

$$\begin{aligned} \sqrt{x^2} &= \pm \sqrt{4} \\ x &= \pm 2 \\ x &= -2 \\ (-2)^2 &= 4 \\ \text{Half-Angle Formulas} \end{aligned}$$

$$\begin{aligned} \sin\left(\frac{\theta}{2}\right) &= \pm \sqrt{\frac{1}{2}} \\ \cos\left(\frac{\theta}{2}\right) &= -\sqrt{\frac{1}{2}} \\ \sin\left(\frac{\theta}{2}\right) \\ \sin\left(\frac{\theta}{2}\right) &= -\sqrt{\frac{1}{2}} \\ \sin\left(\frac{\theta}{2}\right) \\ \sin\left(\frac{\theta}{2}\right) \\ \sin\left(\frac{\theta}{2}\right) \\ \cos\left(\frac{\theta}{2}\right) &= -\sqrt{\frac{1}{2}} \\ \sin\left(\frac{\theta}{2}\right) \\ \sin\left(\frac{\theta}{2}\right) \\ \sin\left(\frac{\theta}{2}\right) \\ \cos\left(\frac{\theta}{2}\right) \\ \sin\left(\frac{\theta}{2}\right) \\ \sin\left(\frac{\theta}{2}\right) \\ \sin\left(\frac{\theta}{2}\right) \\ \sin\left(\frac{\theta}{2}\right) \\ \cos\left(\frac{\theta}{2}\right) \\ = \sqrt{\frac{1}{2}} \\ \sin\left(\frac{\theta}{2}\right) \\ \sin\left($$

Section 6.2 – Double-Angle and Half-Angle Formulas



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Example 3: Use the half-angle formula to calculate
$$\cos\left(\frac{13\pi}{8}\right)$$
. Recall: $\cos\left(\frac{\theta}{2}\right) = \pm \sqrt{\frac{1+\cos\theta}{2}}$
a. Which quadrant does $\left(\frac{13\pi}{8}\right)$ live in?
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Section 6.2 – Double-Angle and Half-Angle Formulas