

Practice 14-2

Solving Trigonometric Equations Using Inverses

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

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| 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. $(2 \cos \theta + \sqrt{3})(2 \cos \theta + 1) = 0$ | 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 $h = -16t^2 + vt \sin \theta$.
- 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.
 - 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.

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| 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.

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| 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.

- Find the measures of the angles whose cosine is -1 .
- Find the measures of the angles whose cosine is 0.

