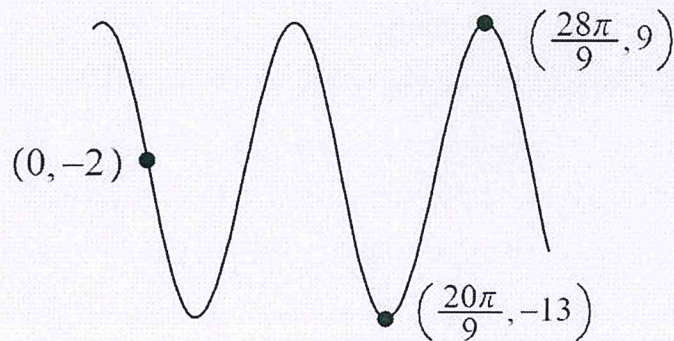
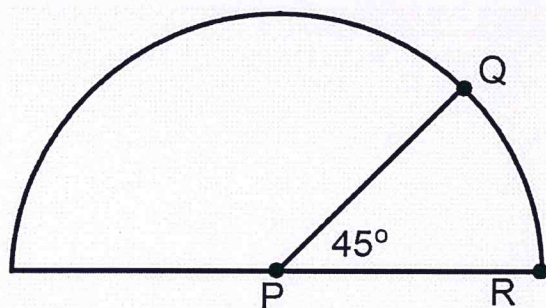


1. State the Period, Amplitude, and Equation of the Midline then write the equation of this graph.



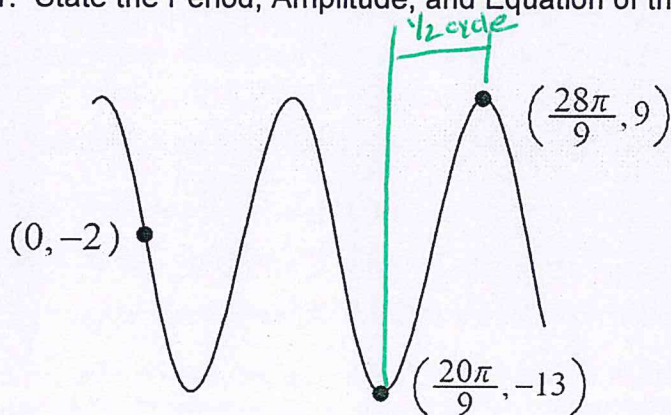
2. In the figure below, QR is the arc of a circle with center P. If the length of the arc QR is 3, what is the area of sector PQR?



- A)  $\frac{144}{\pi^2}$  B)  $144\pi$  C)  $\frac{144}{\pi}$  D)  $\frac{18}{\pi}$  E)  $18\pi$

3. Graph one period of this function:  $y = 8\sin\frac{3x}{7} + 5$ . Give the coordinates of all max's, min's, and points on the midline.

1. State the Period, Amplitude, and Equation of the Midline then write the equation of this graph.



midline:  $y = -2$   $k = -2$

Amplitude = 11  $a = -11$

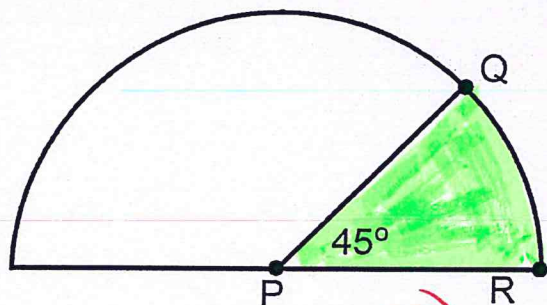
period:  $\frac{28\pi/9 - 20\pi/9}{1/2} = \frac{8\pi}{9} \cdot 2$

period =  $\frac{16\pi}{9}$

$b = \frac{2\pi}{16\pi/9} = 2\pi \cdot \frac{9}{16\pi} = \frac{9}{8}$

EQ:  $y = -11 \sin \frac{9x}{8} - 2$

2. In the figure below, QR is the arc of a circle with center P. If the length of the arc QR is 3, what is the area of sector PQR?



ARC LENGTH FORMULA:

$45^\circ = \frac{\pi}{4}$   $S = \theta \cdot r$   $\frac{\pi}{4} \cdot 3 = \frac{\pi}{4} \cdot r \cdot \frac{\pi}{4}$   $r = \frac{12}{\pi}$

$45^\circ$  is  $\frac{1}{8}$  of a circle ( $45^\circ/360^\circ$ ) so the area of the sector is  $\frac{1}{8}$  of the circle's area.

Area of a circle =  $\pi r^2 = \pi \left(\frac{12}{\pi}\right)^2 = \pi \cdot \frac{144}{\pi^2} = \frac{144}{\pi}$

Therefore, the sector is:

$\frac{1}{8} \left(\frac{144}{\pi}\right) = \frac{18}{\pi}$

3. Graph one period of this function:  $y = 8\sin \frac{3x}{7} + 5$ . Give the coordinates of all max's, min's, and points on the midline.

• Amplitude = 8 • midline:  $y = 5$  • period =  $\frac{2\pi}{3/7} = 2\pi \cdot \frac{7}{3} = \frac{14\pi}{3}$

• Not upside down

