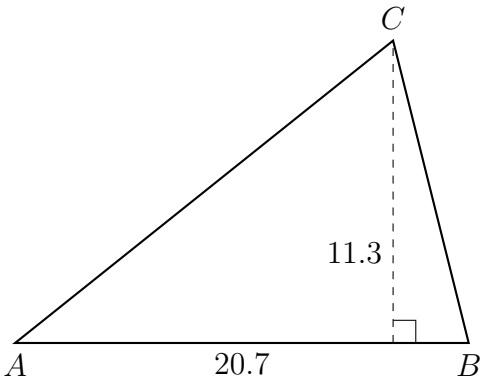
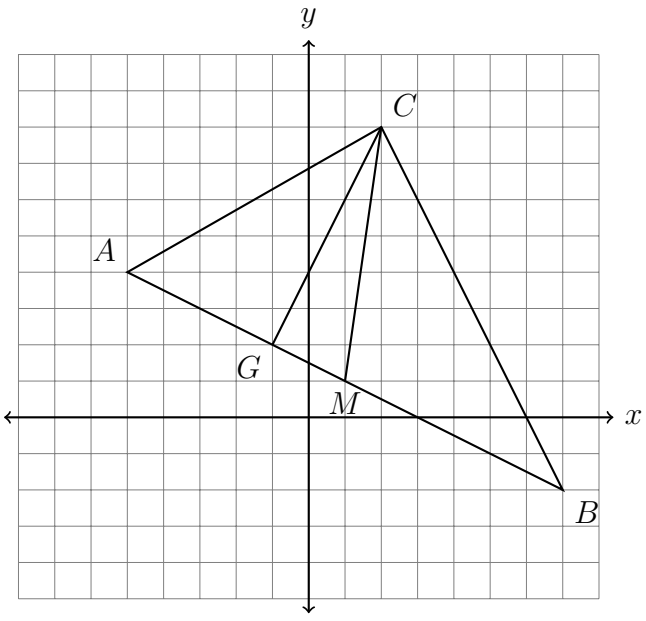
10.10 Pretest: Volume, density, trig review

1. Find the area of $\triangle ABC$, $Area = \frac{1}{2}bh$. The altitude h of the triangle is 11.3 inches and the base $AB = 20.7$ in.



2. On the set of axes below, $\triangle ABC$, altitude $\overline{GC}$, and median $\overline{MC}$ are drawn.



Determine which equations represent the area of the triangle, circling True or False.

(a) T F $Area_{\triangle} = \dfrac{(AC)(AB)}{2}$ (b) T F $Area_{\triangle} = \dfrac{(CG)(BC)}{2}$

(c) T F $Area_{\triangle} = \dfrac{(CM)(AB)}{2}$ (d) T F $Area_{\triangle} = \dfrac{(CG)(AB)}{2}$

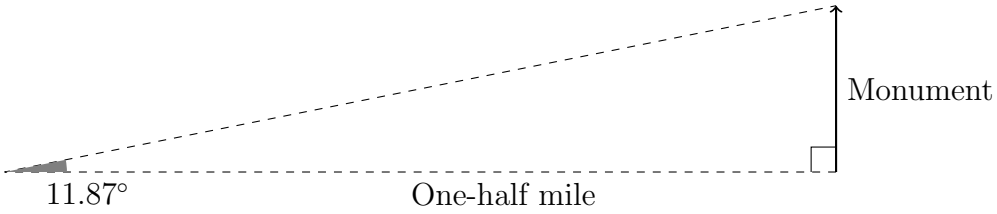
3. In a right triangle, the acute angles have the relationship $\sin(2x + 4) = \cos(46)$.

   What is the value of x?

4. If $\sin(2x - 11)^\circ = \cos(4x + 11)^\circ$, what is the value of x?

5. Write an equation of the line that is parallel to the line whose equation is $2y = 3x + 4$ and passes through the point $(1, 4)$.

6. From a point on the ground one-half mile from the base of a historic monument, the angle of elevation to its top is 11.87°. To the nearest foot, what is the height of the monument?

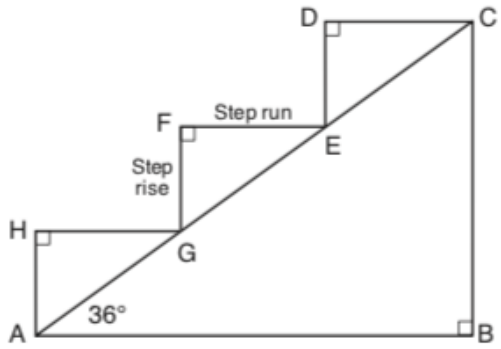


7. The map of a campground is shown below. Campsite C, first aid station F, and supply station S lie along a straight path. The path from the supply station to the tower, T, is perpendicular to the path from the supply station to the campsite. The length of path FS is 400 feet. The angle formed by path TF and path FS is 72°. The angle formed by path and path CS is 55°.

