Name Key Class _____ Date _____

Unit 5 Practice

I can classify a triangle as acute, right or obtuse given the length of its sides
Example: The lengths of three sides of a triangle are given. Describe each triangle as *acute, right,* or *obtuse.*

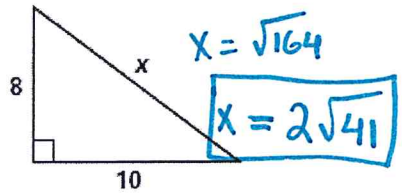
1. 14, 48, 50 Right

2. 6, 7, 9 Acute

3. $\sqrt{11}, 5, 7$ Obtuse

I can use Pythagorean Theorem and special right triangles relations to solve for missing side
Example: Find the values of the variables. Leave your answers in simplest radical form.

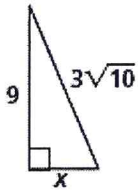
4.



$x = \sqrt{164}$

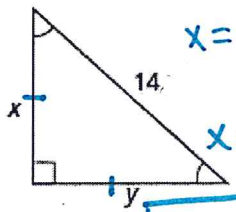
$x = 2\sqrt{41}$

5.



$x = 3$

6.

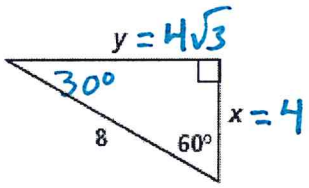


$x = \frac{14}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}}$

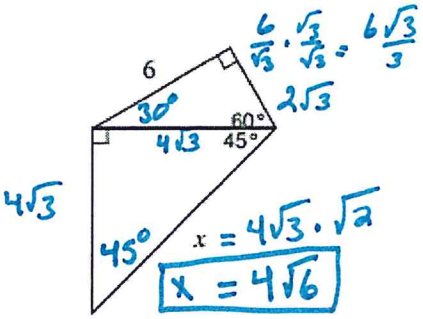
$x = \frac{14\sqrt{2}}{2}$

$Y = X = 7\sqrt{2}$

7.



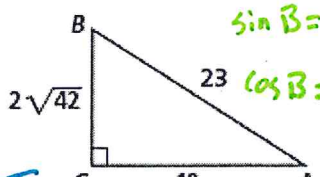
8.



$\frac{6}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{6\sqrt{3}}{3}$

I can determine the ratio of sin Θ, cos Θ and tan Θ, when Θ is an acute angle of a right triangle and the sides of the triangle are given.
Example: Express sin *A,* cos *A,* and tan *A* as ratios.

9.



$\sin B = \frac{19}{23}$

$\cos B = \frac{2\sqrt{42}}{23}$

$\sin A = \frac{2\sqrt{42}}{23}$

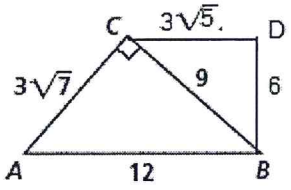
$\cos A = \frac{19}{23}$

$\tan A = \frac{2\sqrt{42}}{19}$

$\tan B = \frac{19}{2\sqrt{42}}$

$\tan B = \frac{19\sqrt{42}}{84}$

10.



$\sin\angle ABC = \frac{3\sqrt{7}}{12} = \frac{\sqrt{7}}{4}$

$\cos\angle BCD = \frac{3\sqrt{5}}{9} = \frac{\sqrt{5}}{3}$

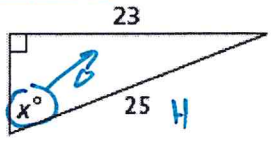
$\tan\angle BAC = \frac{3\sqrt{7}}{9} = \frac{3}{\sqrt{7}} \cdot \frac{\sqrt{7}}{\sqrt{7}} = \frac{3\sqrt{7}}{7}$

$\sin\angle CBD = \frac{3\sqrt{5}}{9} = \frac{\sqrt{5}}{3}$

$\tan\angle BCD = \frac{6}{3\sqrt{5}} = \frac{2}{\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}} = \frac{2\sqrt{5}}{5}$

I can use SOHCAHTOA to find the measure of a missing side or a missing angle of a right triangle
Example: Find the value of *x.* Round lengths of segments to the nearest tenth and angle measures to the nearest degree.

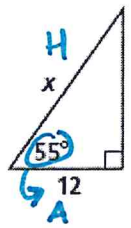
11.



