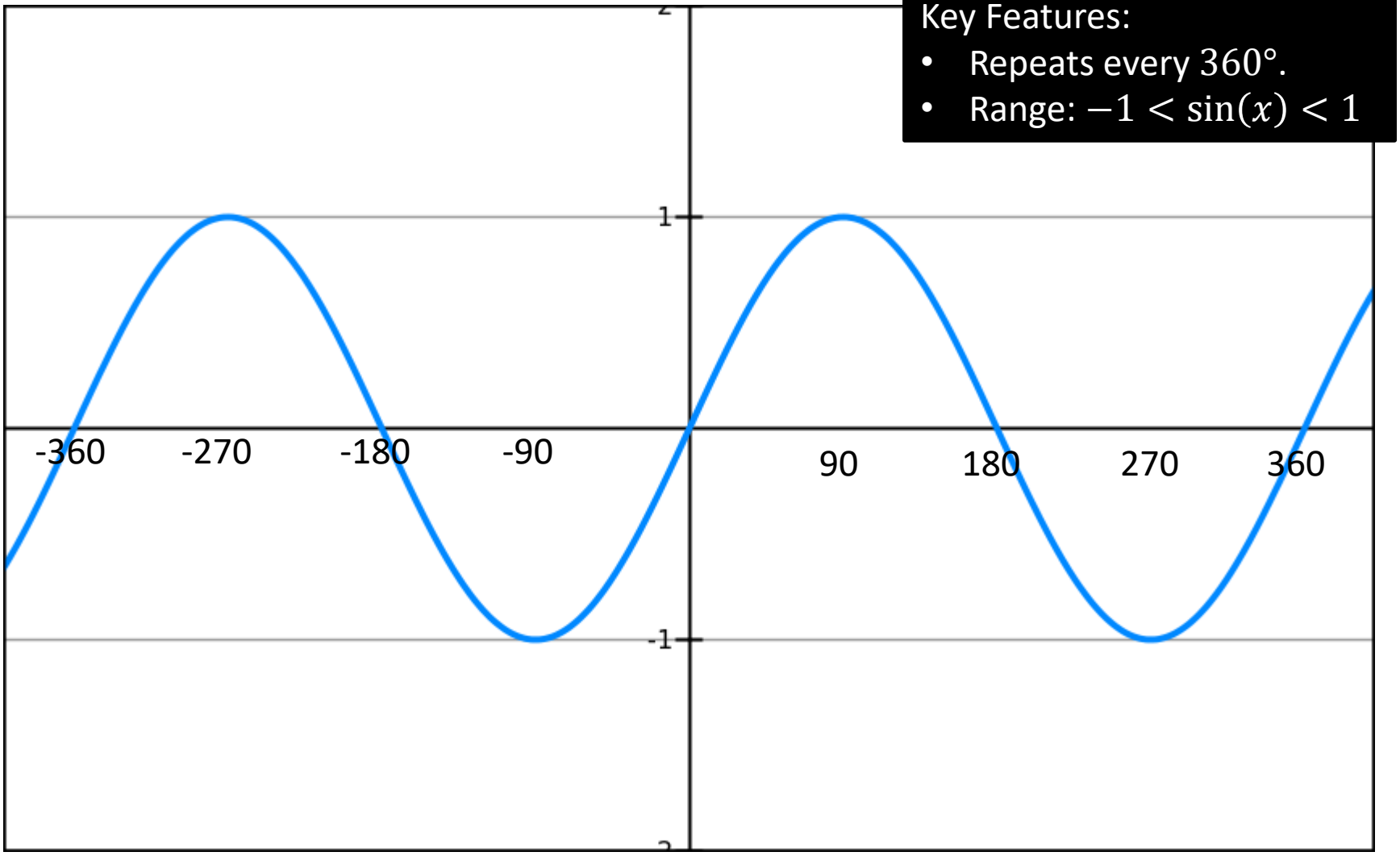
P1 Chapter 9: Trigonometric Ratios

Circular Graphs

