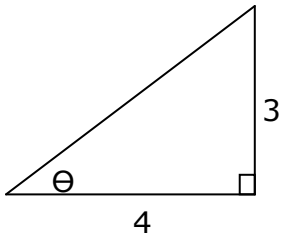
PreCalculus Name _____
Double Angle Trig Identities WS

Use the figure to find the exact value of each trig function.



1. $\sin\theta$ 2. $\cos\theta$ 3. $\tan\theta$

4. $\csc\theta$ 5. $\sec\theta$ 6. $\cot\theta$

7. $\sin 2\theta$ 8. $\cos 2\theta$ 9. $\tan 2\theta$

10. $\csc 2\theta$ 11. $\sec 2\theta$ 12. $\cot 2\theta$

Find the exact values of $\sin 2x$, $\cos 2x$, and $\tan 2x$ using the double-angle identities.

13. $\sin x = \frac{3}{5}, \quad 0 < x < \frac{\pi}{2}$ 14. $\cos x = -\frac{2}{7}, \quad \frac{\pi}{2} < x < \pi$

15. $\tan x = \frac{1}{2}, \quad \pi < x < \frac{3\pi}{2}$ 16. $\cot x = -6, \quad \frac{3\pi}{2} < x < 2\pi$

Answers

1) 3/5 2) 4/5 3) 3/4 4) 5/3 5) 5/4 6) 4/3

7) 24/25 8) 7/25 9) 24/7 10) 25/24 11) 25/7 12) 7/24

$\sin 2x = \frac{24}{25}$ $\sin 2x = -\frac{12\sqrt{5}}{49}$ $\sin 2x = \frac{4}{5}$ $\sin 2x = -\frac{12}{37}$

13) $\cos 2x = \frac{7}{25}$ 14) $\cos 2x = -\frac{41}{49}$ 15) $\cos 2x = \frac{3}{5}$ 16) $\cos 2x = \frac{35}{37}$

$\tan 2x = \frac{24}{7}$ $\tan 2x = \frac{12\sqrt{5}}{41}$ $\tan 2x = \frac{4}{3}$ $\tan 2x = -\frac{12}{35}$