Name: _____

Date: _____ Class: Trigonometry, per: _____

Chapter 8: Sine and Cosine Rule - Worksheet & Review

Objective: I can use the Sine Rule and Cosine Rule to find unknown sides and angles, solve non-right triangles, and model real-world triangular situations. Round as directed.

1. In $\triangle ABC$, $A = 30°$, $B = 45°$, and $a = 10$. Use the Sine Rule to find b to the nearest tenth.	**2.** In $\triangle ABC$, $A = 40°$, $B = 70°$, and $a = 15$. Use the Sine Rule to find b to the nearest tenth.
3. In $\triangle ABC$, $A = 55°$, $C = 80°$, and $a = 18$. Use the Sine Rule to find c to the nearest tenth.	**4.** In $\triangle ABC$, $A = 25°$, $C = 100°$, and $a = 9$. Use the Sine Rule to find c to the nearest tenth.
5. In $\triangle ABC$, $A = 65°$, $B = 50°$, and $a = 22$. Use the Sine Rule to find b to the nearest tenth.	**6.** In $\triangle ABC$, $A = 48°$, $C = 72°$, and $a = 16$. Use the Sine Rule to find c to the nearest tenth.
7. In $\triangle ABC$, $A = 32°$, $B = 88°$, and $a = 11$. Use the Sine Rule to find b to the nearest tenth.	**8.** In $\triangle ABC$, $A = 75°$, $C = 45°$, and $a = 20$. Use the Sine Rule to find c to the nearest tenth.
9. In $\triangle ABC$, $A = 28°$, $B = 112°$, and $a = 14$. Use the Sine Rule to find b to the nearest tenth.	**10.** In $\triangle ABC$, $A = 62°$, $C = 73°$, and $a = 19$. Use the Sine Rule to find c to the nearest tenth.

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11. In $\triangle ABC$, $A = 35°$, $a = 12$, and $b = 15$. Find the acute value of B to the nearest degree using the Sine Rule.	**12.** In $\triangle ABC$, $A = 42°$, $a = 18$, and $b = 14$. Find the acute value of B to the nearest degree using the Sine Rule.
13. In $\triangle ABC$, $A = 50°$, $a = 20$, and $b = 16$. Find the acute value of B to the nearest degree using the Sine Rule.	**14.** In $\triangle ABC$, $A = 28°$, $a = 9$, and $b = 13$. Find the acute value of B to the nearest degree using the Sine Rule.
15. In $\triangle ABC$, $A = 63°$, $a = 17$, and $b = 12$. Find the acute value of B to the nearest degree using the Sine Rule.	**16.** In $\triangle ABC$, $a = 8$, $b = 11$, and $C = 60°$. Use the Cosine Rule to find c to the nearest tenth.
17. In $\triangle ABC$, $a = 10$, $b = 14$, and $C = 35°$. Use the Cosine Rule to find c to the nearest tenth.	**18.** In $\triangle ABC$, $a = 7$, $b = 9$, and $C = 120°$. Use the Cosine Rule to find c to the nearest tenth.
19. In $\triangle ABC$, $a = 13$, $b = 15$, and $C = 48°$. Use the Cosine Rule to find c to the nearest tenth.	**20.** In $\triangle ABC$, $a = 6$, $b = 12$, and $C = 100°$. Use the Cosine Rule to find c to the nearest tenth.

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21. In $\triangle ABC$, $a = 18$, $b = 21$, and $C = 72°$. Use the Cosine Rule to find c to the nearest tenth.	**22.** In $\triangle ABC$, $a = 9$, $b = 16$, and $C = 135°$. Use the Cosine Rule to find c to the nearest tenth.
23. In $\triangle ABC$, $a = 11$, $b = 17$, and $C = 25°$. Use the Cosine Rule to find c to the nearest tenth.	**24.** In $\triangle ABC$, $a = 5$, $b = 7$, and $c = 8$. Use the Cosine Rule to find C to the nearest degree.
25. In $\triangle ABC$, $a = 9$, $b = 12$, and $c = 15$. Use the Cosine Rule to find C to the nearest degree.	**26.** In $\triangle ABC$, $a = 7$, $b = 10$, and $c = 13$. Use the Cosine Rule to find C to the nearest degree.
27. In $\triangle ABC$, $a = 8$, $b = 13$, and $c = 15$. Use the Cosine Rule to find C to the nearest degree.	**28.** In $\triangle ABC$, $a = 10$, $b = 10$, and $c = 12$. Use the Cosine Rule to find C to the nearest degree.
29. In $\triangle ABC$, $a = 6$, $b = 8$, and $c = 11$. Use the Cosine Rule to find C to the nearest degree.	**30.** In $\triangle ABC$, $a = 14$, $b = 15$, and $c = 20$. Use the Cosine Rule to find C to the nearest degree.

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31. Solve $\triangle ABC$: $A = 42°$, $B = 68°$, $a = 15$. Find C, b, and c (lengths to the nearest tenth).	**32.** Solve $\triangle ABC$: $A = 55°$, $B = 45°$, $a = 18$. Find C, b, and c (lengths to the nearest tenth).
33. Solve $\triangle ABC$: $A = 30°$, $B = 80°$, $a = 12$. Find C, b, and c (lengths to the nearest tenth).	**34.** Solve $\triangle ABC$: $A = 72°$, $B = 38°$, $a = 20$. Find C, b, and c (lengths to the nearest tenth).
35. Solve $\triangle ABC$: $A = 47°$, $B = 63°$, $a = 14$. Find C, b, and c (lengths to the nearest tenth).	**36.** Solve $\triangle ABC$: $a = 9$, $b = 13$, $C = 50°$. Find c, A, and B (nearest tenth for length, nearest degree for angles).
37. Solve $\triangle ABC$: $a = 12$, $b = 16$, $C = 75°$. Find c, A, and B (nearest tenth for length, nearest degree for angles).	**38.** Solve $\triangle ABC$: $a = 7$, $b = 11$, $C = 110°$. Find c, A, and B (nearest tenth for length, nearest degree for angles).
39. Solve $\triangle ABC$: $a = 15$, $b = 18$, $C = 42°$. Find c, A, and B (nearest tenth for length, nearest degree for angles).	**40.** Solve $\triangle ABC$: $a = 10$, $b = 14$, $C = 95°$. Find c, A, and B (nearest tenth for length, nearest degree for angles).

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41. Two hiking trails from the same point are 6.4 km and 8.1 km long with an included angle of 52°. Find the straight-line distance between their endpoints.	**42.** Two sides of a triangular field are 120 m and 85 m with an included angle of 67°. Find the third side.
43. Two roads leave a town and extend 35 km and 42 km, making an angle of 110°. How far apart are the road endpoints?	**44.** Observation points A and B are 100 m apart. A target C forms angles $A = 45°$ and $B = 65°$. Find AC.
45. A triangular plot has side lengths 50 m, 65 m, and 70 m. Find the angle between the 50 m and 65 m sides.	**46.** Two support cables of lengths 20 m and 26 m meet at the top of a mast; their ground anchors are 30 m apart. Find the angle between the cables.
47. In a survey triangle, $A = 48°$, $B = 73°$, and side $a = 120$ m. Find side b.	**48.** A triangular park has $A = 62°$, $B = 51°$, and side $b = 90$ m. Find the remaining angle and the other two sides.
49. Two beams of lengths 18 m and 24 m meet at an angle of 38°. Find the distance between their free ends.	**50.** A triangle has sides 140 m, 175 m, and 210 m. Find the angle between the 140 m and 175 m sides.