

# Standard 9 Review: Name: \_\_\_\_\_ Per: \_\_\_\_\_

1. Find the exact values of the trig functions given that.

$$\sin u = \frac{8}{17} \quad 0 < u < \frac{\pi}{2}$$

a.  $\sin(2u)$

$$\frac{240}{289}$$

b.  $\cos(2u)$

$$\frac{161}{289}$$

c.  $\tan(2u)$

$$\frac{240}{161}$$

2. Use the Power-Reducing Formulas to solve the expressions using the first power of cos. Show your work.

a.  $\cos^4 30^\circ$

$$\frac{9}{16}$$

b.  $\sin^2 60^\circ \cos^2 45^\circ$

$$\frac{3}{8}$$

3. Use the half angle formulas to determine the exact values.

$$u = 330^\circ$$

a.  $\sin(165^\circ)$

$$\frac{1}{2}\sqrt{2-\sqrt{3}}$$

b.  $\cos(165^\circ)$

$$\frac{1}{2}\sqrt{2+\sqrt{3}}$$

c.  $\tan(165^\circ)$

$$-2+\sqrt{3}$$

4. Use the Product-to-Sum formulas to write the product as a sum.

a.  $\sin 45^\circ \cos 15^\circ$

$$\frac{\sqrt{3}+1}{4}$$

b.  $2\sin 45^\circ \sin 15^\circ$

$$\frac{\sqrt{3}-1}{2}$$

5. Use the Sum-to-Product formulas to write the sum as a product.

a.  $\sin 90^\circ + \sin 30^\circ$

$$\frac{3}{2}$$

b.  $\cos 150^\circ + \cos 30^\circ$

$$0$$

6. Use the given information to find the number of triangle possible.

a.  $A = 30^\circ, b = 20, a = 10$

1 right  $\Delta$

b.  $A = 30^\circ, b = 20, a = 15$

2  $\Delta$

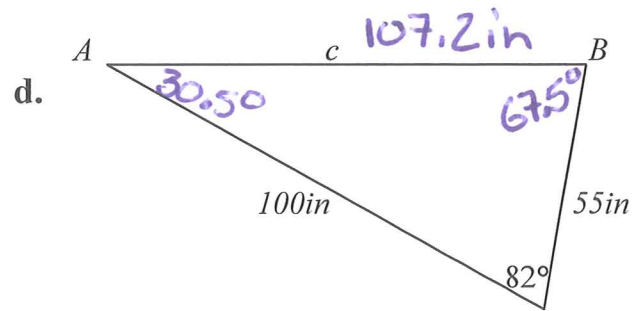
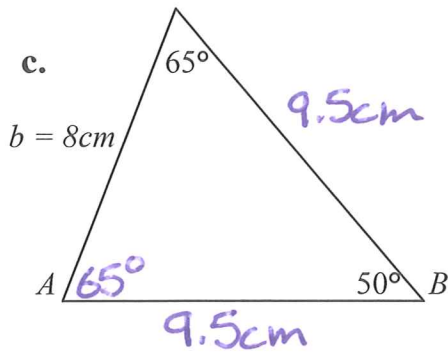
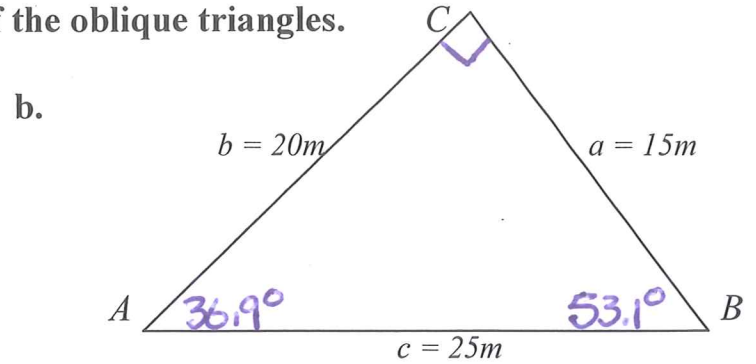
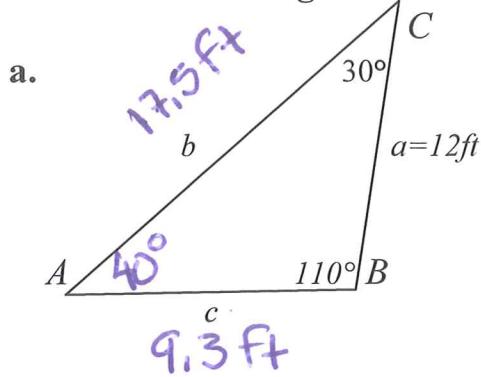
c.  $A = 60^\circ, b = 10, a = 5$