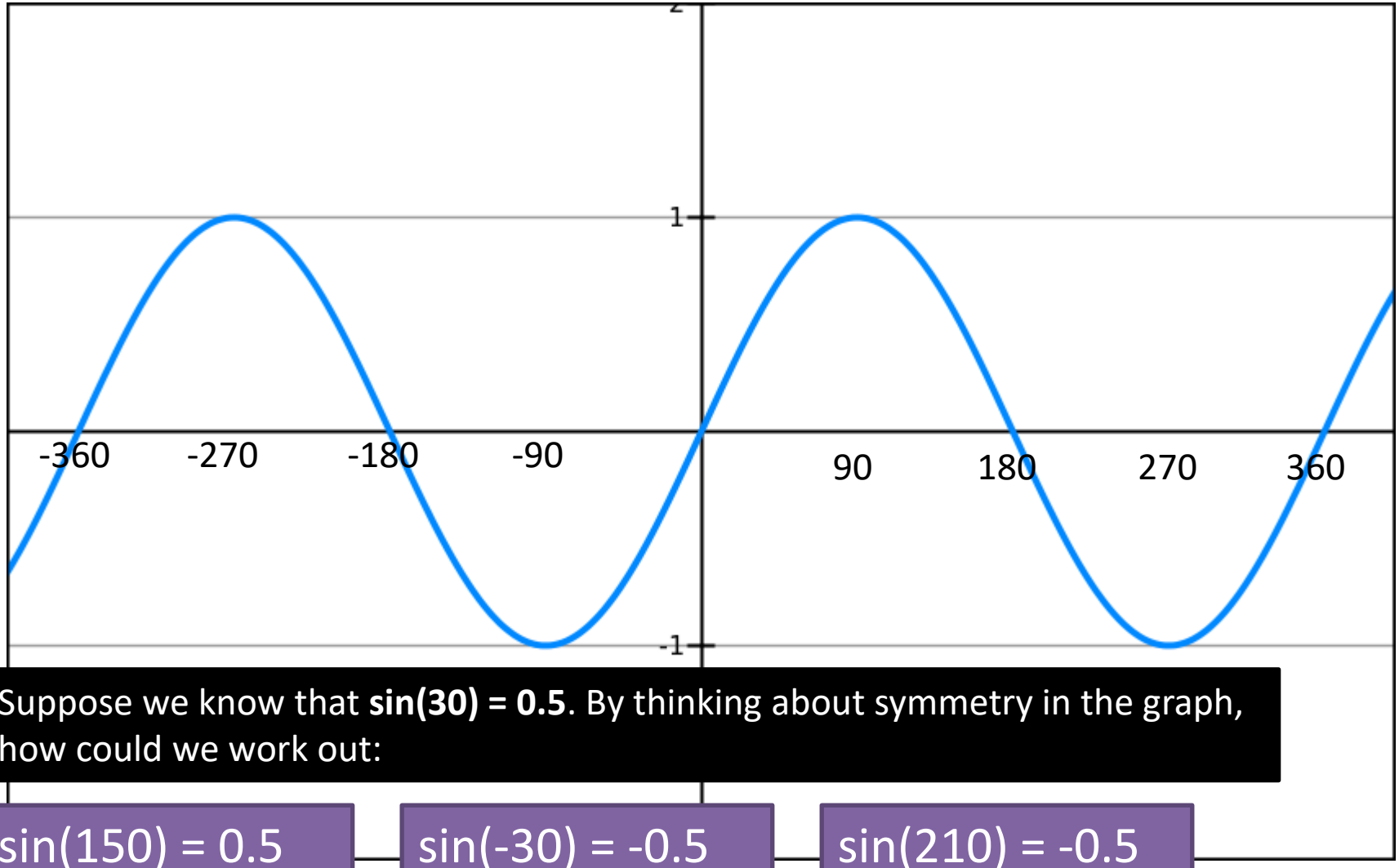
Sin Graph

What does it look like?



Sin Graph

What do the following graphs look like?



