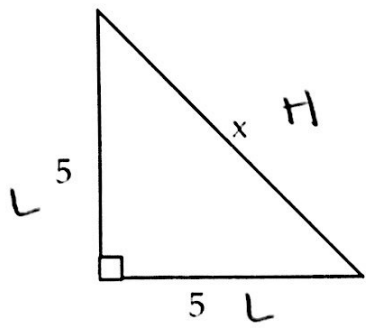
Section 12.6 Worksheet

Name: KEY

Find the unkown lengths of the right triangle. $a^2+b^2=c^2$

1.)



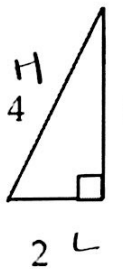
$5^2+5^2=x^2$

$25+25=x^2$

$50=x^2$

$x=\sqrt{50}$

2.)



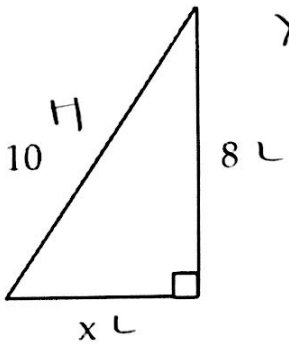
$x^2+2^2=4^2$

$x^2+4=16$

$x^2=12$

$x=\sqrt{12}$

3.)



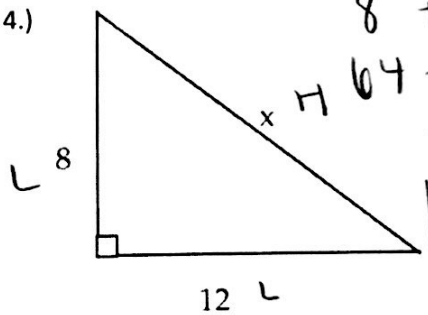
$x^2+8^2=10^2$

$x^2+64=100$

$x^2=36$

$x=6$

4.)



$8^2+12^2=x^2$

$64+144=x^2$

$208=x^2$

$x=\sqrt{208}$

Let a and b represent the lengths of the legs of a right triangle and let c represent the length of the hypotenuse. Find the unkown length.

5.) $a=6,\ b=30$

$6^2+30^2=c^2$

$36+900=c^2$

$936=c^2$

$c=\sqrt{936}$

6.) $a=15,\ c=25$

$15^2+b^2=25^2$

$225+b^2=625$

$b^2=400$

$b=20$

7.) $b=3,\ c=5$

$a^2+3^2=5^2$

$a^2+9=25$

$a^2=16$

$a=4$

8.) $a=2,\ b=8$

$2^2+8^2=c^2$

$4+64=c^2$

$68=c^2$

$c=\sqrt{68}$

Determine whether the given lengths are sides of a right triangle.

9.) 8, 16, 18

$8^2 + 16^2 = 18^2$

$64 + 256 = 324$

$320 \neq 324$

No

10.) 11, 60, 61

$11^2 + 60^2 = 61^2$

$121 + 3600 = 3721$

$3721 = 3721$ ✓

Yes

11.) 9, 15, 20

$9^2 + 15^2 = 20^2$

$81 + 225 = 400$

$306 \neq 400$

No

REVIEW:

Solve the equation. Check for extraneous solutions.

12.) $(\sqrt{3x-12})^2 = (\sqrt{5x-26})^2$

$3x - 12 = 5x - 26$

$-3x \quad -3x$

$-12 = 2x - 26$

$+26 \quad +26$

$14 = 2x$

x = 7

check:

$\sqrt{3(7)-12} = \sqrt{5(7)-26}$

$\sqrt{9} = \sqrt{9}$

$3 = 3$ ✓

13.) $3\sqrt{4x+1} - 2 = 25$

$+2 \quad +2$

$3\sqrt{4x+1} = 27$

$\sqrt{4x+1} = 9$

$(\sqrt{4x+1})^2 = 9^2$

$4x + 1 = 81$

$4x = 80$

x = 20

check:

$3\sqrt{4(20)+1} - 2 = 25$

$3\sqrt{81} - 2 = 25$

$3(9) - 2 = 25$

$27 - 2 = 25$ ✓

Simplify the expression.

14.) $\sqrt{98}$

$\sqrt{49}\ \sqrt{2}$

$7\sqrt{2}$

15.) $\sqrt{63}$

$\sqrt{9}\ \sqrt{7}$

$3\sqrt{7}$

16.) $\sqrt{\frac{3}{5}}$

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

$\frac{\sqrt{15}}{\sqrt{25}}$ $\quad \frac{\sqrt{15}}{5}$