Name: Winston
Class Period_____ Date:_____

Pythagorean Theorem Review

- What types of triangles can we use the Pythagorean theorem for?
  -right, acute, obtuse, isosceles, scalene, equilateral?
  ↳ can also use to det. if a Δ is acute or obtuse.
- What do we use the Pythagorean Theorem for?
  when we have 2 sidelengths & are looking for 3rd.
- What is the formula? $a^2+b^2=c^2$
- What is a Pythagorean Triple?
  All 3 sides of a right triangle are whole #'s.

Practice:

$3^2+9^2=x^2$

$9+81=x^2$

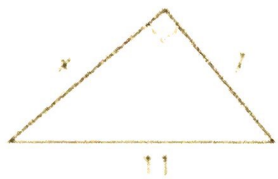
$90=x^2$

$\sqrt{90}=x$

10 9

5 2 3 3

$\boxed{3\sqrt{10}=x}$



$x^2+7^2=11^2$

$x^2+49=121$

$x^2=72$

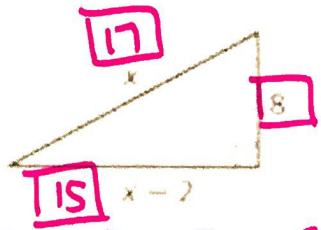
$x=\sqrt{72}$

8 9

4 2 3 3

2 2

$\boxed{x=6\sqrt{2}}$



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

$(x-2)(x-2)+64=x^2$

$x^2-2x-2x+4+64=x^2$

$x^2-4x+68=x^2$

$-x^2 \qquad -x^2$

$-4x+68=0$

$+4x \qquad +4x$

$68=4x$

$\boxed{x=17}$

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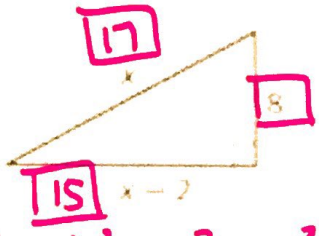

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$\boxed{x=17}$

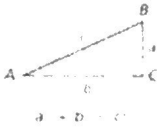
6.1 Guided Notes

Name: Winston

Class Period_____ Date:_____

Converse of the Pythagorean Theorem

Theorems 9-1-1 Converse of the Pythagorean Theorem

THEOREM	HYPOTHESIS	CONCLUSION
If the sum of the squares of the lengths of two sides of a triangle is equal to the square of the length of the third side, then the triangle is a right triangle.		$\triangle ABC$ is a right triangle.

Ex: Do these 3 sides make a right triangle?

1. 9, 40, 41

$9^2+40^2 \square 41^2$

$81+1600 \square 1681$

$1681 \boxed{=} 1681$

$\boxed{\text{yes, its a rt } \triangle.}$

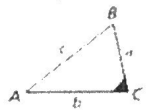
Pythagorean Inequalities Theorem

Theorems 9-1-2 Pythagorean Inequalities Theorem

In $\triangle ABC$, c is the length of the longest side.

If $c^2 > a^2 + b^2$, then $\triangle ABC$ is an obtuse triangle

If $c^2 < a^2 + b^2$, then $\triangle ABC$ is an acute triangle



Ex: Are these acute or obtuse triangles?

1. 9, 11, 15

2. 7, 10, 12

1) $15^2 \square 9^2+11^2$

$225 \square 81+121$

$225 \boxed{>} 202$

$\boxed{\text{Obtuse } \triangle}$

(hyp is greater than legs)

2) $12^2 \square 7^2+10^2$

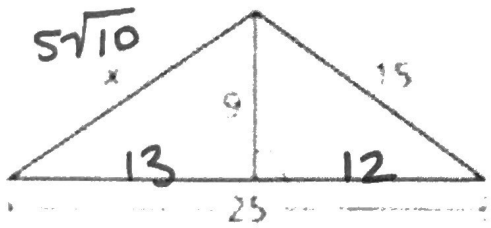
$144 \square 49+100$

$144 \boxed{<} 149$

$\boxed{\text{Acute } \triangle}$

(hyp is less than legs)

Simplest Radical form Review:



$9^2+x^2=15^2$

$81+x^2=225$

$-81 \quad -81$

$x^2=144$

$x=12$

$9^2+13^2=x^2$

$81+169=x^2$

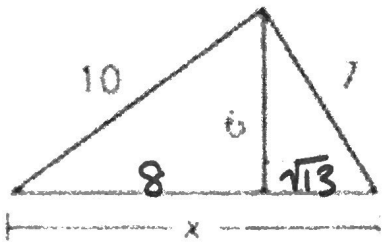
$250=x^2$

$\sqrt{250}=x$

25 10

5 2

$\boxed{5\sqrt{10}}$



$\boxed{8+\sqrt{13}}$

$6^2+x^2=10^2$

$36+x^2=100$

$x^2=64$

$x=8$

$6^2+x^2=7^2$

$36+x^2=49$

$x^2=13$

$x=\sqrt{13}$