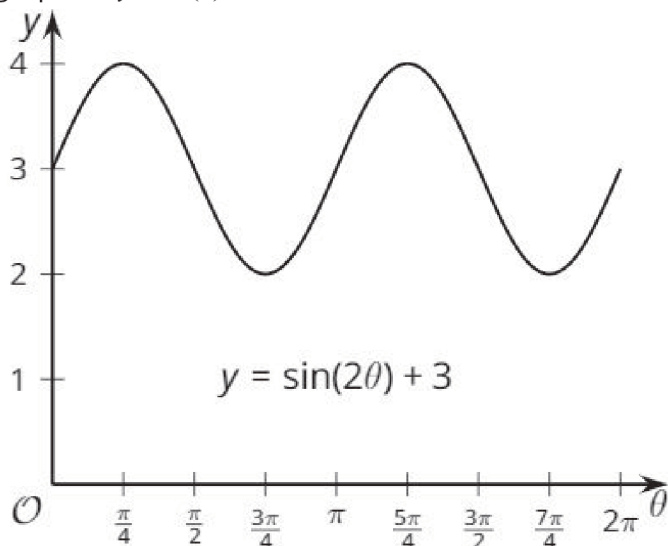


Info Gap: What's the Transformation?

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

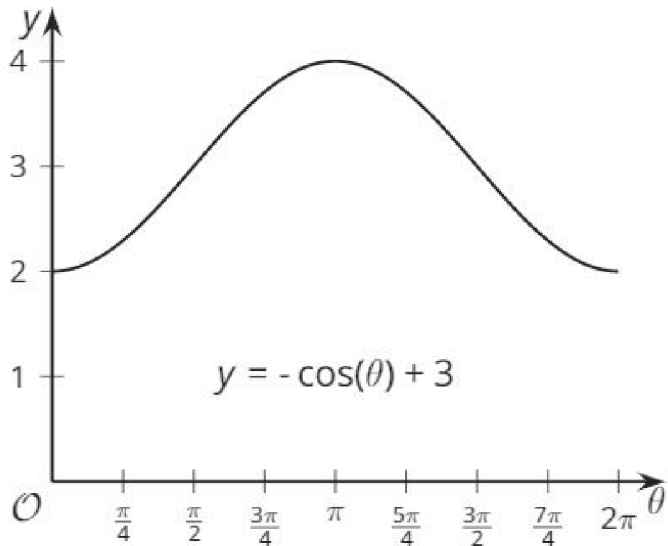
Information about function Q :

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

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 π
- 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