
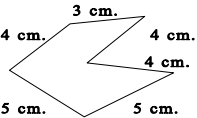
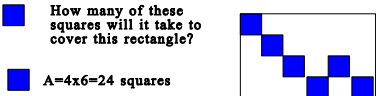
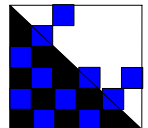
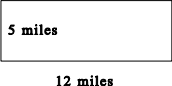
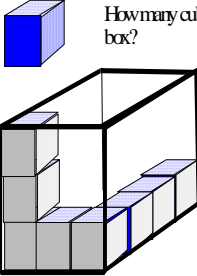
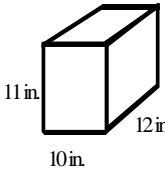


### 3-4-3 Area and Perimeter

<p><b>Perimeter</b> is measuring around the outside of something. Perimeter requires the addition of all sides of the shape. Perimeter is one dimensional. Examples of perimeter are floorboard, frame and fence measurements.</p> <div style="text-align: center;">  <p>10 ft.</p> <p>15 ft.</p> <p><math>P=10+10+15+15=50</math> ft</p> </div> <div style="text-align: center;">  <p>3 cm.</p> <p>4 cm. 4 cm.</p> <p>5 cm. 5 cm.</p> <p><math>P=3+4+4+5+5+4=25</math> cm.</p> </div> <p><math>P_{rectangle} = l + l + w + w</math></p>	<p><b>Area</b> is counting how many squares it takes to cover a shape. This requires multiplication. Area is two dimensional, flat and covers the object. Examples of area are carpet, lawn and wrapping paper measurement.</p> <p><math>A_{parallelogram} = bh</math></p> <div style="text-align: center;">  <p>How many of these squares will it take to cover this rectangle?</p> <p><math>A=4 \times 6=24</math> squares</p> </div> <div style="text-align: center;">  <p>How many of these squares will it take to cover this triangle?</p> <p><math>A=6 \times 6 / 2=18</math> squares</p> </div> <div style="text-align: center;">  <p>5 miles</p> <p>12 miles</p> <p><math>A=12 \times 5=60</math> miles</p> </div> <p><math>A_{triangle} = \frac{bh}{2}</math></p>	<p><b>Volume</b> is measuring how much it takes to fill a container. This requires multiplication of three numbers. Examples of volume are air in the room, popcorn filler in a box, and sugar cubes in a stack.</p> <p><math>V_{rectangularsolid} = lwh</math></p> <div style="text-align: center;">  <p>How many cubes will fill this box?</p> <p><math>V=3 \times 3 \times 4=36</math> cubes</p> </div> <div style="text-align: center;">  <p>11 in.</p> <p>12 in.</p> <p>10 in.</p> <p><math>V=10 \times 11 \times 12=1320</math> cu in.</p> </div>
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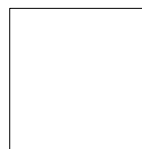
**Quadrilaterals** are figures with four sides. To find the perimeter add all four sides. Trapezoids, parallelograms, rectangles and squares are all quadrilaterals. Squares, rhombus and rectangles are all **parallelograms**. A square is a rhombus.



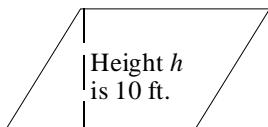
Length  $l$  is 6 cm

**Rectangle** - 90° angles and two sets of parallel lines.

$A = 5 \times 6 = 30$  sqcm  
 $P = 5 + 5 + 6 + 6 = 22$  cm



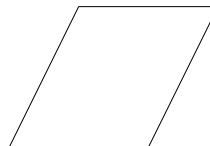
**Square** - Two sets of equal parallel lines. 90° angles



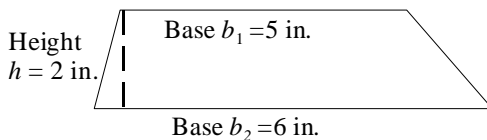
Base  $b$  is 12 ft.

**Parallelogram** - Two sets of parallel lines.

$A = 10 \times 12 = 120$  sqft  
 $P = 10 + 10 + 12 + 12 = 44$  ft



**Rhombus** - Two sets of equal parallel lines.



Height  $h = 2$  in.

Base  $b_1 = 5$  in.

Base  $b_2 = 6$  in.

**Trapezoid** - One sets of parallel lines.

$A = (b_1 + b_2)h / 2 = (5 + 6)2 / 2 = 11$  sq in