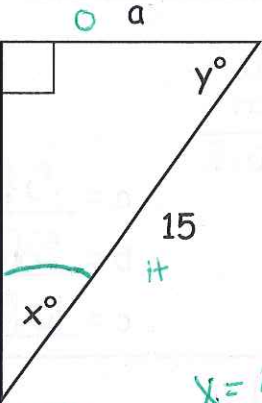


Pythagorean Theorem, Special Right Triangles, and Right Triangle Trigonometry Review

Directions: Find all indicated variables. (x and y refer to angle measures; a, b, c, and d refer to side lengths). If possible, leave your answer as a simplified square root. If you must have a decimal answer, round all answers to the nearest hundredth.

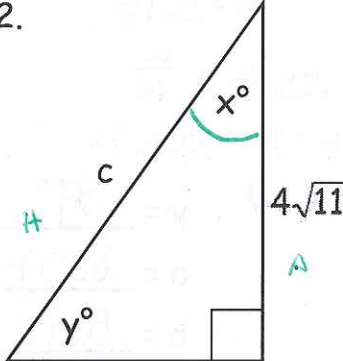
1. 

$15^2 = 10^2 + a^2$
 $225 = 100 + a^2$
 $125 = a^2$
 $a = 5\sqrt{5}$

$x = 48.19^\circ$

$a = \underline{5\sqrt{5}}$
 $x = \underline{48.19^\circ}$
 $y = \underline{41.81^\circ}$

SO CAT A
 $\cos x = \frac{10}{15}$
 $\cos^{-1}(\frac{10}{15}) = x$

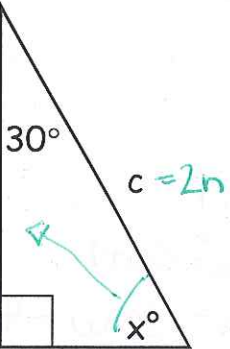
2. 

$(8\sqrt{6})^2 + (4\sqrt{11})^2 = c^2$
 $560 = c^2$
 $4\sqrt{35} = c$

$x = 58.90$
 $y = 34.10$

$c = \underline{4\sqrt{35}}$
 $x = \underline{58.90}$
 $y = \underline{34.10}$

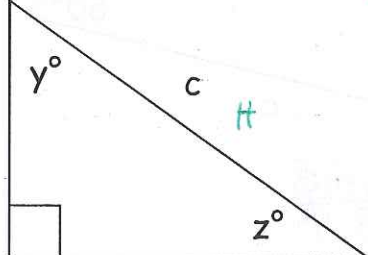
$\tan x = \frac{8\sqrt{6}}{4\sqrt{11}}$
 $\tan^{-1}(\frac{8\sqrt{6}}{4\sqrt{11}}) = x$

3. 

No decimal answers.

30	60	90
n	n\sqrt{3}	2n
17	17\sqrt{3}	34

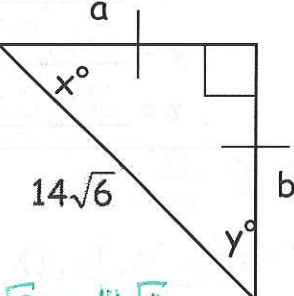
$x = \underline{60^\circ}$
 $a = \underline{17\sqrt{3}}$
 $c = \underline{34}$

4. 

$6^2 + 9^2 = c^2$
 $117 = c^2$
 $c = 3\sqrt{13}$

$\tan y = \frac{9}{6}$
 $\tan^{-1}(\frac{9}{6}) = y$
 $y = 56.31$

$c = \underline{3\sqrt{13}}$
 $y = \underline{56.31}$
 $z = \underline{33.69}$

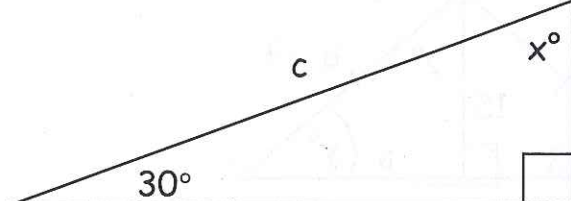
5. 

No decimal answers.

45	45	90
n	n	n\sqrt{2}
14\sqrt{3}	14\sqrt{3}	14\sqrt{6}

$\frac{n\sqrt{2}}{\sqrt{2}} = \frac{14\sqrt{6}}{\sqrt{2}}$
 $n = 14\sqrt{3}$

$x = \underline{45}$
 $y = \underline{45}$
 $a = \underline{14\sqrt{3}}$
 $b = \underline{14\sqrt{3}}$

6. 

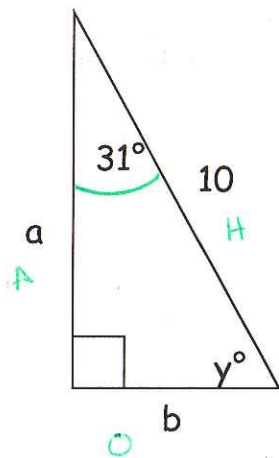
No decimal answers.