Suppose we know that **sin(30) = 0.5**. By thinking about symmetry in the graph, how could we work out:

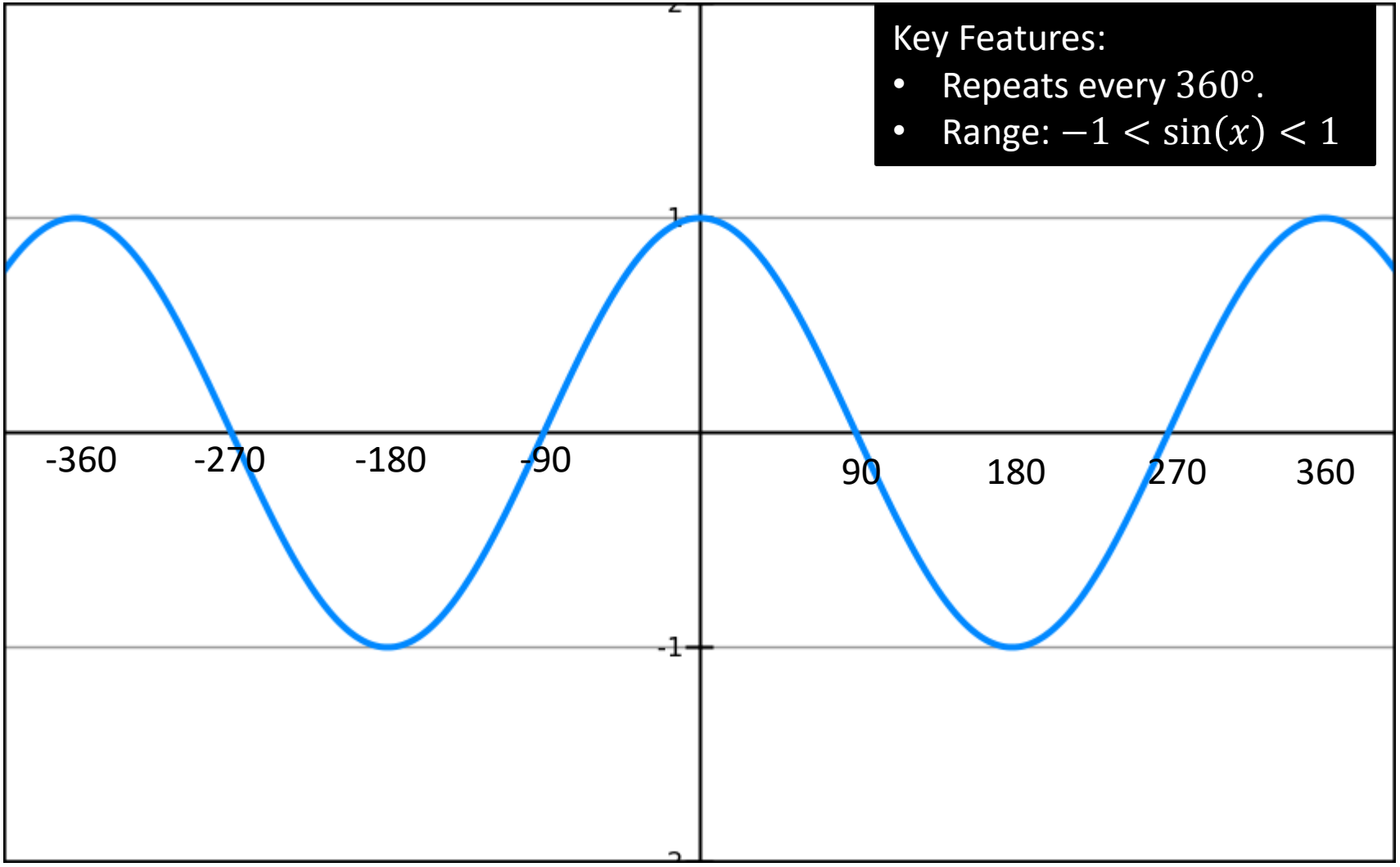
sin(150) = 0.5

