

Unit 5 Test Study Guide

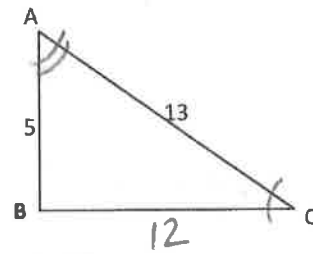
Name Alc S: _____

$$\sin \theta = \frac{o}{h}$$

$$\cos \theta = \frac{a}{h}$$

$$\tan \theta = \frac{o}{a}$$

$$BC = \sqrt{13^2 - 5^2} \\ = \sqrt{144} \\ = 12$$



Use the triangle to the right for questions 1-5.

1. $\overline{BC} = 12$

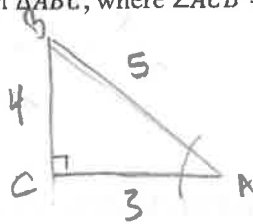
2. $\tan C = 5/12$

3. $\sin A = 12/13$

4. Find $m\angle A$ $\sin^{-1}(12/13) = 67.4^\circ$

5. Find $m\angle C$ $90 - 67.4^\circ = 22.6^\circ$

6. In $\triangle ABC$, where $\angle ACB = 90^\circ$, $\sin A = \frac{4}{5}$. Find $\cos A$. Draw a diagram.



$$AC = \sqrt{5^2 - 4^2} \\ = \sqrt{9} \\ = 3$$

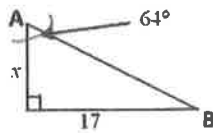
$$\cos A = \frac{3}{5}$$

Find the missing side or angle in the following triangles in 7-10.

7. $\tan 64^\circ = \frac{17}{x}$

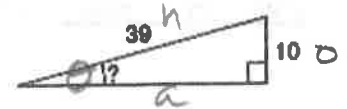
$$x = \frac{17}{\tan 64}$$

$$x = 8.29$$

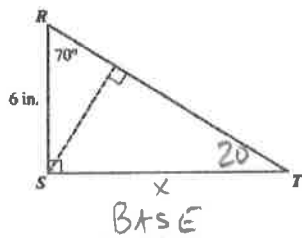


8.

$$\theta = \sin^{-1}(10/39) = 14.9^\circ$$



9. Find the area of the large triangle.



$$\tan 20 = \frac{6}{x}$$

$$x = \frac{6}{\tan 20}$$

$$x = 16.48$$

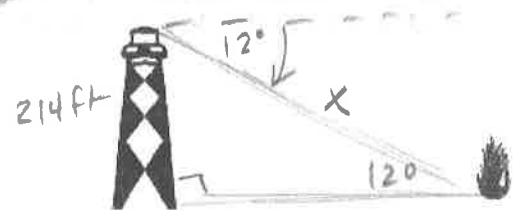
$$\text{Area} = \frac{16.48 \times 6}{2} = 49.45 \text{ u}^2$$

10. Which one is *not* a valid trig function? **CIRCLE**

$$\tan \theta = \frac{12}{5}, \cos \theta = \frac{9}{11}, \sin \theta = \frac{13}{12}$$

$\sin \theta, \cos \theta$ can't evaluate to a ratio > 1 .

11. A forest ranger is on a fire lookout tower in a national forest. His observation post is 214 ft above the ground. He spots a fire. The angle of depression from his line of sight to the fire is 12° . How far away is the fire from the lookout tower in terms of line of sight?



