Geometry CC
9.1-9.2 Review

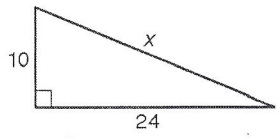
Name: KEY
Date: _____ Period: _____

9.1-9.2 Review

The Pythagorean Theorem $a^2+b^2=c^2$

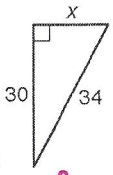
Use the Pythagorean Theorem and a calculator to find the value of *x*. Round to the nearest tenth if necessary.

1.



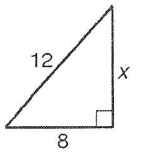
$10^2+24^2=x^2$
$100+576=x^2$
$\sqrt{676}=\sqrt{x^2}$
$26=x$

2.



$30^2+x^2=34^2$
$900+x^2=1156$
$\sqrt{x^2}=\sqrt{256}$
$x=16$

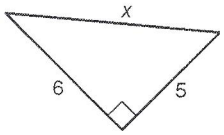
3.



$8^2+x^2=12^2$
$64+x^2=144$
$\sqrt{x^2}=\sqrt{80}$
$x=8.9$

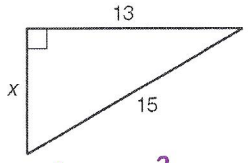
Find the value of *x*. Give your answer in simplest radical form. NO DECIMALS!

4.



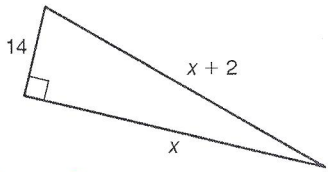
$6^2+5^2=x^2$
$36+25=x^2$
$\sqrt{61}=\sqrt{x^2}$
$\sqrt{61}=x$

5.



$13^2+x^2=15^2$
$169+x^2=225$
$\sqrt{x^2}=\sqrt{56}$
$x=2\sqrt{14}$

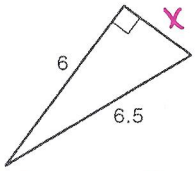
6.



FOIL
$14^2+x^2=(x+2)^2 \rightarrow (x+2)(x+2)$
$196+x^2=x^2+4x+4$
$196=4x+4$
$192=4x$
$48=x$

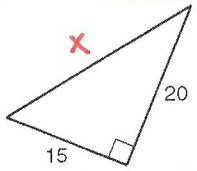
Find the missing side lengths. Give your answer in simplest radical form. NO DECIMALS! Tell whether the side lengths form a Pythagorean Triple. (equals a whole #)

7.



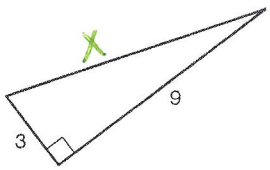
$6^2+x^2=6.5^2$
$36+x^2=42.25$
$x^2=6.25$
$x=2.5$, no

8.



$15^2+20^2=x^2$
$225+400=x^2$
$625=x^2$
yes, $25=x$

9.



$3^2+9^2=x^2$
$9+81=x^2$
$90=x^2$
no, $3\sqrt{10}=x$

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Tell whether the measures can be the side lengths of a triangle. If so, classify the triangle as acute, obtuse, or right.

10. 15, 18, 20 (c)

$15^2+18^2=20^2$
$549=400$
$c^2<a^2+b^2$
acute

11. 7, 8, 11 (c)

$7^2+8^2=11^2$
$113=121$
$c^2>a^2+b^2$
obtuse

12. 6, 7, $3\sqrt{13}$ (c)

$6^2+7^2=(3\sqrt{13})^2$
$85=117$
$c^2>a^2+b^2$
obtuse

Special Right Triangles

Find the value of *x* in each figure. Give your answer in simplest radical form. NO DECIMALS!

13. $8\sqrt{2}$ leg; 45°; x hyp = leg$\sqrt{2}$

$x = 8\sqrt{2}\cdot\sqrt{2}$
$x = 16$

14. 7 hyp = leg$\sqrt{2}$; x leg; x leg

$\frac{7}{\sqrt{2}} = \frac{x\sqrt{2}}{\sqrt{2}}$
$\frac{7\sqrt{2}}{2} = x$

15. $2\sqrt{2}$ hyp = leg$\sqrt{2}$; 45°; x leg

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

Find the values of *x* and *y*. Give your answers in simplest radical form. NO DECIMALS!

16. $10\sqrt{3}$ short; y hyp; 30°; x long

hyp = short (2) → $y = 10\sqrt{3}(2) = 20\sqrt{3}$
long = short$\sqrt{3}$ → $x = 10\sqrt{3}\cdot\sqrt{3} = 30$

17. 12 long = short$\sqrt{3}$ → $\frac{12}{\sqrt{3}} = \frac{x\sqrt{3}}{\sqrt{3}}$ → $x = 4\sqrt{3}$

30°; y hyp; 60°; x short $4\sqrt{3}$

hyp = short (2) → $y = 4\sqrt{3}(2) = 8\sqrt{3}$

18. long = short$\sqrt{3}$; y; x short $\sqrt{3}$; n° 30; 60 2n°; $2\sqrt{3}$

$y = \sqrt{3}\cdot\sqrt{3} = 3$

hyp = short (2) → $\frac{2\sqrt{3}}{2} = \frac{x(2)}{2}$ → $\sqrt{3} = x$

$n+2n=90$
$3n=90$
$n=30$