Geometry

Name Notes

ID: 3

Solving Equations w/Square Roots NOTES

Date_____ Period____

Solve each equation by taking square roots.

1) $m^2 = 9$

$(m)^2 = 9$ $(-3)^2 = 9$ $\sqrt{m^2} = \sqrt{9}$

$(3)^2 = 9$ $m = \pm 3$

$m = 3$ $m = -3$

2) $b^2 = 100$

$\sqrt{b^2} = \sqrt{100}$

$b = \pm 10$

3) $x^2 = 0$

$n = 0$

4) $x^2 = 49$

$\sqrt{x^2} = \sqrt{49}$

$x = \pm 7$

5) $n^2 = 4$

$n = \pm 4$

6) $n^2 = 81$

$n = \pm 9$

7) $r^2 = 25$

$r = \pm 5$

8) $\frac{16x^2}{16} = \frac{81}{16}$ Get X alone first.

$x^2 = \frac{81}{16}$

$\sqrt{x^2} = \frac{\sqrt{81}}{\sqrt{16}}$

$x = \pm \frac{9}{4}$

9) $\frac{4k^2}{4} = \frac{9}{4}$ $\sqrt{k^2} = \frac{\sqrt{9}}{\sqrt{4}}$

$k = \pm \frac{3}{2}$

10) $a^2 - 5 = 4$

$+5 \quad +5$

$a^2 = 9$ $\sqrt{a^2} = \sqrt{9}$

$a = \pm 3$

11) $n^2 + 2 = 51$

$-2 \quad -2$

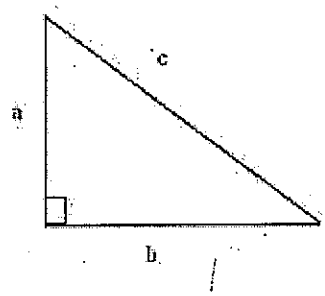
$n^2 = 49$

$\sqrt{n^2} = \sqrt{49}$

$n = \pm 7$

12) $v^2 + 3 = 19$

Identify the parts of the right triangle



a: leg
b: leg
c: hypotenuse

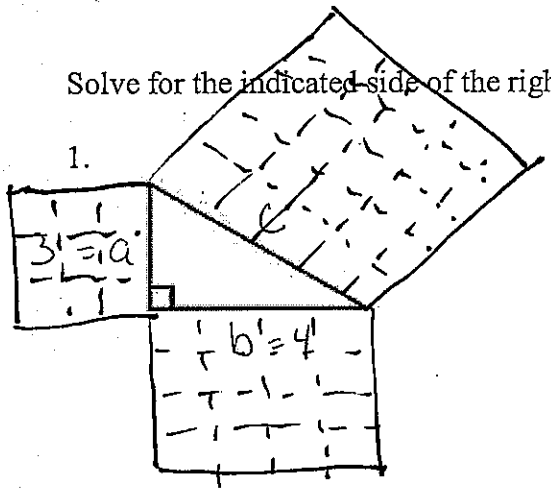
c is always the hypotenuse

The hypotenuse is always across from the right angle
the Hypotenuse is always the longest side.

The Famous Pythagorean Theorem:

Solve for the indicated side of the right triangles:

1.



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

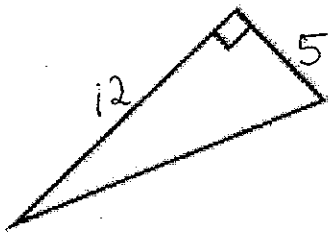
$3^2 + 4^2 = c^2$

$9 + 16 = c^2$

$\sqrt{25} = \sqrt{c^2}$

$5 = c$

2.



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

$5^2 + 12^2 = c^2$

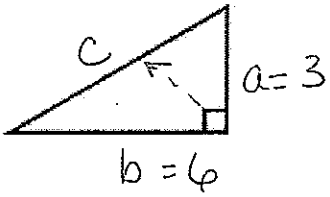
$25 + 144 = c^2$

$169 = c^2$

$\sqrt{169} = \sqrt{c^2}$

$13 = c$

3.



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

$3^2 + 6^2 = c^2$

$9 + 36 = c^2$

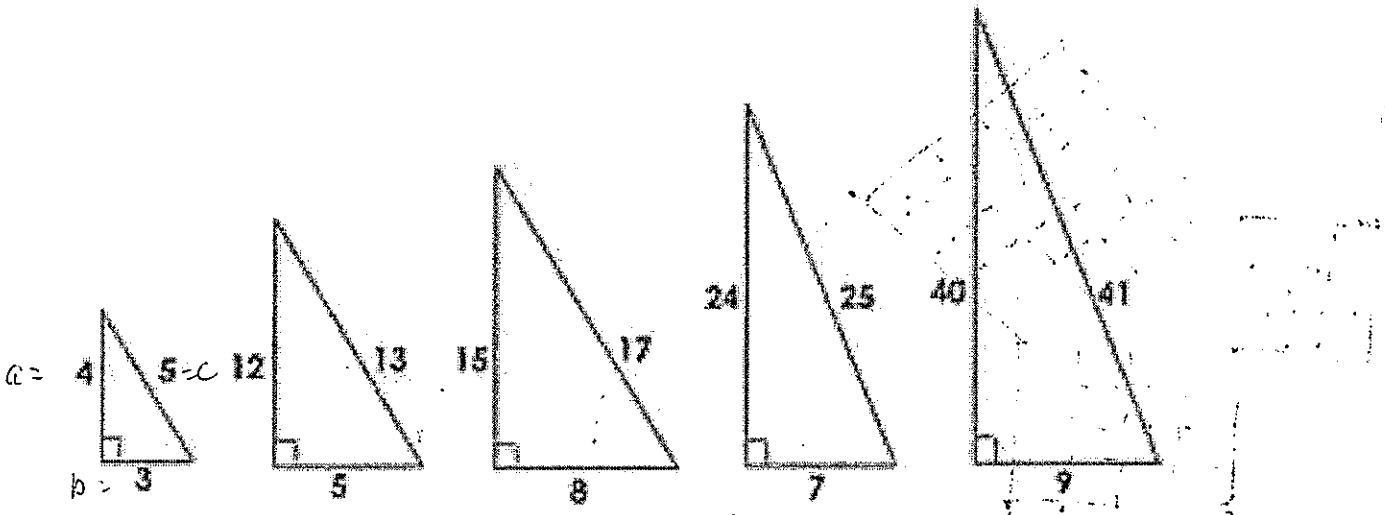
$\sqrt{45} = \sqrt{c^2}$

$\sqrt{9 \cdot 5}$

$\sqrt{3 \cdot 3 \cdot 5}$

$3\sqrt{5} = c = 6.7$

4. Determine if each triangle is a Pythagorean Triple.



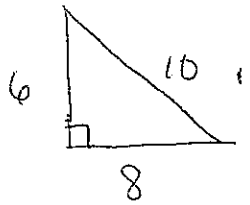
$4^2 + 9^2 = 5^2$

$16 + 9 = 25$

yes

$40^2 + 9^2 = 41^2$

$1600 + 81 = 1681$ - yes



$36 + 64 = 100$ yes