$$\sin 12^\circ = \frac{214}{x}$$

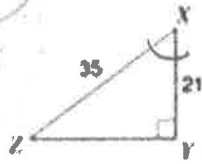
$$x = \frac{214}{\sin 12^\circ}$$

$$1,029.28 \text{ ft away}$$

12. Find angles X and Z.

$$\angle X = \cos^{-1}\left(\frac{21}{35}\right) = 53.10$$

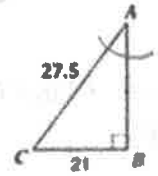
$$\angle Z = 90 - 53.1 = 36.9^\circ$$



13. Find angles A and C.

$$\angle A = \sin^{-1}\left(\frac{21}{27.5}\right) = 49.80$$

$$\angle C = 90 - 49.8 = 40.2^\circ$$

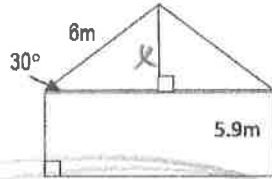


14. What is the height of the house?

$$\sin 30 = \frac{x}{6}$$

$$x = 6 \cdot \sin 30$$

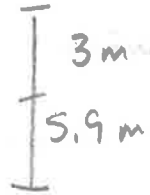
$$= 3 \text{ m}$$



ht of house = 8.9m

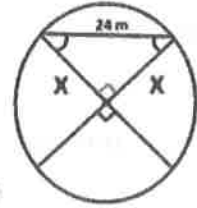
15. Find the length X.

$$\cos 45 = \frac{x}{24}$$

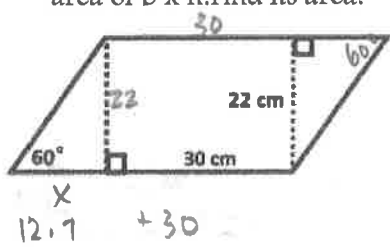


$$\frac{24}{\sqrt{2}}$$

16.97



16. The figure below is a parallelogram which has an area of $b \times h$. Find its area.

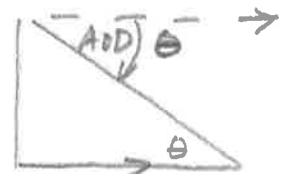
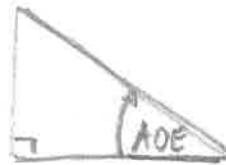


$$X = \frac{22}{\sqrt{3}} \text{ or } \tan 60 = \frac{22}{X}$$

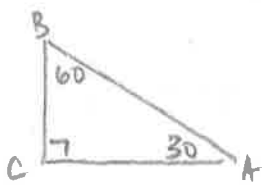
$$\text{Area} = (12.7 + 30) \cdot 22$$

939.4 u²

17. Draw an example of an angle of elevation and an angle of depression.



18. What does $\sin A = \cos B$ mean? Use a diagram.

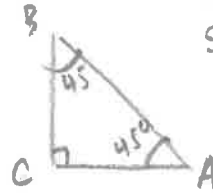


$$\sin A = \frac{BC}{AB}$$

$$\cos B = \frac{BC}{AB}$$

B/C A; B are complementary

19. What does $\sin A = \cos A$ mean? Use a diagram.



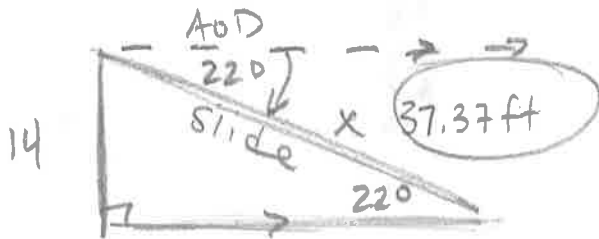
$$\sin 45 = \cos 45$$

.7071

For both trig. functions, the angle is the same, so the ratios will be the same.

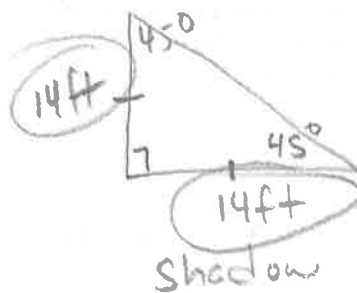
20. The top of a waterslide is 14 ft above the ground. The angle of depression from the top of the water slide to the ground is 22° . How long is the slide?

21. A pole casts a shadow that is 14 ft long. The angle of elevation is 45° . What is the length of the pole?



$$\sin 22^\circ = \frac{14}{X}$$

$$X = \frac{14}{\sin 22}$$



14 ft, b/c it's a 45-45-90 Δ.