Answer Key · Lesson 2.3: Complementary Angles and Cofunctions

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Key

1. $\csc 74^\circ$

Write $\sec 16^\circ$ as a cofunction of the complementary angle.

2. $\csc 70^\circ$

Write $\sec 20^\circ$ as a cofunction of the complementary angle.

3. $\sin 23^\circ$

Write $\cos 67^\circ$ as a cofunction of the complementary angle.

4. $\cot 31^\circ$

1. Complement: $90 - 59 = 31$
2. $\tan 59^\circ = \cot 31^\circ$

Write $\tan 59^\circ$ as a cofunction of the complementary angle.

5. $\cot 29^\circ$

1. Complement: $90 - 61 = 29$
2. $\tan 61^\circ = \cot 29^\circ$

Write $\tan 61^\circ$ as a cofunction of the complementary angle.

6. $\cot 83^\circ$

1. Complement: $90 - 7 = 83$
2. $\tan 7^\circ = \cot 83^\circ$

Write $\tan 7^\circ$ as a cofunction of the complementary angle.

7. $\sin 21^\circ$

1. Complement: $90 - 69 = 21$
2. $\cos 69^\circ = \sin 21^\circ$

Write $\cos 69^\circ$ as a cofunction of the complementary angle.

8. $x = \frac{63}{11}$

1. Cofunction angles are complementary: $(2x + 17) + (9x + 10) = 90$
2. $11x = 63 \Rightarrow x = \dfrac{63}{11}$

Find x if $\sin(2x + 17)^\circ = \cos(9x + 10)^\circ$, with both angles acute.

9. $x = \frac{31}{4}$

1. Cofunction angles are complementary: $(2x + 18) + (6x + 10) = 90$
2. $8x = 62 \Rightarrow x = \dfrac{31}{4}$

Find x if $\sin(2x + 18)^\circ = \cos(6x + 10)^\circ$, with both angles acute.

10. $x = \frac{72}{11}$

1. Cofunction angles are complementary: $(2x + 8) + (9x + 10) = 90$
2. $11x = 72 \Rightarrow x = \dfrac{72}{11}$

Find x if $\sin(2x + 8)^\circ = \cos(9x + 10)^\circ$, with both angles acute.