

#1-19: SHOW ALL WORK. YOU MUST USE IDENTITIES TO SOLVE EACH PROBLEM!

- Write identity
- Plug in values
- Show work and solve

Use the given information to determine the exact trigonometric value.

1. $\cot \theta = -\frac{\sqrt{5}}{2}$, $\frac{\pi}{2} < \theta < \pi$; $\tan \theta$

2. $\sin \theta = -\frac{1}{5}$, $\pi < \theta < \frac{3\pi}{2}$; $\cos \theta$

CHECK ANSWERS:

$-\frac{3}{4}$ $-\frac{\sqrt{2}}{3}$ $-\frac{2\sqrt{5}}{5}$

$-\frac{2\sqrt{6}}{5}$ $-\frac{3\sqrt{13}}{13}$ $\frac{4\sqrt{3}}{3}$

$-\frac{2\sqrt{6}}{7}$ $\frac{\sqrt{2}}{4}$ $\frac{\sqrt{5}}{3}$ $\frac{\sqrt{15}}{4}$

$\sin x + \cos x$ 1 2

$\cos x$ $\csc x$

$\csc \theta$ $\sec \theta$

$2\cot \theta$ $2\cos \theta$

Simplify each expression.

3. $\frac{\csc \theta}{\cot \theta}$

4. $(\cos x)(\csc x)(\tan x)$

5. $\frac{\sin 2\theta}{\cos \theta} \cdot \cot \theta$

CLEARLY SHOW ALL WORK ON A SEPARATE SHEET OF PAPER OR ON THE BACK OF THIS PAPER.

Use the given information to determine the exact trigonometric value.

6. $\sin \theta = \frac{\sqrt{3}}{4}$, $0 < \theta < \frac{\pi}{2}$; $\csc \theta$

7. $\sin \theta = \frac{1}{4}$, $0 < \theta < \frac{\pi}{2}$; $\cos \theta$

8. $\cos \theta = -\frac{2}{3}$, $\frac{\pi}{2} < \theta < \pi$; $\sin \theta$

9. $\csc \theta = \frac{\sqrt{11}}{3}$, $\frac{\pi}{2} < \theta < \pi$; $\cot \theta$

10. $\sec \theta = -\frac{5}{4}$, $\frac{\pi}{2} < \theta < \pi$; $\tan \theta$

11. $\sin \theta = -\frac{1}{3}$, $\pi < \theta < \frac{3\pi}{2}$; $\tan \theta$

12. $\tan \theta = \frac{2}{3}$, $\pi < \theta < \frac{3\pi}{2}$; $\cos \theta$

13. $\sec \theta = -\frac{7}{5}$, $\pi < \theta < \frac{3\pi}{2}$; $\sin \theta$

Simplify each expression.

14. $\frac{\sec x}{\tan x}$

15. $\frac{\cot \theta}{\cos \theta}$

16. $(\csc^2 \theta)(\sin 2\theta)$

17. $\cos x \cdot \tan x + \sin x \cdot \cot x$

18. $\sin x \cdot \cos x \cdot \sec x \cdot \cot x$

19. $(\sin x + \cos x)^2 + (\sin x - \cos x)^2$

hint: square each part, then combine like terms
reminder: $(x + y)^2 = x^2 + 2xy + y^2$