

WS - Pythagorean Theorem and Radicals

Name Key
Date _____ Period _____

All answers should be exact. Radicals should be in simplest form.

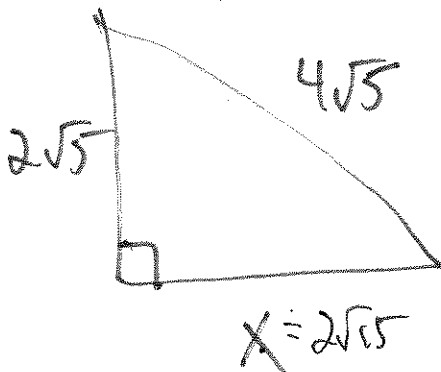
1. $(4\sqrt{3})^2$
 $4^2 \cdot \sqrt{3}^2$
 $16 \cdot 3 = 48$

2. $(7\sqrt{2})^2$
 $7^2 \cdot \sqrt{2}^2$
 $49 \cdot 2 = \boxed{98}$

3. $(x+5)^2$
 $(x+5)(x+5)$
 $x^2 + 10x + 25$

4. $(2x-3)^2$
 $4x^2 - 12x + 9$

5. The legs of a triangle are $2\sqrt{5}$ m and x . The longest side is $4\sqrt{5}$ m. What would x have to be for the triangle to be a right triangle? What is the perimeter of the triangle?



$$a^2 + b^2 = c^2$$

$$(2\sqrt{5})^2 + x^2 = (4\sqrt{5})^2$$

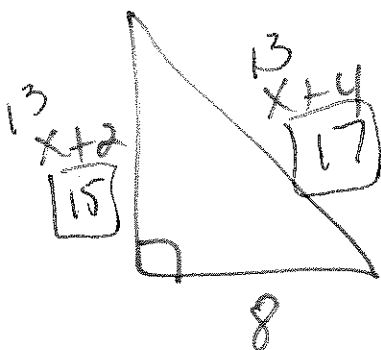
$$20 + x^2 = 80$$

$$\sqrt{x^2} = \sqrt{60}$$

$$x = 2\sqrt{15}$$

$$\boxed{6\sqrt{5} + 2\sqrt{15}}$$

6. The longest side of a triangle has length $(x+4)$. The other sides have lengths $(x+2)$ and 8. Find the value of x that would make the triangle a right triangle and give the length of each side.



$$a^2 + b^2 = c^2$$

$$(x+2)^2 + 8^2 = (x+4)^2$$

$$x^2 + 4x + 4 + 64 = x^2 + 8x + 16$$

$$4x + 68 = 8x + 16$$

$$52 = 4x$$

$$13 = x$$