$\sin(x°) = \frac{23}{25}$

$x = 67°$

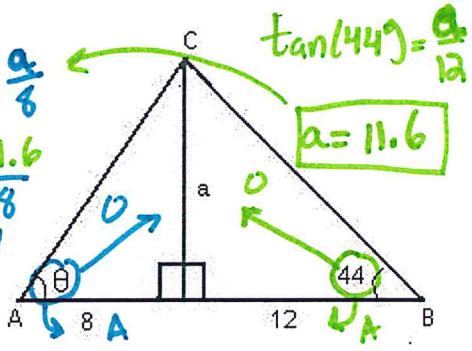
12.



$\cos(55°) = \frac{12}{x}$

$x = 20.9$

13.



$\tan(\theta) = \frac{a}{8}$

$\tan(\theta) = \frac{11.6}{8}$

$\theta = 55°$

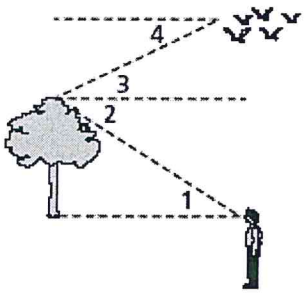
$\tan(44°) = \frac{a}{12}$

$a = 11.6$

I can identify angle of depression and angle of elevation

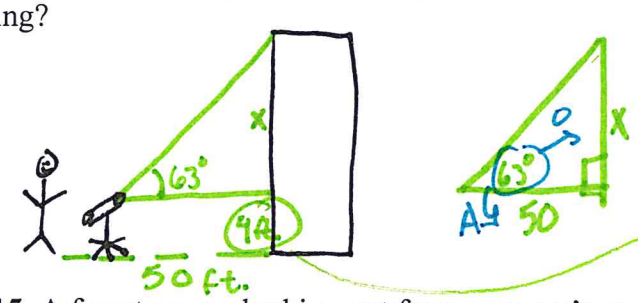
Example: Describe each angle as it relates to the objects in the diagram.

a. ∠1	b. ∠2	c. ∠3	d. ∠4
Elevation from person to tree	Depression from tree to person	Elevation from tree to birds	Depression from birds to tree



I can solve different situations applying properties of right triangle.

Example: **14.** A surveyor measures the top of a building 50 ft away from him. His angle-measuring device is 4 ft above ground. The angle of elevation to the top of the building is 63°. How tall is the building?



$\tan(63°) = \frac{x}{50}$

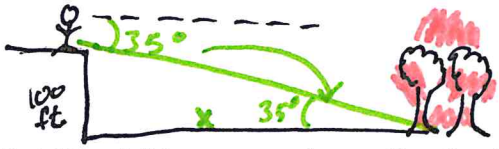
$x \approx 98$ ft.

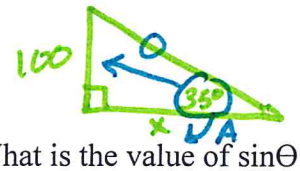
$+ 4$

102 ft. tall

15. A forest ranger looking out from a ranger's station can see a forest fire at a 35° angle of depression. The ranger's position is 100 ft above the ground. How far is it from the ranger's station to the fire?

Hyp. (174.3 ft.)





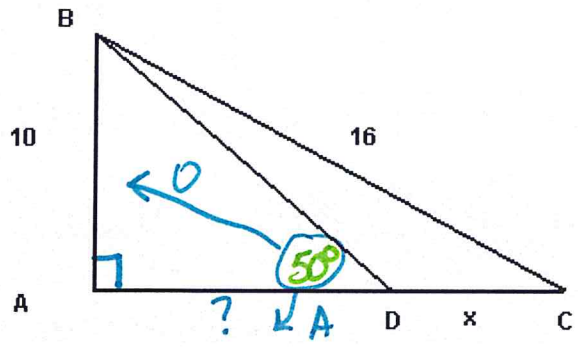
$\tan(35°) = \frac{100}{x}$

$x = 142.8$ ft.

16. Let Θ and β be two angles so $\Theta + \beta = 90°$. What is the value of $\sin\Theta - \cos\beta$?

Zero

17. If m<ADB= 50° and m<BAD = 90°, what is the value of x?



$AC = 10^2 + b^2 = 16^2$

$AC = \sqrt{16^2 - 10^2} = 12.49$

$AD = \tan(50°) = \frac{10}{?} = 8.391$

$x = AC - AD = 12.49 - 8.391$

$x = 4.1$ (4.099)