sin(-30) = -0.5

sin(210) = -0.5

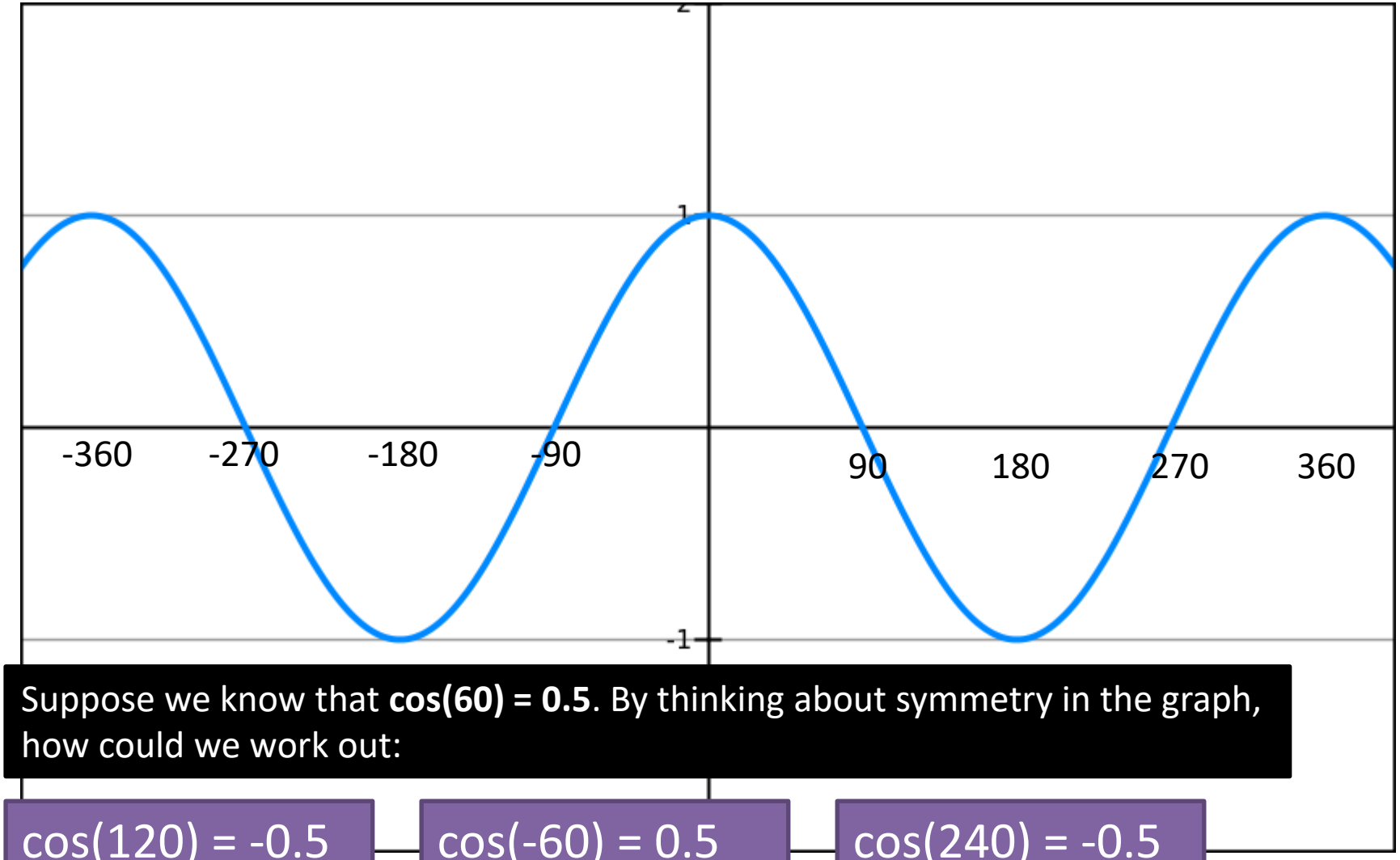
Cos Graph

What do the following graphs look like?



Cos Graph

What does it look like?



