Trigonometric Equations

SOLVING TRIGONOMETRIC EQUATIONS

Directions: Solve each trigonometric function for *ALL POSSIBLE VALUES IN DEGREES*. Use the hints provided.

HINT ***COLLECT LIKE TERMS***

1.) $\cos x + \sqrt{3} = -\cos x$

HINT ***EXTRACT SQUARE ROOTS***

2.) $4\sin^2\theta - 3 = 0$

Directions: Solve each trigonometric function for *ALL POSSIBLE VALUES IN RADIANS*. Use the hints provided.

HINT ***FACTOR GCF***

3.) $2\cos\theta\sin\theta = \cos\theta$

HINT ***FACTOR EQUATION AS QUADRATIC TYPE***

4.) $2\sin^2 x - 3\sin x + 1 = 0$

Trigonometric Equations

Directions: Solve each trigonometric function *IN THE INTERVAL* $[0, 2\pi)$. Use the hints provided.

HINT ***REWRITE WITH SINGLE TRIG FUNCTION***

5.) $3\sec^2 x - 2\tan^2 x - 4 = 0$

HINT ***SQUARE & CONVERT TO QUADRATIC TYPE***

6.) $\sin\theta + 1 = \cos\theta$

Directions: Solve each trigonometric function *IN THE INTERVAL* $[0, 360)$. Use the hints provided.

HINT ***FUNCTIONS OF MULTIPLE ANGLES***

7.) $\sin 2x - \frac{\sqrt{3}}{2} = 0$

HINT ***USING INVERSE FUNCTIONS (calculator)***

8.) $4\tan^2\theta + 5\tan\theta = 6$

Trigonometric Equations

Directions: Solve each trigonometric function for *ALL POSSIBLE VALUES IN DEGREES*.

9.) $2\sin^2\theta + \sin\theta - 1 = 0$

10.) $5(\sin\theta + 1) = 5$

11.) $7\tan\theta = 3\sqrt{3} + \tan\theta$

12.) $2\sin\theta\cos\theta + \cos\theta = 0$

Directions: Solve each trigonometric function for *ALL POSSIBLE VALUES IN RADIANS*.

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

14.) $4\sin\theta - 1 = 2\sin\theta + 1$

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15.) $\sec\theta \csc\theta + \sqrt{2}\csc\theta = 0$

16.) $\cos^2 x + \sin x = 1$

Directions: Solve each trigonometric function *IN THE INTERVAL* $[0, 360)$.

17.) $\sec x + \tan x = 1$

18.) $\tan(3x) = 1$

19.) $2\sin x + 1 = \csc x$

20.) $2\sin^2\theta - 1 = 0$

Trigonometric Equations

Directions: Solve each trigonometric function *IN THE INTERVAL* $[0, 2\pi)$.

21.) $2\sin^2\theta - \sin\theta = 3$

22.) $3\tan^2\theta = 1$

23.) $\csc x + \cot x = 1$

24.) $2\sin(2x) = -\sqrt{3}$

Directions: Use inverse functions to solve each trigonometric function *IN THE INTERVAL* $[0, 360)$. Round all answers to the nearest tenth.

25.) $\tan^2 x - 6\tan x + 5$

26.) $2\cos^2 x - 5\cos x + 2 = 0$

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The Unit Circle