Answer Key · Lesson 1.5: The Reciprocal Ratios

School Launch · Trigonometry · Unit 1 · Worksheet A · for the parent

Key

1. $\csc\theta = \frac{5}{3}$

If $\sin\theta = \frac{3}{5}$ with θ acute, find $\csc\theta$.

2. $\cot\theta = \frac{40}{9}$

If $\tan\theta = \frac{9}{40}$ with θ acute, find $\cot\theta$.

3. $\csc\theta = \frac{25}{7}$

If $\sin\theta = \frac{7}{25}$ with θ acute, find $\csc\theta$.

4. $\csc\theta = \frac{13}{5}$

1. $\csc\theta = \dfrac{1}{\sin\theta} = \dfrac{13}{5}$

If $\sin\theta = \frac{5}{13}$ with θ acute, find $\csc\theta$.

5. $\cot\theta = \frac{15}{8}$

1. $\cot\theta = \dfrac{1}{\tan\theta} = \dfrac{15}{8}$

If $\tan\theta = \frac{8}{15}$ with θ acute, find $\cot\theta$.

6. $\sec\theta = \frac{5}{4}$

1. $\sec\theta = \dfrac{1}{\cos\theta} = \dfrac{5}{4}$

If $\cos\theta = \frac{4}{5}$ with θ acute, find $\sec\theta$.

7. $\cot\theta = \frac{24}{7}$

1. $\cot\theta = \dfrac{1}{\tan\theta} = \dfrac{24}{7}$

If $\tan\theta = \frac{7}{24}$ with θ acute, find $\cot\theta$.

8. $\cot\theta = \frac{24}{7}$; $\sin\theta = \frac{7}{25}$, $\cos\theta = \frac{24}{25}$, $\tan\theta = \frac{7}{24}$, $\csc\theta = \frac{25}{7}$, $\sec\theta = \frac{25}{24}$, $\cot\theta = \frac{24}{7}$

1. Hypotenuse: $\sqrt{7^2 + 24^2} = 25$
2. $\cot\theta = \dfrac{1}{\tan\theta} = \dfrac{24}{7}$

If $\tan\theta = \frac{7}{24}$ with θ acute, find $\cot\theta$ and the other four ratios.

9. $\csc\theta = \frac{41}{9}$; $\sin\theta = \frac{9}{41}$, $\cos\theta = \frac{40}{41}$, $\tan\theta = \frac{9}{40}$, $\csc\theta = \frac{41}{9}$, $\sec\theta = \frac{41}{40}$, $\cot\theta = \frac{40}{9}$

1. Third side: $\sqrt{41^2 - 9^2} = 40$
2. $\csc\theta = \dfrac{1}{\sin\theta} = \dfrac{41}{9}$

If $\sin\theta = \frac{9}{41}$ with θ acute, find $\csc\theta$ and the other four ratios.

10. $\cot\theta = \frac{4}{3}$; $\sin\theta = \frac{3}{5}$, $\cos\theta = \frac{4}{5}$, $\tan\theta = \frac{3}{4}$, $\csc\theta = \frac{5}{3}$, $\sec\theta = \frac{5}{4}$, $\cot\theta = \frac{4}{3}$

1. Hypotenuse: $\sqrt{3^2 + 4^2} = 5$
2. $\cot\theta = \dfrac{1}{\tan\theta} = \dfrac{4}{3}$

If $\tan\theta = \frac{3}{4}$ with θ acute, find $\cot\theta$ and the other four ratios.