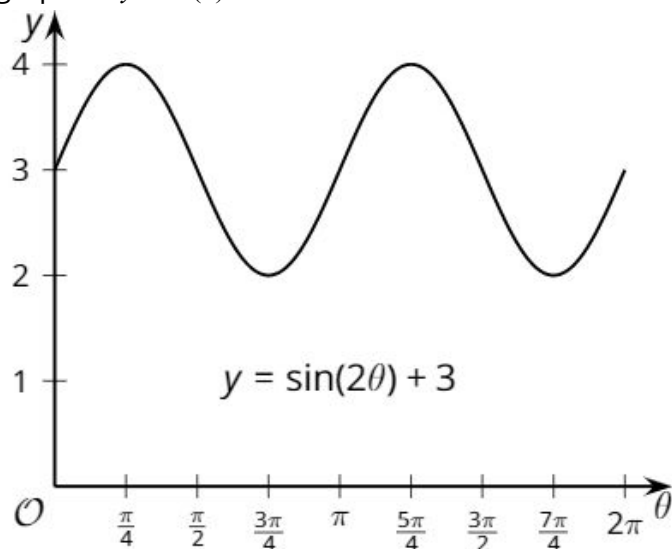


Info Gap: What's the Transformation?

**Problem Card 1**

Function  $P$  is given by  $P(\theta) = \sin(2\theta) + 3$ . Here is a graph of  $y = P(\theta)$ .



Function  $Q$  is a transformation of function  $P$ .

1. Sketch a graph of function  $Q$ .
2. What is an equation for function  $Q$ ?

Info Gap: What's the Transformation?

**Data Card 1**

Information about the transformation:

- vertical translation: up by 2
- horizontal translation: none
- vertical scaling: 4
- horizontal scaling: none
- order: vertical translation first, then vertical stretch

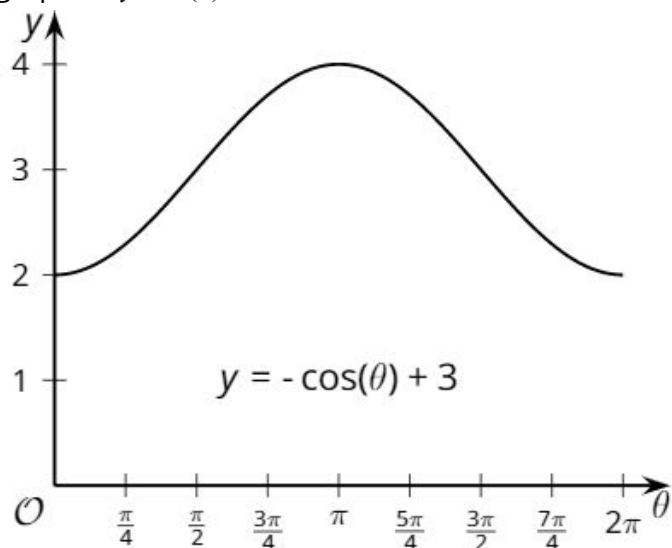
Information about function  $Q$ :

- vertical intercept: 20
- horizontal intercepts: none
- The point  $(\frac{\pi}{2}, 20)$  is on the graph.
- amplitude: 4
- midline:  $y = 20$
- period:  $\pi$

Info Gap: What's the Transformation?

**Problem Card 2**

Function  $R$  is given by  $R(\theta) = -\cos(\theta) + 3$ . Here is a graph of  $y = R(\theta)$ .



Function  $S$  is a transformation of function  $R$ .

1. Sketch a graph of function  $S$ .
2. What is an equation for function  $S$ ?

Info Gap: What's the Transformation?

**Data Card 2**

Information about the transformation:

- vertical translation: none
- horizontal translation: left by  $\pi$
- vertical scaling: none
- horizontal scaling:  $\frac{1}{\pi}$
- order: horizontal translation first, then horizontal scaling

Information about function  $S$ :

- vertical intercept: 4
- horizontal intercepts: none
- The point  $(1, 2)$  is on the graph.
- amplitude: 1
- midline:  $y = 3$
- period: 2