Sec 7.5 Solving Linear Trig equations

Learning goal

-to solve linear trig equations algebraically

-show how they can be solved graphically.

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Recall:

We have found the value of θ from an equality like this...

$$\sin\theta = \frac{1}{2}, where\ 0 \le \theta \le 2\pi$$

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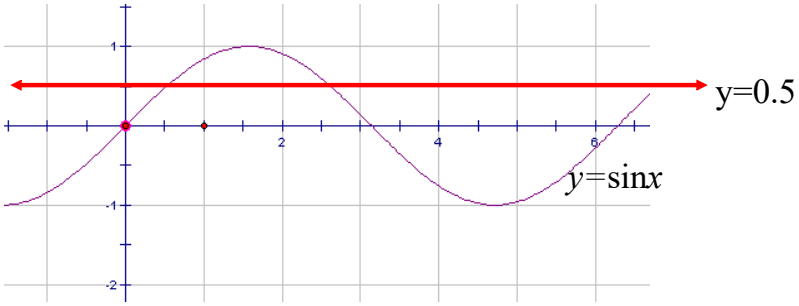
How would that look graphically?



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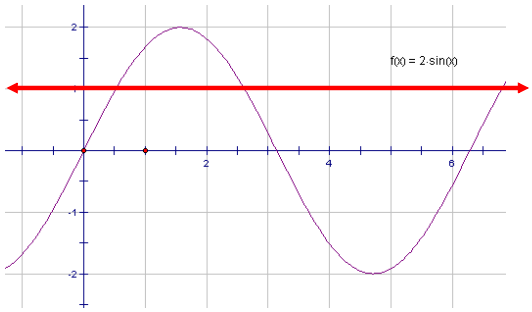
How would it change if you were given...

$$2\sin\theta = 1, where\ 0 \le \theta \le 2\pi$$



See that it's the same answer...

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So... $2\sin\theta = 1$

$\sin\theta = \frac{1}{2}$

We can rearrange any trig equation to isolate for the given trig ratio (not isolating the angle, just the ratio) and then solve for the angle using trig rules

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Ex: Solve for θ

$3(\tan\theta + 1) = 2, \quad 0 \le \theta \le 2\pi$

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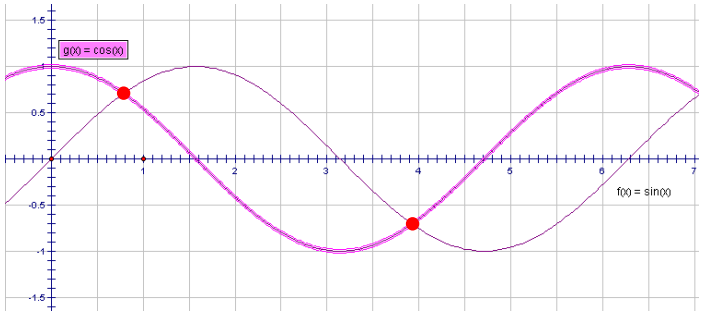
Sometimes we have to use our identities to solve.

Ex: Solve

Note: These are not identities so you may move things across the equal sign.

$2\sin\theta\cos\theta = \cos 2\theta \qquad 0 \le \theta \le 2\pi$



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