Suppose we know that **cos(60) = 0.5**. By thinking about symmetry in the graph, how could we work out:

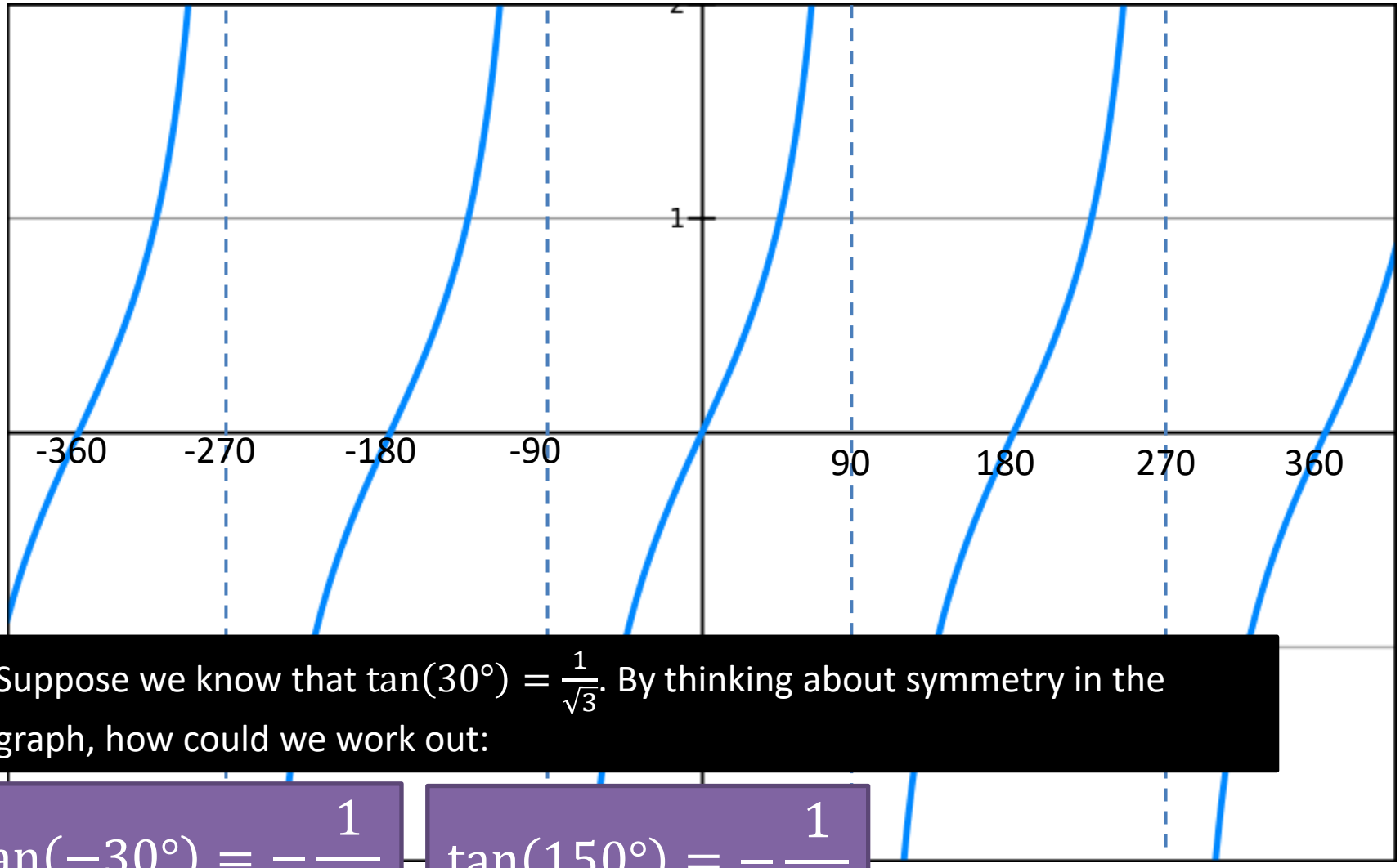
cos(120) = -0.5

cos(-60) = 0.5

cos(240) = -0.5

Tan Graph

What does it look like?



