

Name: \_\_\_\_\_

Period: \_\_\_\_\_

1. Determine two coterminal angles (one positive and one negative) and the reference angle for each given angle.

a. $\theta = 290^\circ$	b. $\theta = -200^\circ$
c. $\theta = 520^\circ$	d. $\theta = -490^\circ$

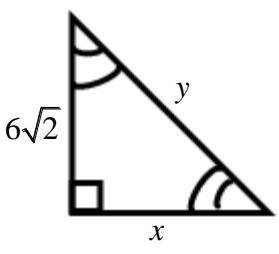
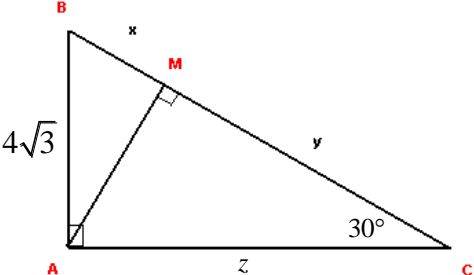
2. Determine the quadrant in which angle  $x$  lies.

a. $\sin x < 0$ and $\tan x > 0$	b. $\cos x > 0$ and $\tan x < 0$
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3. The point  $P(-9, -12)$  is on the terminal arm of angle  $\theta$ . Find  $\sin \theta$ ,  $\cos \theta$ , and  $\tan \theta$ .

4. If point P is on the terminal arm in standard position making angle  $\theta$ , which is in the fourth quadrant, and  $\sin \theta = -\frac{3}{\sqrt{10}}$ . Determine the possible coordinates for P, and Find the other two trigonometric ratio for  $\theta$ .

5. Solve for the missing sides of the triangles. Express your answer in exact value.

<p>a.</p> 	<p>b.</p> 
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6. Find the values of  $\theta$  for  $0^\circ < \theta \leq 360^\circ$ .

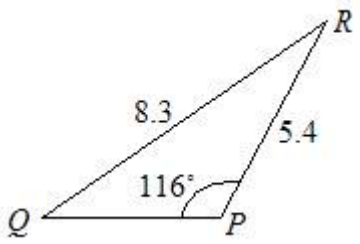
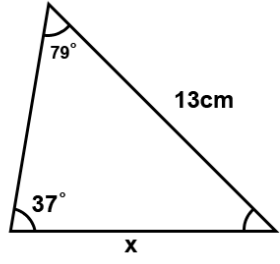
<p>a. <math>\sin \theta = -\frac{1}{\sqrt{2}}</math></p>	<p>b. <math>\tan \theta = \sqrt{3}</math></p>
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7. Solve for  $\theta$  to the nearest degree, if  $0^\circ \leq \theta < 360^\circ$ .

<p>a. <math>\cos \theta = -0.7515</math></p>	<p>b. <math>\tan \theta = -0.8642</math></p>
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8. If the terminal arm of an angle  $\theta$ , lies on the line  $4x - 2y = 0$ , for  $x \leq 0$ , determine the exact value of  $\sin \theta + \cos \theta$ .

9. Solve the triangle.

<p>a.</p> 	<p>b.</p> 
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10. Solve for angle C.

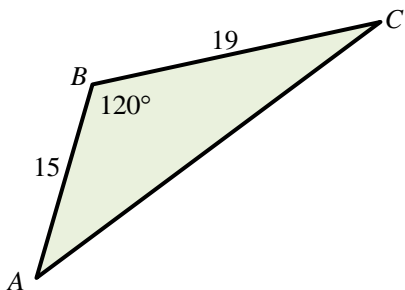
a.  $\angle A = 48^\circ$ ,  $a = 4$ , and  $c = 5$

b.  $\angle A = 39^\circ$ ,  $a = 28$ , and  $c = 41$

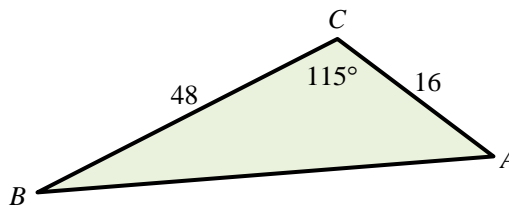
11. An observer on the ground looks up to the top of a building at an angle of elevation of  $30^\circ$ . After moving 50 feet closer, the angle of elevation is now  $40^\circ$ . Find the height of the building.