30	60	90
n	n\sqrt{3}	2n
	27	

$\frac{27}{\sqrt{3}} = \frac{n\sqrt{3}}{\sqrt{3}}$
 $\frac{27 \cdot \sqrt{3}}{\sqrt{3}} = \frac{27\sqrt{3}}{3}$
 $n = 9\sqrt{3}$

$x = \underline{60}$
 $a = \underline{9\sqrt{3}}$
 $c = \underline{18\sqrt{3}}$

7.



$$\sin 31 = \frac{b}{10}$$

$$b = 10 \cdot \sin 31$$

$$b = 5.15$$

$$\cos 31 = \frac{a}{10}$$

$$a = 10 \cdot \cos 31$$

$$a = 8.57$$

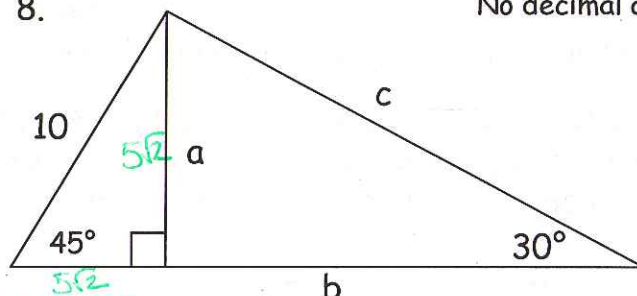
$$y = 59^\circ$$

$$a = 8.57$$

$$b = 5.15$$

8.

No decimal answers.



$$\frac{10}{\sqrt{2}} = \frac{n\sqrt{2}}{\sqrt{2}}$$

$$\frac{10}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{10\sqrt{2}}{2}$$

$$n = 5\sqrt{2}$$

30	60	90
n	n√3	2n
5√2	5√6	10√2

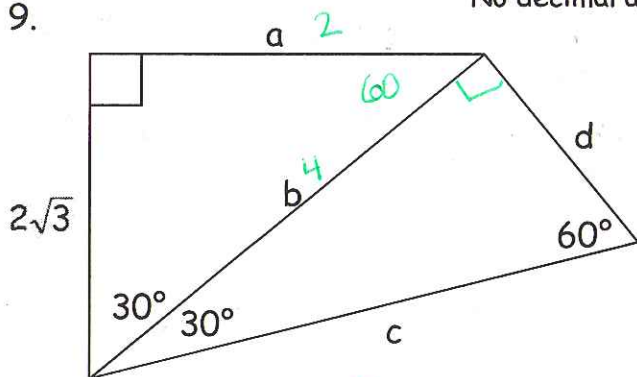
$$a = 5\sqrt{2}$$

$$b = 5\sqrt{6}$$

$$c = 10\sqrt{2}$$

9.

No decimal answers.



30	60	90
n	n√3	2n
4√3/3	4	8√3/3

$$\frac{4}{\sqrt{3}} = \frac{n\sqrt{3}}{\sqrt{3}}$$

$$\frac{4\sqrt{3}}{3} = n$$

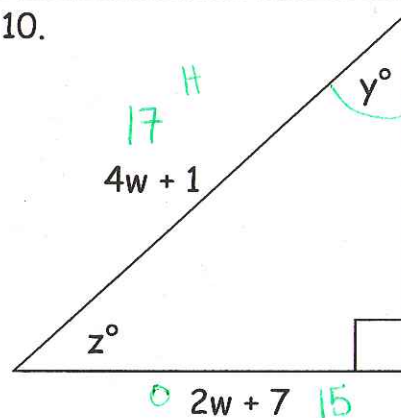
$$a = 2$$

$$b = 4$$

$$c = \frac{8\sqrt{3}}{3}$$

$$d = \frac{4\sqrt{3}}{3}$$

10.



$$\tan y = \frac{15}{8}$$

$$\tan^{-1}\left(\frac{15}{8}\right) = y$$

$$y = 61.93$$

$$(2w)^2 + (2w+7)^2 = (4w+1)^2$$

$$4w^2 + 4w^2 + 28w + 49 = 16w^2 + 8w + 1$$

$$0 = 8w^2 - 20w - 48$$

$$0 = 4(2w^2 - 5w - 12)$$

$$0 = 4(w-4)(2w+3)$$

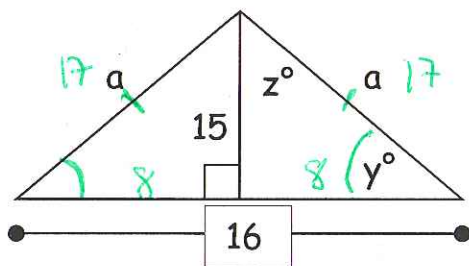
$$w = 4, -3/2$$

$$w = 4$$

$$y = 61.93$$

$$z = 28.07$$

11.



$$a = 17$$

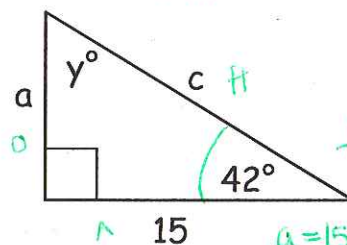
$$y = 61.93$$

$$z = 28.07$$

12. SACATA

$$\cos 42 = \frac{15}{c}$$

$$c = \frac{15}{\cos 42} \approx 20.18$$



$$\tan 42 = \frac{a}{15}$$

$$a = 15 \cdot \tan 42$$

$$a = 13.51$$

$$y = 48$$

$$a = 13.51$$

$$c = 20.18$$