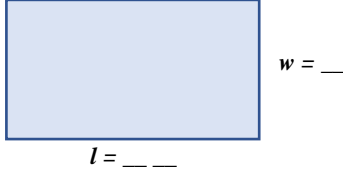

Math Challenge #12


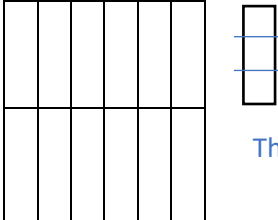
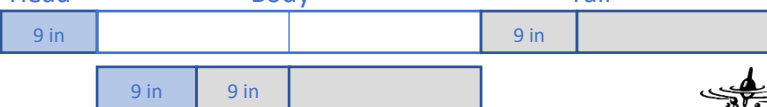




First Name: _____	Last Name: _____	Grade: _____
Teacher: _____	Parent's email: _____	

Measurements

Kinder & First Grade: solve at least 3 problems.
Second & Third Grade: solve at least 7 problems.
Fourth Grade and above: solve at least 12 problems.

	<i>Answer</i>																				
<p>1. There are four shapes in the figure below. Each shape has different sizes.</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="padding: 5px;">Column 1</th> <th style="padding: 5px;">Column 2</th> <th style="padding: 5px;">Column 3</th> <th style="padding: 5px;">Column 4</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">Row 1 </td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> </tr> <tr> <td style="padding: 5px;">Row 2 </td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> </tr> <tr> <td style="padding: 5px;">Row 3 </td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> </tr> <tr> <td style="padding: 5px;">Row 4 </td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> </tr> </tbody> </table> <p style="margin-left: 40px;">a. In which row and column is the smallest square? b. In which row and column is the second largest circle? c. In which row and column is the largest triangle?</p>	Column 1	Column 2	Column 3	Column 4	Row 1 				Row 2 				Row 3 				Row 4 				<p>a. 1st row, 3rd col (yellow) b. 4th row, 3rd col (blue) c. 1st row, 1st col (yellow)</p>
Column 1	Column 2	Column 3	Column 4																		
Row 1 																					
Row 2 																					
Row 3 																					
Row 4 																					
<p>2. Kayla's houseplant grew 4 inches since last month. If her houseplant was 9 inches tall last month, how tall is it now? <u>9 inches + 4 inches = 13 inches</u></p>	<p style="color: #0070C0;">13 [inches]</p>																				
<p>3. Find the weight of the bowling ball and the two soda bottles on the scales by adding the weights of each figure.</p> <p> = 2 pounds = 3 pounds</p> <p>a. </p> <p style="margin-left: 40px; color: #0070C0;">The bowling ball = 2 + 2 + 3 = 7 lbs. The weight of the bowling ball is ___ pounds. The weight of the two soda bottles is ___ pounds.</p> <p>b. </p> <p style="margin-left: 40px; color: #0070C0;">The two bottles of soda = (3 + 3 + 2) = 8 lbs.</p>	<p>a. 7 [lbs. or pounds] b. 8 [lbs. or pounds]</p>																				

4.		2 [inches]
5.	30 ÷ 4 = 7 R 2. You can make 7 bags of popcorn.	7 [bags]
6.	<p>Watermelon 1 </p> <p>Watermelon 2 </p> <p>Watermelon 3 </p> <p>7 pounds 12 ounces + 10 pounds 4 ounces + 10 pounds 4 ounces + 2 pounds 9 ounces = 30 pounds 13 ounces.</p> 	30 lbs. 13 oz.
7.	<p>Swimming </p> <p>Biking </p> <p>Running </p> <p>Total time to complete the race: 1 hour 25 min + 6 hours 25 min + 4 hours 50 min = 12 hours 40 min.</p>	12 h 40 minutes
8.	Think of all possible dimensions of a rectangle that has a perimeter of 24 cm, then find the largest area. 6×6 = 36 cm² .	36 cm ²
9.	 <p>7.5 ÷ 3 = 2.5 km Distance to reach Ben's house (2 units): 2.5 km + 2.5 km = 5 km.</p>	5 km
10.	<p>If it took Nala 1 hour to go 6 km, it would take her 1 ½ hours to get there. So, she needs to leave at 10:30 a.m.</p> <p>If it took Ralph 1 hour to go 4 km, it would take 2 hours to go 8 km. He had 1 km to go, and it would take him an extra 15 minutes to get there. So, altogether it would take him 2 hours and 15 mins to get there, and he would therefore have to leave at 9:45 a.m.</p>	<p>Nala: 10:30 a.m.</p> <p>Ralph: 9:45 a.m.</p>
11.	 <p>The weight of 1 marble = (1100 – 470) ÷ 6 = 105 grams The weight of two marbles = 105 + 105 = 210 grams The weight of the jar and 4 marbles in it = 1100 – 210 = 890 grams</p>	890 [grams]
12.	<p>Try 7×98 = 686 sq units, 8×97 = 776 sq units and 9×87 = 783 sq units. The largest possible area is 783 sq units.</p> 	783 [sq units or unit ²]
13.	<p>Bob has 7 eggs, so let's see whether he has enough of cake mix for 7 cakes. 10 ÷ 1 ⅓ = 7 ½. So, there is enough to make 7 cakes. 10 – 7 × 1 ⅓ = 2/3 cups of cake mix will be left.</p> 	2/3 [cups]

14.		<p>The amount of copper used for 1 nickel is $75/100 \times 5 = 3.75$ grams $1 \text{ kg} = 1000 \text{ grams}$, $1000 \div 3.75 = 266 \frac{2}{3}$, so, 266 coins can be made. $1000 - 266 \times 3.75 = 2.5 \text{ grams} = 2500 \text{ milligrams}$ of copper left. 266 nickels can be made with 2500 milligrams left over.</p>	2500 [mg]
15.	<p>1 mile = 5280 ft = 63360 inches Lorna will make $63360 \div 18 = 3520$ steps. If Jay is also doing 3520 steps, he will cover $3520 \times 14 = 49280$ inches. Jay will be $63360 - 49280 = 14080$ inches behind Lorna. Now let's convert inches into feet and inches: $14080 \div 12 = 1173 \frac{1}{3} \text{ ft} = \mathbf{1173 \text{ ft } 4 \text{ inches}}$</p>		1173 feet and 4 inches
16.		<p>Notice the connection in a small rectangle: one length equals 3 widths. Perimeter of the small rectangle is 8 widths = 48, so, width of the small rectangles is 6 cm. This means the side of the square equals $6 \times 6 = 36 \text{ cm}$. The area of the square $36 \times 36 = \mathbf{1296 \text{ cm}^2}$</p>	1296 cm ²
17.	<p>Draw it out.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>Head</p>  </div> <div style="text-align: center;"> <p>Tail</p> </div> </div> <p>Half of the body is 18 inches; the whole body is 36 inches; the tail is $9 + 18 = 27$ inches. Fish was $9 + 36 + 27 = 72 \text{ inches} = \mathbf{6 \text{ feet}}$.</p> 		6 feet
18.	<p>1st side </p> <p>2nd side </p> <p>3rd side </p> <p style="text-align: right;">} 76 cm</p>	<p>$76 + 4 = 80 \text{ cm}$ stand for 5 identical units. So, the 1st side is $80 \div 5 = 16 \text{ cm}$; 2nd side 32 cm, 3rd side = 28 cm The ratio of the 2nd side to the 3rd side is $32 : 28$. After simplifying, it is 8 : 7.</p>	8 to 7 or 8:7 or 8/7

Solution is available on March 31, 2023
www.mathinaction.org