6.4 Law of Cosines and Sines

Name Key

Solve for the length of the missing side or the measure of the specified angle of each triangle. Round your answer to the nearest tenth for side length and degree for angles.

1. m∠C = 115°, a = 11, b = 21; find c
   27.5

2. m∠B = 72°, m∠C = 31°, a = 103; find b
   100.5

3 m∠A = 35°, m∠B = 56°, a = 51; find c
   88.9

4. m∠A = 34°, b = 24, c = 46; find a
   29.4

5. m∠A = 29°, a = 15, b = 19; find c
   28.5 OR 4.8

6. a = 12, b = 16, c = 19; m∠A
   39°

7. m∠A = 67°, a = 18, b = 20, find c
   NO SOLUTION

8. a = 21, b = 42, c = 31; m∠B
   106°

9. a = 12, b = 12, c = 17; m∠C
   90°

10. m∠A = 48°, m∠B = 38°, b = 49; find c
    79.4

Solve each ΔPQR. Round lengths to the nearest tenth, and angles to the nearest degree.

11. m∠R = 30°, p = 18, q = 16 m∠P=90°, m∠Q=60°, r=9

12. p = 18, m∠Q = 46°, m∠R = 39° m∠P=95°, r=11.4, q=13

13. p = 310, q = 250, r = 160 m∠P=96°, m∠Q=53°, m∠R=31°

14. m∠Q = 113°, p = 27, r = 43 m∠P=25°, m∠R=42°, q=59

15. p = 15, q = 19, r = 43 NO SOLUTION

16. m∠A = 32°, a = 7, b = 10 m∠B=49°, m∠C=99°, c=13
    OR
    m∠B=131°, m∠C=17°, c=3.9

Solve the following word problems.

17. A triangular field is 452 ft on one side, and 572 ft on another. The sides meet in an angle of 67.1°. Find the length of the third side to the nearest foot. 575 ft

18. If a triangular parcel of land has sides of lengths 541 ft, 429 ft, and 395 ft, what are the measures of the angles between the sides, to the nearest tenth of a degree?
    51.7°, 82°, 46.3°