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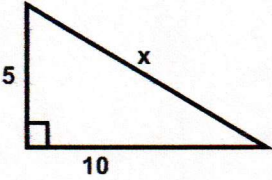
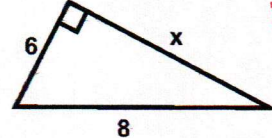
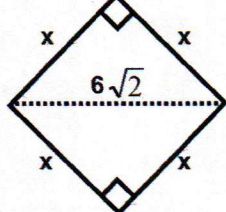
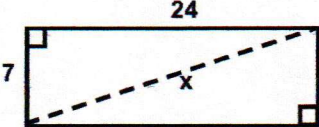
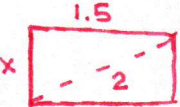
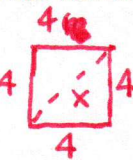
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Unit 4 Bundle 11 Test Review

PART 1. PYTHAGOREAN THEOREM

For each of the following, find the value of 'x' in simplest radical form.

<u>5√5</u> 1.	 $a^2 + b^2 = c^2$ $5^2 + 10^2 = c^2$ $25 + 100 = c^2$ $125 = c^2$ $c = \sqrt{125}$ $\begin{array}{c} \diagup \quad \diagdown \\ 25 \quad 5 \\ \diagdown \quad \diagup \\ 5 \quad 5 \end{array}$ $c = 5\sqrt{5} \approx 11.18$
<u>2√7</u> 2.	 $x^2 + 6^2 = 8^2$ $x^2 + 36 = 64$ $-36 \quad -36$ $x^2 = 28$ $x = \sqrt{28}$ $\begin{array}{c} \diagup \quad \diagdown \\ 7 \quad 4 \\ \diagdown \quad \diagup \\ 2 \quad 2 \end{array}$ $x = 2\sqrt{7} \approx 5.29$
<u>x = 6</u> 3.	 $x = 6$
<u>x = 25</u> 4.	 $7^2 + 24^2 = x^2$ $49 + 576 = x^2$ $x^2 = 625$ $x = 25$
<u>x ≈ 1.3</u> 5.	<p>A rectangle has a diagonal of 2 cm and a length of 1.5 cm. Find its width to the nearest tenth.</p>  $x^2 + 1.5^2 = 2^2$ $x^2 + 2.25 = 4$ $x^2 = 1.75$ $x \approx 1.32$
<u>x = 4√2</u> 6.	<p>Find the length of a diagonal of a square with a perimeter of 16.</p>  $4^2 + 4^2 = x^2$ $16 + 16 = x^2$ $32 = x^2$ $x = \sqrt{32}$ $\begin{array}{c} \diagup \quad \diagdown \\ 4 \quad 8 \\ \diagdown \quad \diagup \\ 2 \quad 2 \quad 4 \quad 2 \\ \diagdown \quad \diagup \\ 2 \quad 2 \end{array}$ $x = 4\sqrt{2}$

PART 2. CONVERSE OF THE PYTHAGOREAN THEOREM

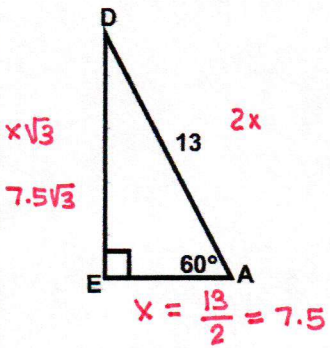
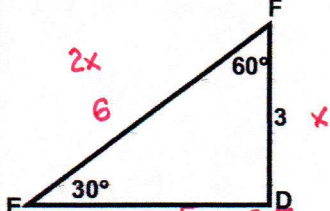
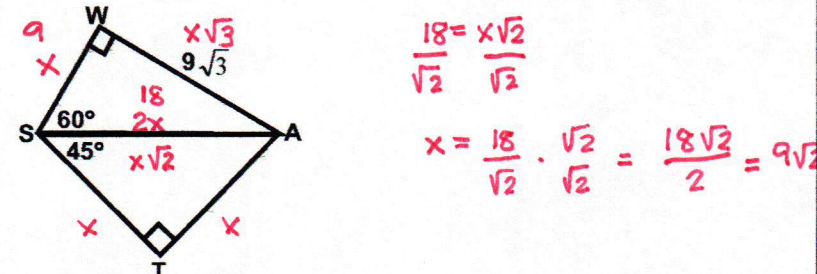
Tell whether a triangle with sides of given lengths can be formed, and if so, classify it as *acute*, *right*, or *obtuse*.

