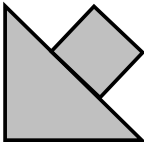
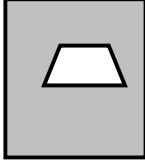


Composite Area

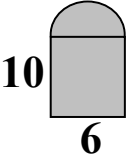
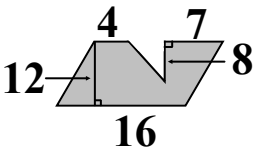
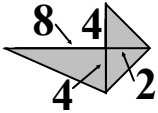
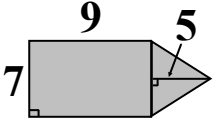
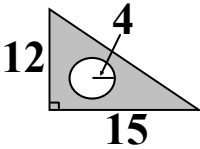
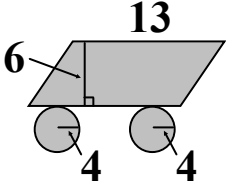
Composite Area is the area of two or more shapes combined. Basically, to determine the composite area, determine the area of every shape in the composite figure and then add or subtract their areas to find your total.

<p>If you look at the picture and see basic figures that are stuck together to make a bigger shape, then add.</p> <p>Example:</p> <div style="text-align: center;">  </div> <p style="text-align: center;"><i>Composite Area = Triangle Area + Parallelogram Area</i></p>	<p>If you look at the picture and see a hole or a piece missing, then subtract.</p> <p>Example:</p> <div style="text-align: center;">  </div> <p style="text-align: center;"><i>Composite area = Parallelogram Area - Trapezoid Area</i></p>
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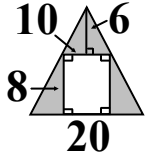
Watch out for half-circles. The area of a half-circle will not be the same as the area of a circle.—it's half as big!

$$\text{Half Circle Area} = \frac{\text{Circle Area}}{2}$$

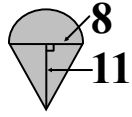
Determine the shaded area. For problems involving circles, leave the area in terms of pi.

<p>EXAMPLE</p> <div style="text-align: center;">  </div> <p style="text-align: center;"><i>This is two shapes stuck together: a parallelogram and a half-circle. I will add their areas.</i></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 50%;">Parallelogram</th> <th style="width: 50%;">Half-Circle</th> </tr> <tr> <td>$A = bh$</td> <td>Circle $A = \pi r^2$</td> </tr> <tr> <td>$b = 6, h = 10$</td> <td>Half $\rightarrow A = \frac{\pi r^2}{2}$</td> </tr> <tr> <td>$A = (6)(10)$</td> <td>radius is 3,</td> </tr> <tr> <td>$A = 60$</td> <td>because the total distance across the circle is 6.</td> </tr> <tr> <td></td> <td>$A = \frac{\pi(3)^2}{2} = \frac{9\pi}{2}$</td> </tr> <tr> <td></td> <td>$A = 4.5\pi$</td> </tr> </table> <p style="text-align: center;"><i>Composite area = $60 + 4.5\pi$</i></p> <p style="text-align: center;"><i>I can't simplify this and still leave it in terms of pi, so I'm done.</i></p>	Parallelogram	Half-Circle	$A = bh$	Circle $A = \pi r^2$	$b = 6, h = 10$	Half $\rightarrow A = \frac{\pi r^2}{2}$	$A = (6)(10)$	radius is 3,	$A = 60$	because the total distance across the circle is 6.		$A = \frac{\pi(3)^2}{2} = \frac{9\pi}{2}$		$A = 4.5\pi$	<p>EXAMPLE</p> <div style="text-align: center;">  </div> <p style="text-align: center;"><i>This looks like a parallelogram with a triangle cut out of it. I will subtract.</i></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 50%;">Parallelogram</th> <th style="width: 50%;">Triangle</th> </tr> <tr> <td>$A = bh$</td> <td>$A = \frac{bh}{2}$</td> </tr> <tr> <td><i>The bases are the same length, so the side with the part missing is still 16.</i></td> <td>$h = 8$</td> </tr> <tr> <td>$b = 16, h = 12$</td> <td><i>The base length is what's left out of 16, once 4 & 7 are gone.</i></td> </tr> <tr> <td>$A = (16)(12)$</td> <td>$b = 16 - (4 + 7)$</td> </tr> <tr> <td>$A = 192$</td> <td>$b = 16 - 11 = 5$</td> </tr> <tr> <td></td> <td>$A = \frac{(5)(8)}{2}$</td> </tr> <tr> <td></td> <td>$A = \frac{40}{2} = 20$</td> </tr> </table> <p style="text-align: center;"><i>Composite area = $192 - 20 = 172$</i></p>	Parallelogram	Triangle	$A = bh$	$A = \frac{bh}{2}$	<i>The bases are the same length, so the side with the part missing is still 16.</i>	$h = 8$	$b = 16, h = 12$	<i>The base length is what's left out of 16, once 4 & 7 are gone.</i>	$A = (16)(12)$	$b = 16 - (4 + 7)$	$A = 192$	$b = 16 - 11 = 5$		$A = \frac{(5)(8)}{2}$		$A = \frac{40}{2} = 20$	<p>EXAMPLE</p> <div style="text-align: center;">  </div> <p style="text-align: center;"><i>This is either triangles added up, or a kite with a triangle missing. I'm going to treat it like a set of triangles. (the 8x4 triangle on the left, and the (4+4)x2 triangle on the right)</i></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 50%;">Triangle</th> <th style="width: 50%;">Triangle</th> </tr> <tr> <td>$A = \frac{bh}{2}$</td> <td>$A = \frac{bh}{2}$</td> </tr> <tr> <td>$b = 8, h = 4$</td> <td>$b = 4 + 4$</td> </tr> <tr> <td>$A = \frac{(8)(4)}{2}$</td> <td>$b = 8, h = 2$</td> </tr> <tr> <td>$A = \frac{32}{2} = 16$</td> <td>$A = \frac{(8)(2)}{2}$</td> </tr> <tr> <td></td> <td>$A = \frac{16}{2} = 8$</td> </tr> </table> <p style="text-align: center;"><i>Composite area = $16 - 8 = 8$</i></p>	Triangle	Triangle	$A = \frac{bh}{2}$	$A = \frac{bh}{2}$	$b = 8, h = 4$	$b = 4 + 4$	$A = \frac{(8)(4)}{2}$	$b = 8, h = 2$	$A = \frac{32}{2} = 16$	$A = \frac{(8)(2)}{2}$		$A = \frac{16}{2} = 8$
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<p>1.</p> <div style="text-align: center;">  </div>	<p>2.</p> <div style="text-align: center;">  </div>	<p>3.</p> <div style="text-align: center;">  </div>																																										

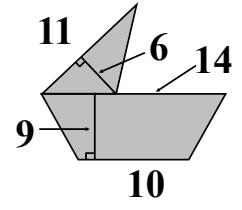
4.



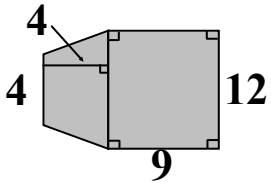
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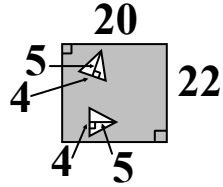
6.



7.



8.



9.

