
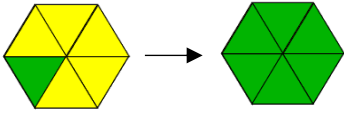
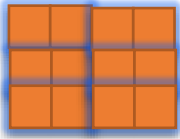
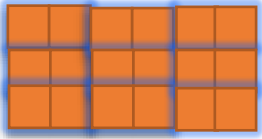
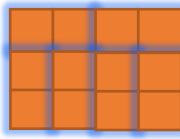
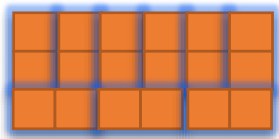

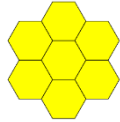
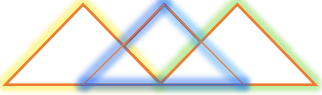

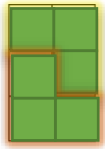
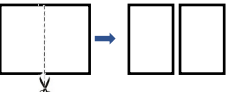
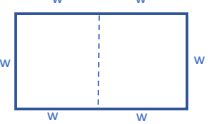
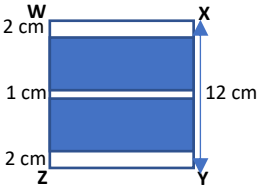
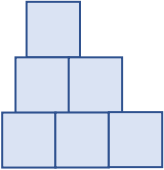
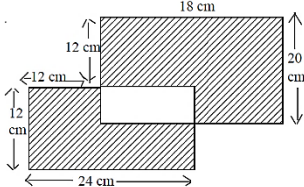
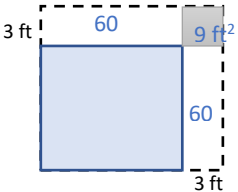
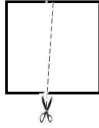
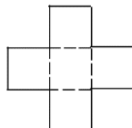


First Name: _____	Last Name: _____	Grade: _____
Teacher: _____	Parent's email: _____	

2D Shapes

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>
1. If you subtract the number of sides on a triangle from the number of sides on a pentagon, you will get ____ . $5 - 3 = 2$	2
2.  How many triangles would it take to cover the hexagon without overlapping? 	6
3. Some possible solutions: By drawing <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>Grid A</p>  </div> <div style="text-align: center;"> <p>Grid B</p>  </div> <div style="text-align: center;"> <p>Grid A</p>  </div> <div style="text-align: center;"> <p>Grid B</p>  </div> </div> <p>By calculation. Grid A = $12 \div 2 = 6$ tiles; grid B = $18 \div 2 = 9$ tiles.</p>	<p><i>Grid A = 6</i></p> <p><i>Grid B = 9</i></p>
4. How many hexagons would it take to cover the shape below without overlapping?  	7
5.   $3 + 2 = 5$	5
6. We know that 2 by 3 areas can be covered with 2 tiles, as shown below: There are 6 of these 2 by 3 squares, so $6 \times 2 = 12$ Another way: Total squares on the grid: $12 + 12 + 12$ or $3 \times 12 = 36$ Number of tiles needed to cover the grid: $36 \div 3 = 12$. 	12
7. $6 + 8 + 6 + 8 = 28$ cm	28 [cm]
8.  The new piece of paper: 32 cm by 16 cm. The perimeter is $32 + 16 + 32 + 16 = 96$ cm	96 [cm]

9.		<p>Let's find the dimensions of the rectangle.</p> <p>Length is twice the width, $6w = 36$, width is 6 cm, length 12</p> <p>Rectangle is attached to the octagon by its shorter side.</p> <p>Thus, the side of the regular octagon is 6 cm.</p> <p>$6 \times 8 = 48$ cm is the perimeter of the octagon</p>	48 [cm]
10.		<p>The total area of the square is $12 \times 12 = 144$ cm².</p> <p>The unshaded regions = $5 \times 12 = 60$ cm².</p> <p>The remaining = $144 - 60 = 84$ cm²</p>	84 [cm ²]
11.		<p>Opposite sides of the rectangles (and squares) are parallel and equal. To make an easy calculation, you can take those parts of the squares and shift them to the outside border. They will create a new square with $3 \times 6 = 18$ inches on the side (red border on the picture). The perimeter of the red border is the same as the perimeter of the original figure. $18 \times 4 = 72$ inches</p>	72 [inches]
12.		<p>The area of larger shaded rectangle is 18 cm \times 20 cm = 360 cm², while the area of the smaller shaded rectangle is 12 cm \times 24 cm = 288 cm².</p> <p>The sides of the unshaded rectangle are 8 cm by 12 cm ($20 - 12 = 8$, $24 - 12 = 12$).</p> <p>Each rectangle loses $8 \times 12 = 96$ cm² for a total of $96 \times 2 = 192$ cm².</p> <p>This makes the total shaded area $360 + 288 - 192 = 456$ cm².</p>	456 [cm ²]
13.		<p>The corner square is 3 by 3 or 9 ft².</p> <p>The rest of the new or added space is 120 square feet. Each rectangle is 60 sq. ft. with dimensions 3 by 20.</p> <p>This gives the square a side of 20 feet.</p> <p>With a 20 by 20 square, we have total area 400 square feet.</p>	400 [ft ²]
14.		<p>Note that the straight cut does not necessarily a 90 degree cut. If we add two perimeters of the shapes that were created, we will get $12 + 14 = 26$ inches, and the length of the cut is counted twice in the perimeters. That is, the sum of the perimeters of the two pieces is the perimeter of the 4 by 4 inch square plus twice the length of the cut.</p> <p>So, the answer is 5 inches as $12 + 14 = 4 \times 4 + 2 \times 5$.</p>	5 [inches]
15.	<p>Since the area of a circle is pi times the radius squared (πr^2).</p> <p>$\sqrt{64} = 8$ or $8^2 = 64$ and $\sqrt{9} = 3$ or $3^2 = 9$.</p> <p>The original circle has a radius of 8 and the new circle has a radius of 3 . It was reduced by 5.</p>	5	
16.	<p>Since there are 64 small squares (8 by 8 small squares), the original side of the square must be: $8 \times 3 = 24$ inches. Thus, the perimeter is $24 \times 4 = 96$ inches.</p>	96 [inches]	
17.	<p>They took $\frac{1}{3} + \frac{1}{4} + \frac{1}{5} + \frac{1}{6} = \frac{57}{60}$</p> <p>$\frac{57}{60}$ part of the whole cake was eaten, so $\frac{3}{60}$ remained.</p> <p>Full circle is 360 degrees. $\frac{3}{60}$ of 360° is 18°.</p>	18 [degrees]	
18.		<p>Each of the congruent squares has area $1/5 \times (180)$ or 36 square centimeters. The edge of each square is therefore 6 cm. The volume of the box becomes $6 \times 6 \times 6$ or 216 cm³.</p>	216 [cm ³]