HW 14.4: Pg. 1017 #2-8, 18-20

14-4 Exercises

California Standards
3.0, 17.0; Preview of Trig
10.0

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GUIDED PRACTICE

1. **Vocabulary** A geometric rotation requires that a center point of rotation be defined. Which point and which direction does a rotation matrix such as R_θ assume?

SEE EXAMPLE 1 p. 1014

Find the exact value of each expression.

2. $\cos 105°$
3. $\sin\frac{11\pi}{12}$
4. $\tan\frac{\pi}{12}$
5. $\cos(-75°)$

SEE EXAMPLE 2 p. 1015

Prove each identity.

6. $\sin\left(\frac{\pi}{2}+x\right)=\cos x$
7. $\tan(\pi+x)=\tan x$
8. $\cos\left(\frac{3\pi}{2}-x\right)=-\sin x$

SEE EXAMPLE 3 p. 1015

Find each value if $\sin A=-\frac{12}{13}$ with $180°<A<270°$ and if $\sin B=\frac{4}{5}$ with $90°<B<180°$.

9. $\sin(A+B)$
10. $\cos(A-B)$
11. $\tan(A+B)$
12. $\tan(A-B)$

SEE EXAMPLE 4 p. 1016

13. Find the coordinates, to the nearest hundredth, of the vertices of triangle ABC with $A(0, 2)$, $B(0, -1)$, and $C(3, 0)$ after a 120° rotation about the origin.

PRACTICE AND PROBLEM SOLVING

Independent Practice

For Exercises	See Example
14–17	1
18–20	2
21–24	3
25	4

Extra Practice
Skills Practice p. S31
Application Practice p. S45

Find the exact value of each expression.

14. $\sin\frac{7\pi}{12}$
15. $\tan 165°$
16. $\sin 195°$
17. $\cos\frac{11\pi}{12}$

Prove each identity.

18. $\cos\left(\frac{3\pi}{2}+x\right)=\sin x$
19. $\sin\left(\frac{3\pi}{2}+x\right)=-\cos x$
20. $\tan(x-2\pi)=\tan x$

Find each value if $\cos A=-\frac{12}{13}$ with $90°<A<180°$ and if $\sin B=-\frac{4}{5}$ with $270°<B<360°$.

21. $\sin(A+B)$
22. $\tan(A-B)$
23. $\cos(A+B)$
24. $\cos(A-B)$