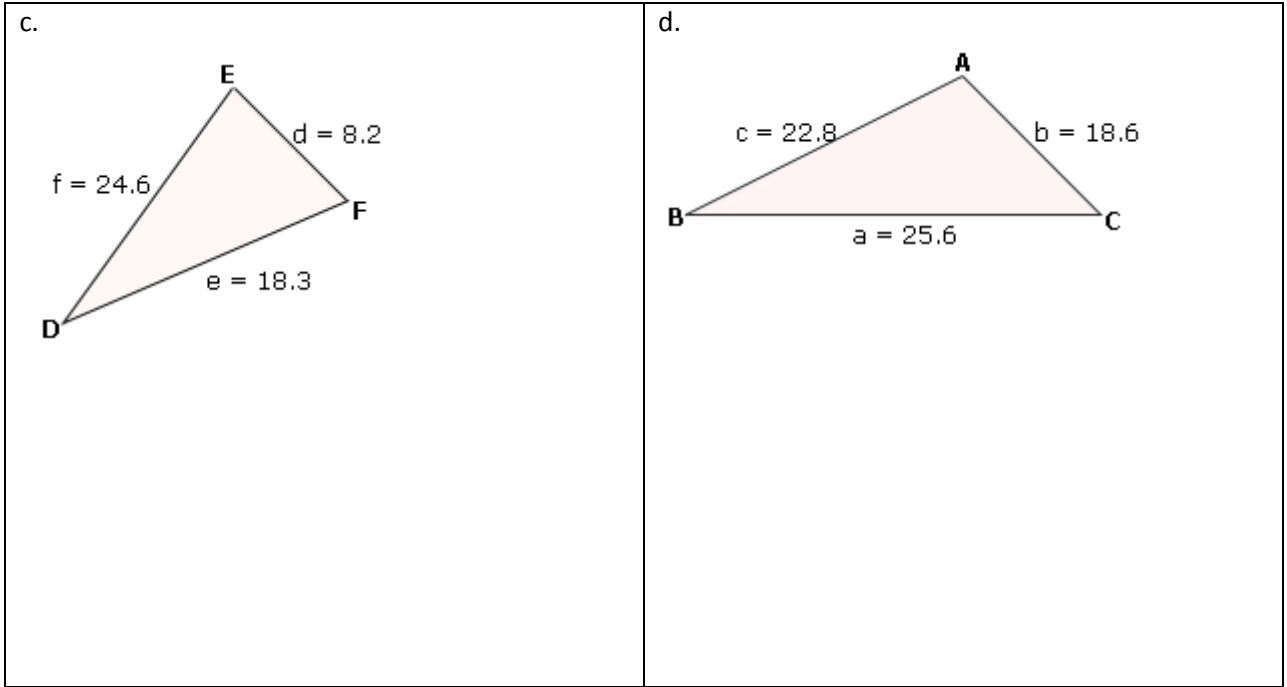
12. Solve the triangle.

a.



b.

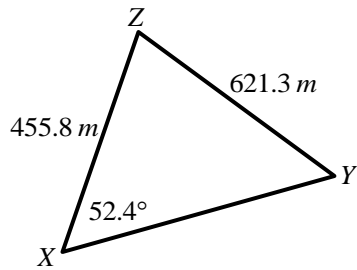




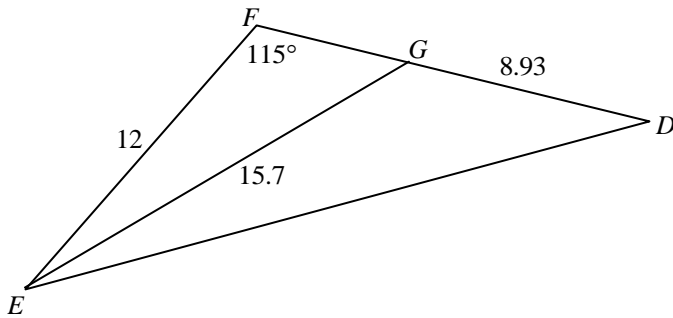
13. Two people started walking from the same point, at the same time; the walkers diverge at an angle of 110 degree. If one walks at rate 3.5 km/h and the other at 2.6 km/h. Find the distance between them after 4 hours.

14. Two ships leave port at 4 p.m. One is headed at a bearing of N 38 E and is traveling at 11.5 miles per hour. The other is traveling 13 miles per hour at a bearing of S 47 E. How far apart are they when dinner is served at 6 p.m.?

15. A straight line tunnel is to be constructed through a mountain between points X and Y in the diagram below. Naturally, locations X and Y are not visible from each other, and with the mountain in the way, it is impossible to measure the distance between the two points. However, a third point, Z, is located from which both X and Y are visible, and for which the distances and angles indicated in the diagram are measured. Compute the required length of the tunnel.



16. Find the measure of length DE to the nearest unit.



17. Find the measure of angle A to the nearest tenth.

