CC Algebra 2H

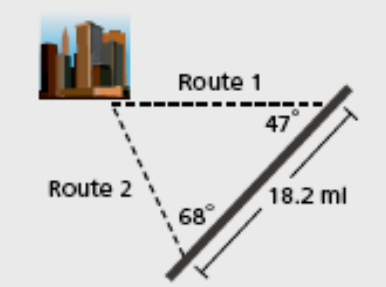
Extra Problems sections 10-5 and 10-6
(some are extra fun L☺L)

Solve ΔABC. If more than one triangle is possible, give both sets of answers. Round sides and angle measures to the nearest tenth.

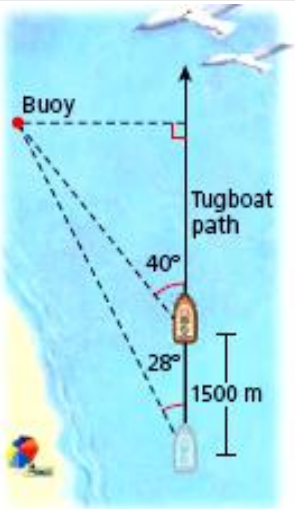
1. $\angle C = 95°$, $b = 19$, $c = 25$
2. $\angle B = 60°$, $b = 30$, $c = 20$
3. $a = 8$, $b = 9$, $\angle A = 35°$
4. $a = 4.2$, $b = 5.7$, and $\angle A = 39°$

Solve each problem.

5. A new road will be built from a town to a nearby highway. Two routes have been proposed. To the nearest tenth of a mile, how much shorter is route 2 than route 1?



6. As a tugboat travels along a channel, the captain sights a buoy at an angle of 28° to the boat's path. The captain continues on the same course for a distance of 1500 m and then sights the same buoy at an angle of 40°.



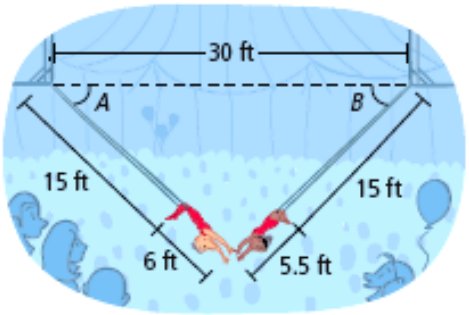
a. To the nearest meter, how far is the tugboat from the buoy at the second sighting?

b. To the nearest meter, how far was the tugboat from the buoy when the captain first sighted the buoy?

c. If the tugboat continues on the same course, what is the closest that it will come to the buoy? Round to the nearest meter.

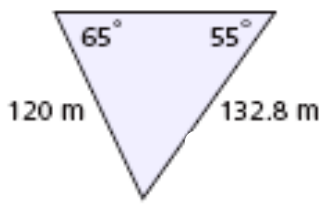
7. A triangular hiking trail is being built. Two sides of the trail measure 410 meters and 200 meters and the angle where those two sides meet is 100°. At an average walking speed of 2 meters per second, how many minutes will it take a hiker to hike the entire triangular trail? Round to the nearest minute.

8. Two performers hang by their knees from trapezes as shown. To the nearest degree, what acute angles A and B must the cords of each trapeze make with the horizontal if the performer on the left is to grab the wrists of the performer on the right and pull her away from the trapeze?

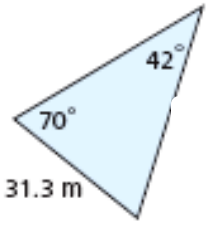


Find the area of each triangle. Round to the nearest tenth.

9.



10.



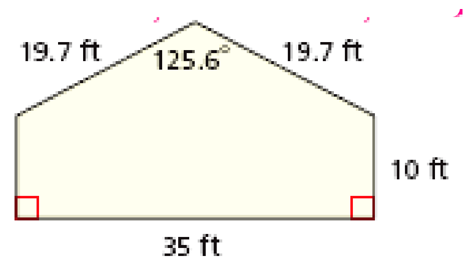
Find the area of ΔABC. Round to the nearest tenth.

11. $a = 25$, $b = 45$, $c = 60$

12. $a = 5$, $b = 27$, $c = 29$

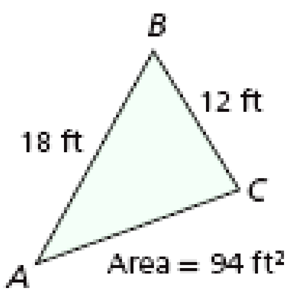
Solve each problem.

13. Trent needs to paint a side of a house that has measurements as shown. What is the area of this side of the house to the nearest square meter?

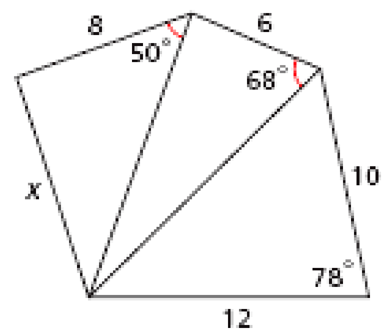


14. In Utah and Colorado, an area called the Dinosaur Diamond is known for containing many fossils. The distances between the 4 cities at the corners of the "diamond" are as follows: Price, Utah to Vernal, Utah is 89 miles; Vernal to Grand Junction, Colorado is 108 miles; Grand Junction to Moab, Utah is 64 miles, and Moab to Price is 98 miles. The diagonal connecting Price and Grand Junction is 126 miles. Find the area of the Dinosaur Diamond to the nearest square mile.

15. Find $\angle B$.



16. Solve for x. Round to the nearest tenth.



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Answers: 1. $\angle A \approx 35.8°$, $\angle B \approx 49.2°$, $a \approx 14.7$ 2. $\angle C \approx 35.3°$, $\angle A \approx 84.7°$, $a \approx 34.5$
3. $\angle B \approx 40.2°$, $\angle C \approx 104.8°$, $c \approx 13.5$ or $\angle B \approx 139.8°$, $\angle C \approx 5.2°$, $c \approx 1.3$
4. $\angle B \approx 58.7°$, $\angle C \approx 82.3°$, $c \approx 6.6$ or $\angle B \approx 121.3°$, $\angle C \approx 19.7°$, $c \approx 2.2$
5. 3.9 mi 6. a. 3387 m b. 4637 m c. 2177 m 7. 9 min 8. $\angle A \approx 43°$, $\angle B \approx 44°$
9. 6900.5 m 10. 638.2 m or 638.5 m 11. 509.9 units^2 12. 63.9 units^2 13. 508 ft^2
14. 7804 mi^2 15. 60.5° 16. 9.9