Name _____ Class _____ Date _____

Practice 14-2

Solving Trigonometric Equations Using Inverses

Solve each equation for $0 \leq \theta < 2\pi$.

1. $2 \tan \theta + 2 = 0$

2. $2 \cos \theta = 1$

3. $2 \cos \theta + \sqrt{3} = 0$

4. $\sqrt{3} \cot \theta - 1 = 0$

5. $4 \sin \theta - 3 = 0$

6. $4 \sin \theta + 3 = 0$

7. $\left(2 \cos \theta + \sqrt{3}\right)(2 \cos \theta + 1) = 0$

8. $\sqrt{3} \tan \theta - 2 \sin \theta \tan \theta = 0$

9. $2 \cos^2 \theta + \cos \theta = 0$

10. $5 \cos \theta - 3 = 0$

11. $\tan \theta - 2 \cos \theta \tan \theta = 0$

12. $\tan \theta (\tan \theta + 1) = 0$

13. $(\cos \theta - 1)(2 \cos \theta - 1) = 0$

14. $\tan^2 \theta - \tan \theta = 0$

15. If a projectile is fired into the air with an initial velocity v at an angle of elevation θ, then the height h of the projectile at time t is given by $h = -16t^2 + vt \sin \theta$.

a. Find the angle of elevation θ of a rifle barrel, to the nearest tenth of a degree, if a bullet fired at 1500 ft/s takes 2 s to reach a height of 750 ft.

b. Find the angle of elevation of a rifle, to the nearest tenth of a degree, if a bullet fired at 1500 ft/s takes 3 s to reach a height of 750 ft.

Use a calculator and inverse functions to find the radian measures of the angles.

16. angles whose tangent is 2.5

17. angles whose sine is 0.75

18. angles whose cosine is (-0.24)

19. angles whose cosine is 0.45

Use a unit circle and 45°–45°–90° triangles to find the degree measures of the angles.

20. angles whose sine is $\frac{\sqrt{2}}{2}$

21. angles whose tangent is 1

22. angles whose cosine is $\frac{\sqrt{2}}{2}$

23. angle whose sine is 1

Use the graph of the inverse of $y = \cos \theta$ at the right.

24. Find the measures of the angles whose cosine is -1.

25. Find the measures of the angles whose cosine is 0.