<p>7. Can a triangle be formed?</p> <p>YES or NO</p> <p>Classification: <i>acute</i></p>	<p>Side lengths: 9, 9, and 3</p> $\begin{array}{l} 3^2 + 9^2 \quad 9^2 \\ 9 + 81 \quad 81 \\ 90 > 81 \end{array}$
<p>8. Can a triangle be formed?</p> <p>YES or NO</p> <p>Classification: <i>right</i></p>	<p>Side lengths: 8, $8\sqrt{3}$, 16</p> $\begin{array}{l} 8^2 + 8\sqrt{3}^2 \quad 16^2 \\ 64 + 192 \quad 256 \\ 256 = 256 \end{array}$
<p>9. Can a triangle be formed?</p> <p>YES or NO</p> <p>Classification:</p>	<p>Side lengths: 11, 11, 15</p> $\begin{array}{l} 11^2 + 11^2 \quad 15^2 \\ 121 + 121 \quad 225 \\ 242 < 225 \end{array}$
<p>10. Can a triangle be formed?</p> <p>YES or NO</p> <p>Classification:</p>	<p>Side lengths: 8, 14, 22</p> <p>$8 + 14 = 22$ not bigger than 22</p>

PART 3. 45°-45°-90° & 30°-60°-90° TRIANGLES

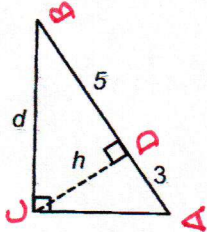
For each of the following, find the indicated lengths.

<p>11. FI = <u>6√2</u></p> <p>BI = <u>6</u></p>	
<p>12. CI = <u>10</u></p> <p>IA = <u>10</u></p>	

<p>13. DE = <u>7.5√3</u></p> <p>EA = <u>7.5</u></p>	 <p>$x = \frac{13}{2} = 7.5$</p>
<p>14. FE = <u>6</u></p> <p>ED = <u>3√3</u></p>	
<p>15. SW = <u>9</u></p> <p>SA = <u>18</u></p> <p>ST = <u>9√2</u></p> <p>TA = <u>9√2</u></p>	 <p>$x = \frac{18}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{18\sqrt{2}}{2} = 9\sqrt{2}$</p>

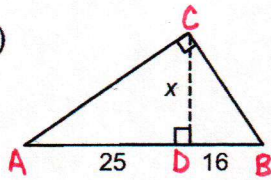
Find the values of the variables.

$CB^2 = DB \cdot AB$
 $d^2 = 5 \cdot 8$
 $d^2 = 40$
 $d = \sqrt{40}$
 $\begin{matrix} 4 & 10 \\ / & / \\ 2 & 2 & 2 & 5 \end{matrix}$

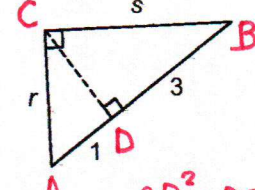
16) 

$CD^2 = AD \cdot DB$
 $h^2 = 3 \cdot 5$
 $h^2 = 15$
 $h = \sqrt{15}$

$d = 2\sqrt{10}$

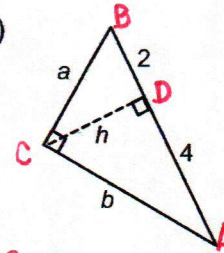
17) 

$CD^2 = AD \cdot DB$
 $x^2 = 25 \cdot 16$
 $x^2 = 400$
 $x = 20$

18) 

$AC^2 = AD \cdot AB$
 $r^2 = 1 \cdot 4$
 $r^2 = 4$
 $r = 2$

$CB^2 = DB \cdot AB$
 $s^2 = 3 \cdot 4$
 $s^2 = 12$
 $s = \sqrt{12} = 2\sqrt{3}$

19) 

$CB^2 = DB \cdot AB$
 $a^2 = 2 \cdot 6$
 $a^2 = 12$
 $a = \sqrt{12} = 2\sqrt{3}$

$AC^2 = AD \cdot AB$
 $b^2 = 4 \cdot 6$
 $b^2 = 24$
 $b = \sqrt{24} = 2\sqrt{6}$

$CD^2 = AD \cdot DB$
 $h^2 = 4 \cdot 2$
 $h^2 = 8$
 $h = \sqrt{8} = 2\sqrt{2}$