Suppose we know that $\tan(30°) = \frac{1}{\sqrt{3}}$. By thinking about symmetry in the graph, how could we work out:

$\tan(-30°) = -\frac{1}{\sqrt{3}}$

$\tan(150°) = -\frac{1}{\sqrt{3}}$

Exercise 9.5

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Homework Exercise

1 Sketch the graph of $y = \cos\theta$ in the interval $-180° \leqslant \theta \leqslant 180°$.

2 Sketch the graph of $y = \tan\theta$ in the interval $-180° \leqslant \theta \leqslant 180°$.

3 Sketch the graph of $y = \sin\theta$ in the interval $-90° \leqslant \theta \leqslant 270°$.

4 **a** $\cos 30° = \frac{\sqrt{3}}{2}$ Use your graph in question **1** to find another value of θ for which $\cos\theta = \frac{\sqrt{3}}{2}$

b $\tan 60° = \sqrt{3}$. Use your graph in question **2** to find other values of θ for which:

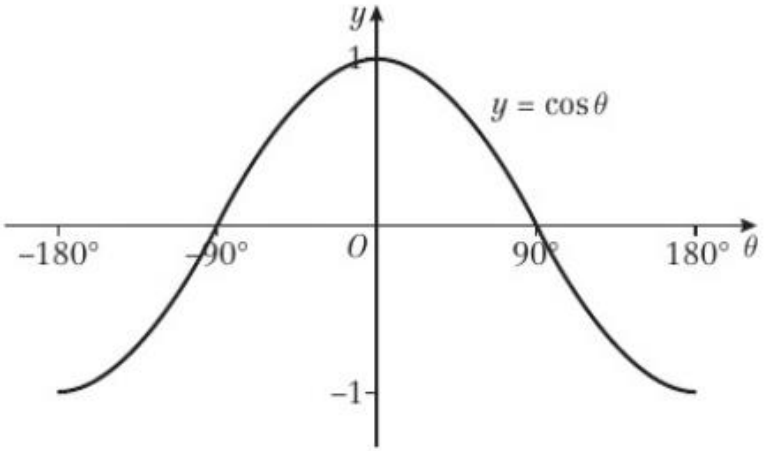
i $\tan\theta = \sqrt{3}$ **ii** $\tan\theta = -\sqrt{3}$

c $\sin 45° = \frac{1}{\sqrt{2}}$ Use your graph in question **3** to find other values of θ for which:

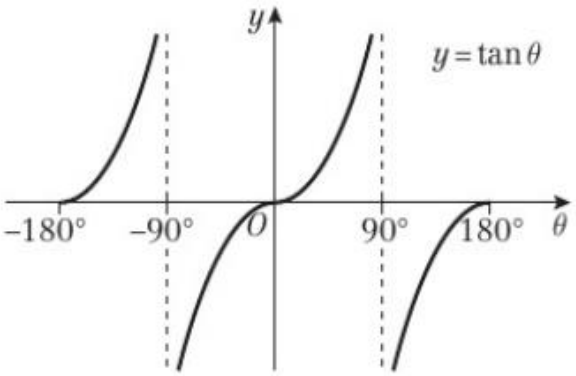
i $\sin\theta = \frac{1}{\sqrt{2}}$ **ii** $\sin\theta = -\frac{1}{\sqrt{2}}$

Homework Answers

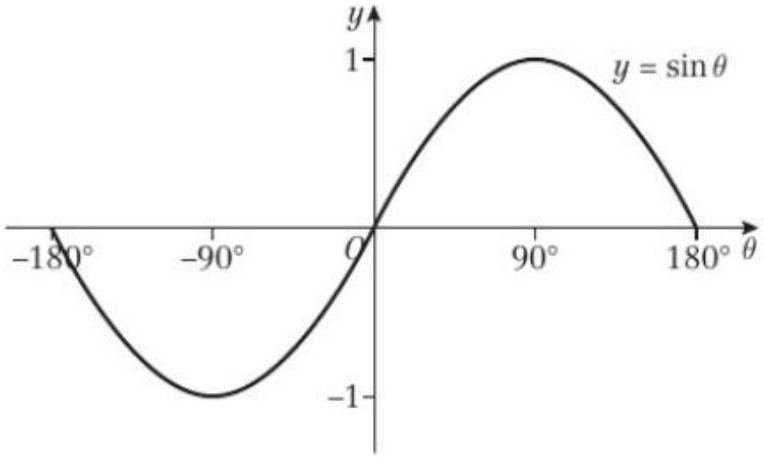
1



2



3



4 **a** −30°

b **i** −120° **ii** −60°, 120°

c **i** 135° **ii** −45°, −135°