MATH 170 – CHAPTER 6 Name: .

6.1 Solving Trig Equations

Need To Know

- Solve Equations
  - Basic equations
  - Equations without exact values
  - Quadratic equations
- Homework change
  - Do #3s, #7s and #9s for 1 - 39

Solving Trig Equations

Solve for θ, if $0° \leq \theta \leq 360°$ Solve for all θ

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

Solving Trig Equations

Find all angles that solve in radians

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

Solving Trig Equations

Solve for x, if $0 \leq x \leq 2\pi$

$2\cos^2 x + \cos x - 1 = 0$

Solving Trig Equations

Solve for degree solutions for θ

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

end

6.2 Solve More Trig Equations

Need To Know

- Solve Trig Equations
  - With factoring
  - With identity substitution
  - With the quadratic formula
- Work on developing creativity and ingenuity

Solve Trig Equations w/ Factoring

Solve for θ, if $0° \leq \theta \leq 360°$

$\csc\theta + 2\cot\theta = 0$

Solve Trig Eq w/ Identity Sub

Solve for x, if $0 \leq x \leq 2\pi$

$4\cos^2 x - 4\sin x - 5 = 0$

Solve Trig Eq w/ a combo of techniques

Solve for x, if $0 \leq x \leq 2\pi$

$\sin x - \sqrt{3}\cos x = 1$

Solve Trig Equations w/ Factoring

Solve for θ, if $0° \leq \theta \leq 360°$

$16\cos 2\theta - 18\sin^2 \theta = 0$

end

6.3 Trig Eq w/ Multiple Angles

Need To Know

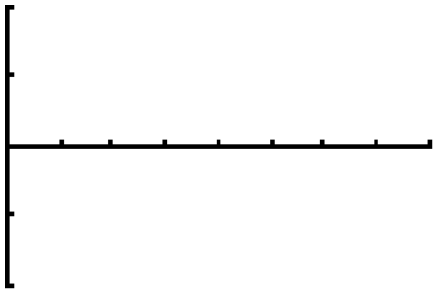
- Solve Trig Eq w/ Multiple Angles
  - Use the same techniques
  - But add formula solutions to find multiple answers

Solve

Solve for x, if $0 \leq x \leq 2\pi$

$\sin 3x = 1$

Graph



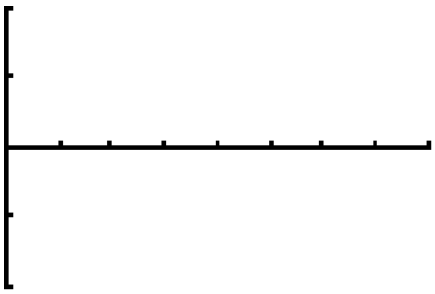
1. Sub out multiple angle with "A" (Set A = multiple angle)
2. Solve trig(A) = number
3. Write formula solution of A
4. Back sub multiple angle for A
5. Solve for original unknown (x, θ)
6. Plug in k's to get specific answers

Solve

Solve for x, if $0 \leq x \leq 2\pi$

$\cos 2x \cos x - \sin 2x \sin x = \frac{1}{\sqrt{2}}$

Graph

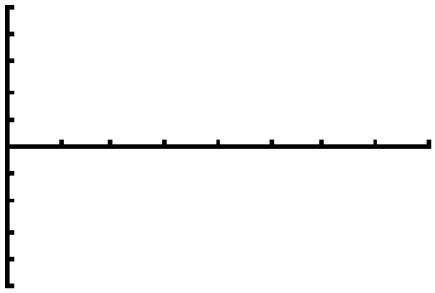


Solve

Find all degree solutions of :

$2\sin^2 4\theta + 3\sin 4\theta + 1 = 0$

Graph

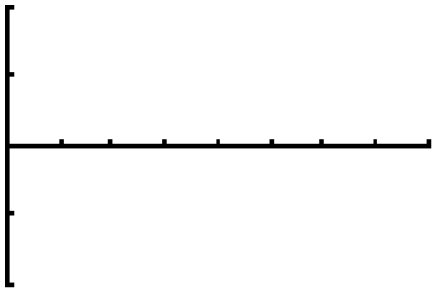


Solve

Solve for θ, if $0° \leq \theta \leq 360°$

$\sin\theta - \cos\theta = 1$

Graph



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