Zero  $\Delta$

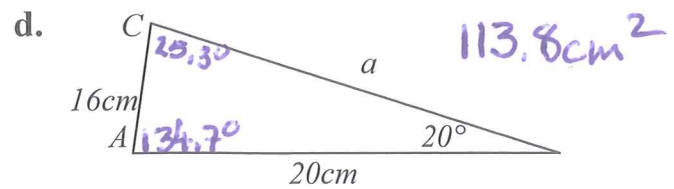
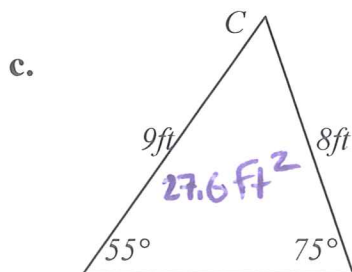
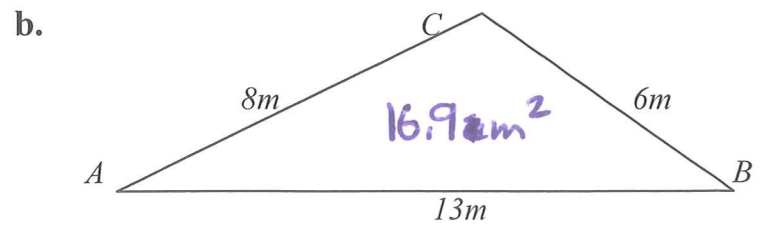
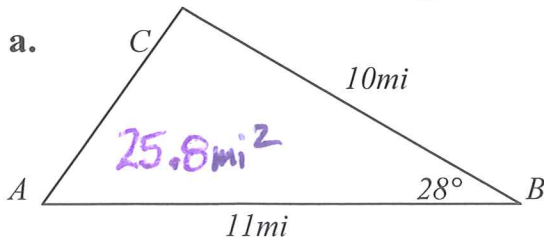
d.  $A = 60^\circ, b = 10, a = 11$

1  $\Delta$

7. Find the remaining sides and angles of the oblique triangles.



8. Find the Area of the triangles.



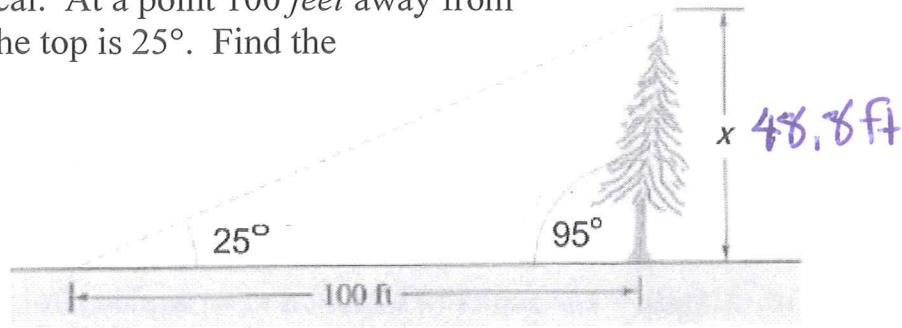
9. The following information about a triangular parcel of land is given at a zoning board meeting. "One side is 3200 ft long, and another is 1200 ft. The angle opposite the shorter side is 40°." Could this be true?

No

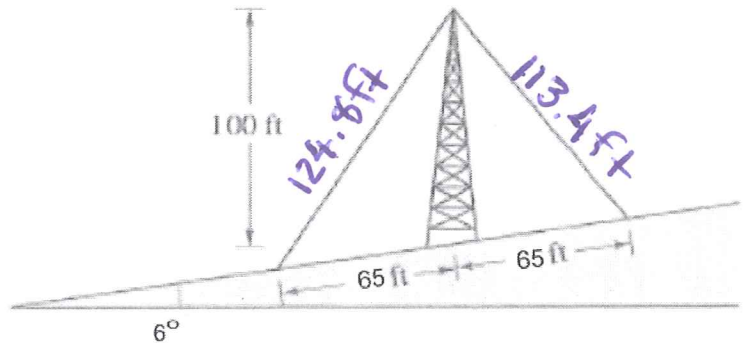
$$\frac{1200}{\sin 40^\circ} = \frac{3200}{\sin x}$$

$$\sin x = 1.71 \text{ impossible}$$

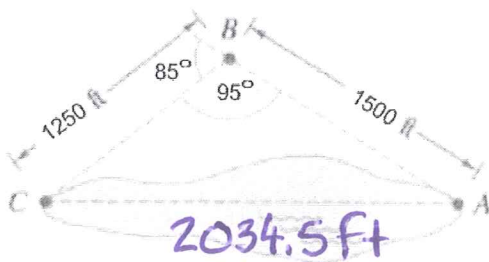
10. A tree grows leaning 5° from vertical. At a point 100 feet away from the tree, the angle of elevation to the top is 25°. Find the height  $x$  of the tree.



11. A 100 ft vertical tower is built on the side of a hill with an 6° incline. Find the length of the two guide wires that are anchored 65 ft uphill and downhill from the base of the tower.



12. To find the length of a lake, a surveyor walks 1500 ft from point  $A$  to  $B$ . Next he turns 85° and walks 1250 ft to point  $C$ . Find the length of the lake.



13. Solve the triangle(s)

$$B = 59^\circ$$

$$C = 121^\circ$$

$$c = 18.4 \text{ m}$$

$$B' = 121^\circ$$

$$C' = 19^\circ$$

$$c' = 6.1 \text{ m}$$

