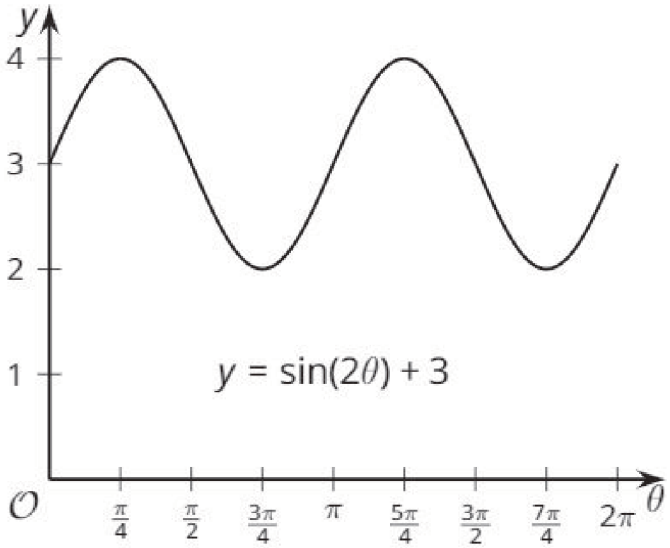
Info Gap: What's the Transformation?

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

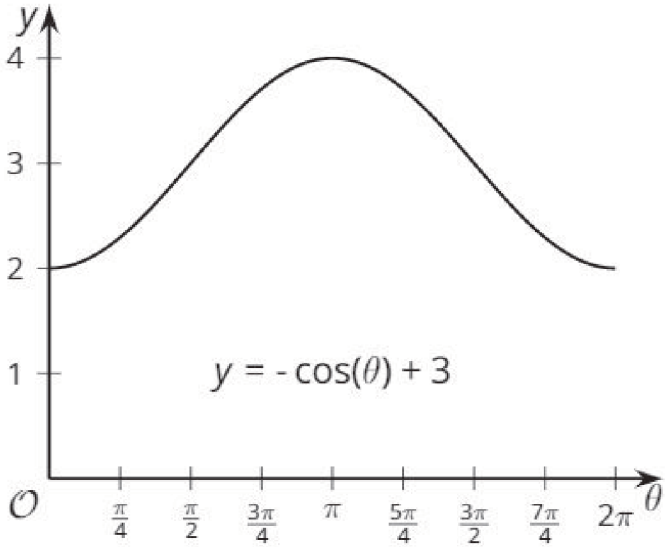
Information about function *Q*:

- 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

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