



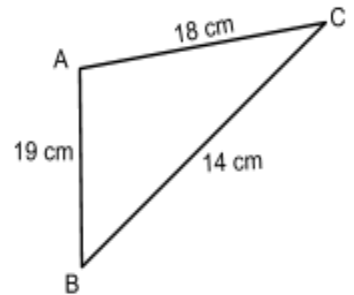
AFM Module Five Quiz Two

Directions: There are 3 questions on this quiz, each with multiple parts. Show your work when directed and ask questions if you are not understanding. The [Math Formula Sheet](#) will be helpful for the Law of Sines and Law of Cosines formulas.

Before using the COS or SIN functions in your calculator, check that your calculator MODE is set to DEGREE. When finding an angle, use 2ND to access the inverse of sine ($\sin^{-1}$) or the inverse of cosine ($\cos^{-1}$).

1) Three sides of a triangle measure 14 cm, 18 cm, and 19 cm.

a) The side across from an angle share the same letter. The angle uses an upper case and the side uses a lower case. Label the triangle sides using the appropriate letter.



b) The Law of Sines uses the 2 ratios of an angle and the side across and the Law of Cosines uses 3 sides and one angle. If you want to find a missing angle, which law do you need to use?

c) Write the generic formula needed to find angle C. (No numbers substituted yet.)

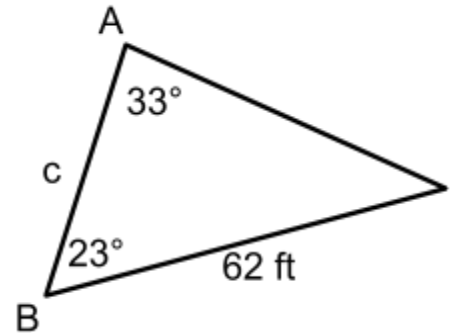
d) Showing your work, find the measure of angle C. Round to the nearest tenth of a degree.



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2) One side of a triangle measures 62 feet and is across from an angle measuring 33° . A second angle measures 23° .

- Label the triangle sides and remaining angle using the appropriate letter.
- If you want to find the measure of angle A, which law do you need to use?
- Write the generic formula needed to find side across from angle B. (No numbers substituted yet.)
- Show your work to find the measure of the side across from angle B. Round to the nearest tenth of a foot.



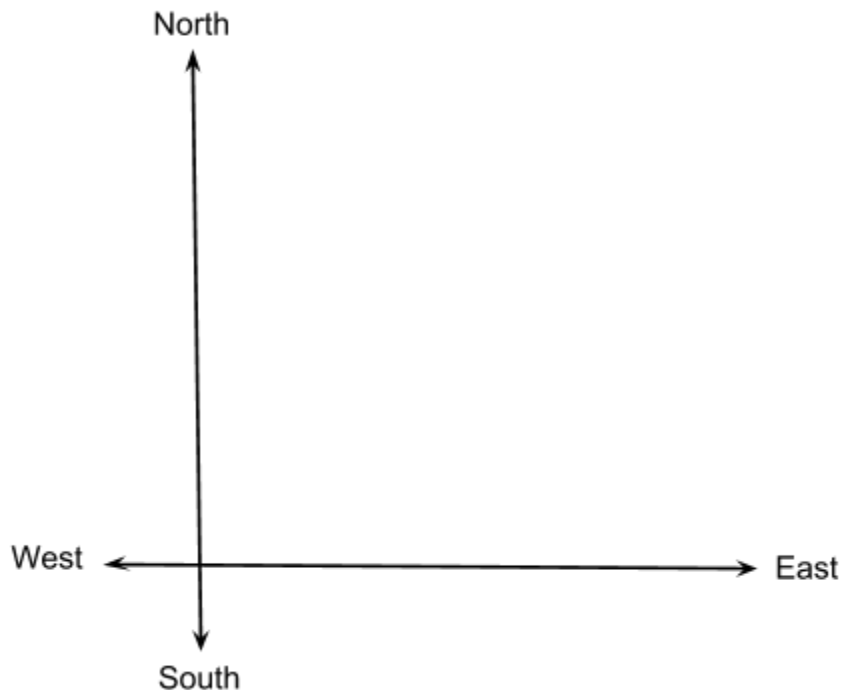
3) A plane takes off and travels at an angle of 70° north of east at 90 mph for 3 hours. It then adjusts its path to head 35° west of north and travel in that direction for half an hour at a speed of 110 mph. How far away is the plane from its starting point?

- Sketch the scenario using the directions that follow:
 - Draw a segment to represent the path the plane travels at an angle 70° north of east.
 - Label the 2 angles formed. (You will erase the smaller angle later.)
 - Label the segment with the miles traveled by the plane at 90 mph for 3 hours.



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- iv) Draw a dashed vertical line that passes through the end of the segment drawn. The dashed line is perpendicular to the west-east line and parallel to the north-south line.
- v) Alternate interior angles are congruent when formed by parallel lines. Label the smaller angle formed by the dashed line and segment representing the planes path.
- vi) Erase the angle formed by the segment and the north line.
- vii) Draw a segment to represent the path of the plane heading 35° west of north.
- viii) Label the angle formed by the path of the plane and the dashed line.
- ix) Label the segment with the miles represented by the path of the plane traveling for half an hour at a speed of 110 mph.
- x) The path of the plane and the dashed line form 3 angles. The sum of the 3 angles is 180° . Use this to find the missing angle. Label the missing angle measure.
- xi) Connect the end of the segment to the starting point. Label this c to represent the side needed.





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- b) In the sketch, how many sides are known in the triangle?
- c) In the sketch, how many angles are known in the triangle?
- d) Because the question asks how far away from the starting point the plane is, a side needs found. Is the Law of Sines or Law of Cosines more appropriate in this scenario?
- e) Write the generic formula needed to find the missing distance. (No numbers substituted yet.)
- f) Show your work to find the distance of the plane to its starting point. Round to the nearest mile.