(a) Determine and state the volume of concrete needed, *in cubic feet*.

(b) Sarah can mix her own concrete for $3.25 per cubic foot. How much money will it cost her to replace the two concrete sections?

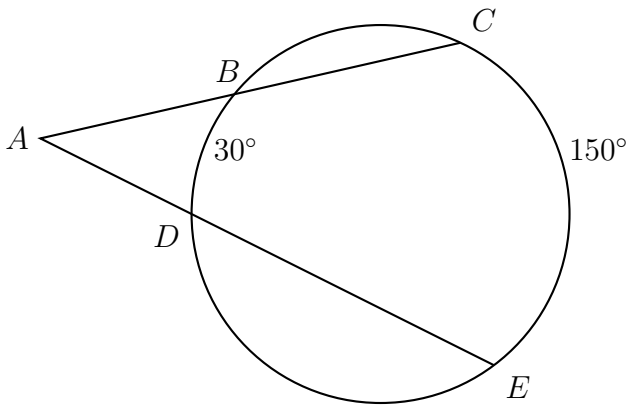
8. A homeowner is building three steps leading to a deck, as modeled by the diagram below. All three step rises, $\overline{HA}$, $\overline{FG}$, and $\overline{DE}$, are congruent, and all three step runs, $\overline{HG}$, $\overline{FE}$, and $\overline{DC}$, are congruent. Each step rise is perpendicular to the step run it joins. The measure of $\angle CAB = 36°$ and $\angle CBA = 90°$.



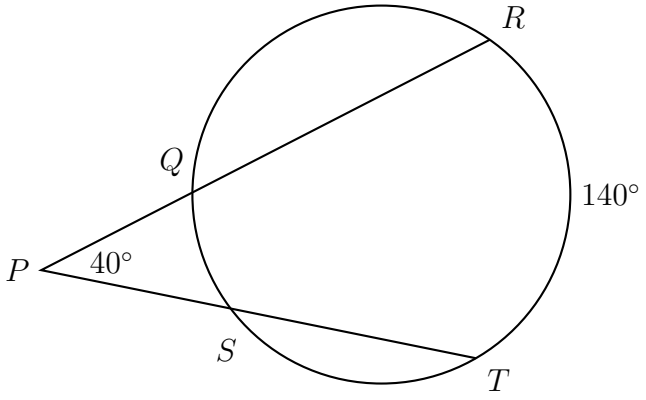
If each step run is parallel to $\overline{AB}$ and has a length of 10 inches, determine and state the length of each step rise, to the *nearest tenth of an inch*.

Determine and state the length of $\overline{AC}$, to the *nearest inch*.

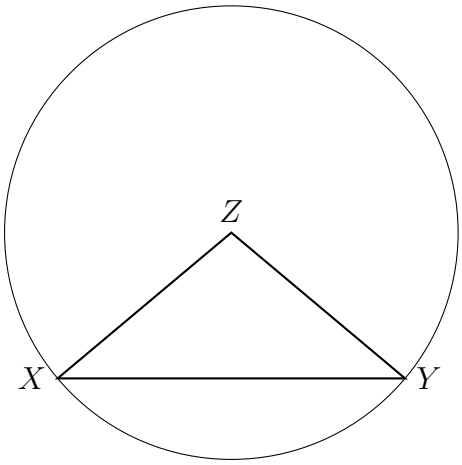
9. The secants $\overline{ABC}$ and $\overline{ADE}$ intersect the circle O, as shown in the diagram. Given $m\widehat{BD} = 30°$ and $m\widehat{CE} = 150°$. Find the $m\angle A$.



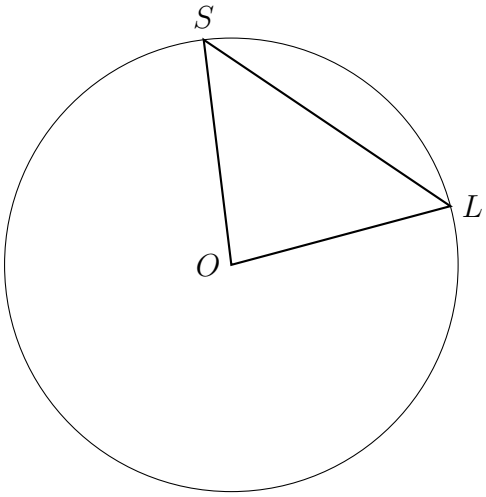
10. The secants $\overline{PQR}$ and $\overline{PST}$ intersect the circle O, as shown in the diagram. Given $m\angle P = 40°$ and $m\widehat{RT} = 140°$. Find the $m\widehat{QS}$.



11. Given circle Z with inscribed $\triangle XYZ$. $m\angle Z = 100$. Find $m\angle Y$.



12. Given circle O with inscribed $\triangle SLO$. $m\angle S = x + 7$. Find $m\angle O = 2x - 2$. Find x. For full credit, check your answer.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