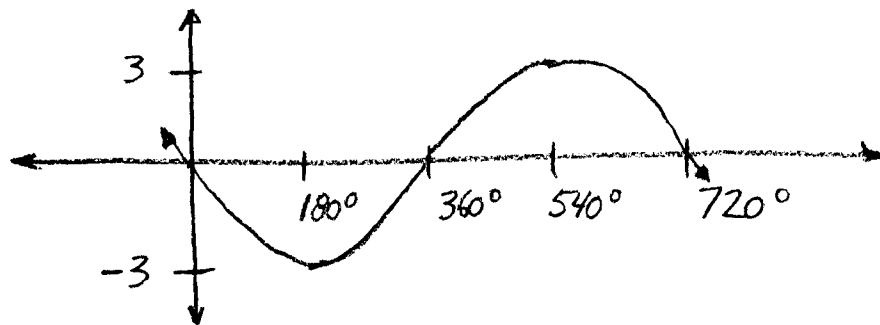


Alg. 2 BE - TUESDAY 2-16-10

① Identify the equation of the graphed function:



$$\text{Amp.} = 3 \quad \text{period} = 720^\circ \Rightarrow \frac{360^\circ}{b} = 720^\circ$$
$$= a$$

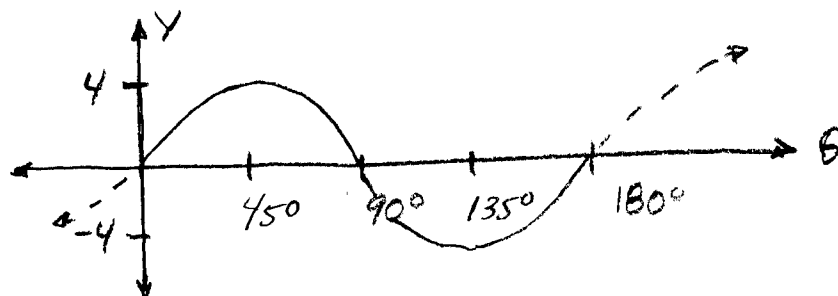
"Flipped" $\sin \Rightarrow \sin(-\theta)$

$$b = \frac{360}{720} = \frac{1}{2}$$

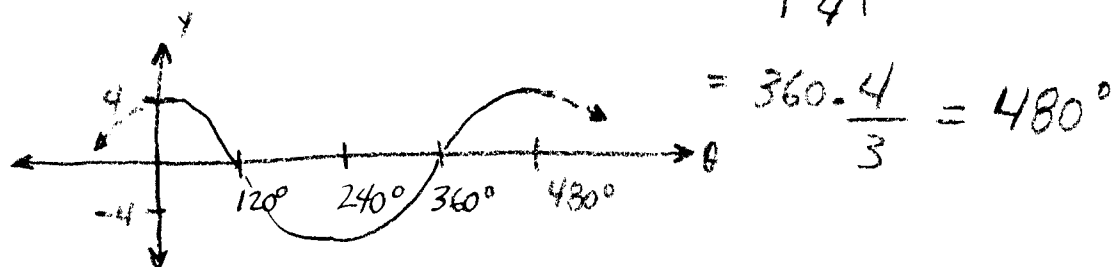
$$\therefore \boxed{y = 3\sin\left(-\frac{1}{2}\theta\right)}$$

Alg. 2 - Homework Review: Pg. 767 # 9, 10, 12

⑨ $y = 4 \sin 2\theta$ amp. = 4 period = $\frac{360^\circ}{2} = 180^\circ$

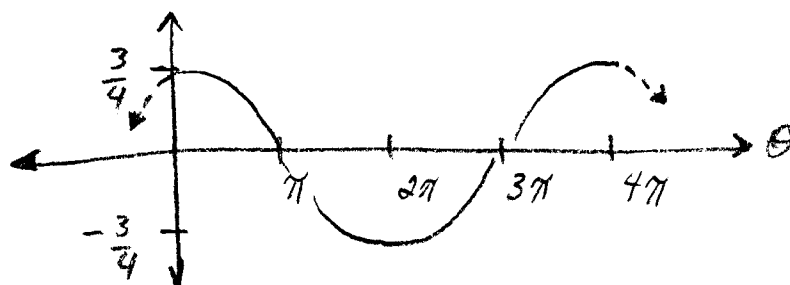


⑩ $y = 4 \cos \frac{3}{4}\theta$ amp. = 4 period = $\frac{360^\circ}{|\frac{3}{4}|}$



$$= 360^\circ \cdot \frac{4}{3} = 480^\circ$$

⑫ $y = \frac{3}{4} \cos \frac{1}{2}\theta$ Amp. = $\frac{3}{4}$ period = $\frac{2\pi}{\frac{1}{2}} = 4\pi$



Recall: $y = a \sin(bx)$

Amplitude $\uparrow$ Period $\Rightarrow \frac{360^\circ}{|b|}$

Two other positions AFFECT the
"horizontal shift" and "vertical shift"

$$y = a \sin[b(\theta - h)] + k$$

horizontal shift $\longleftrightarrow$ vertical shift $\updownarrow$

ALSO CALLED
"phase change"

"-" $\Rightarrow -(+h) = \text{RIGHT}$

"+" $\Rightarrow \cancel{-(+h)} = \text{LEFT}$

+ UP

- DOWN

(Ex) $y = \sin(\theta - 30^\circ) + 5 \Rightarrow 30^\circ \rightarrow$
5 $\uparrow$

(Ex) $y = \sin(\theta + 10^\circ) - 2 \Rightarrow 10^\circ \leftarrow$
2 $\downarrow$

The 4 changes to the "base" sine & cosine functions are called "translations".

Ch 14-2 "Translations of Trigonometric Graphs"

③ $y = a \sin[b(\theta - h)] + k$

↑
Amp

↑
period = $\frac{360}{|b|}$

↑
horizontal
SHIFT
← X →

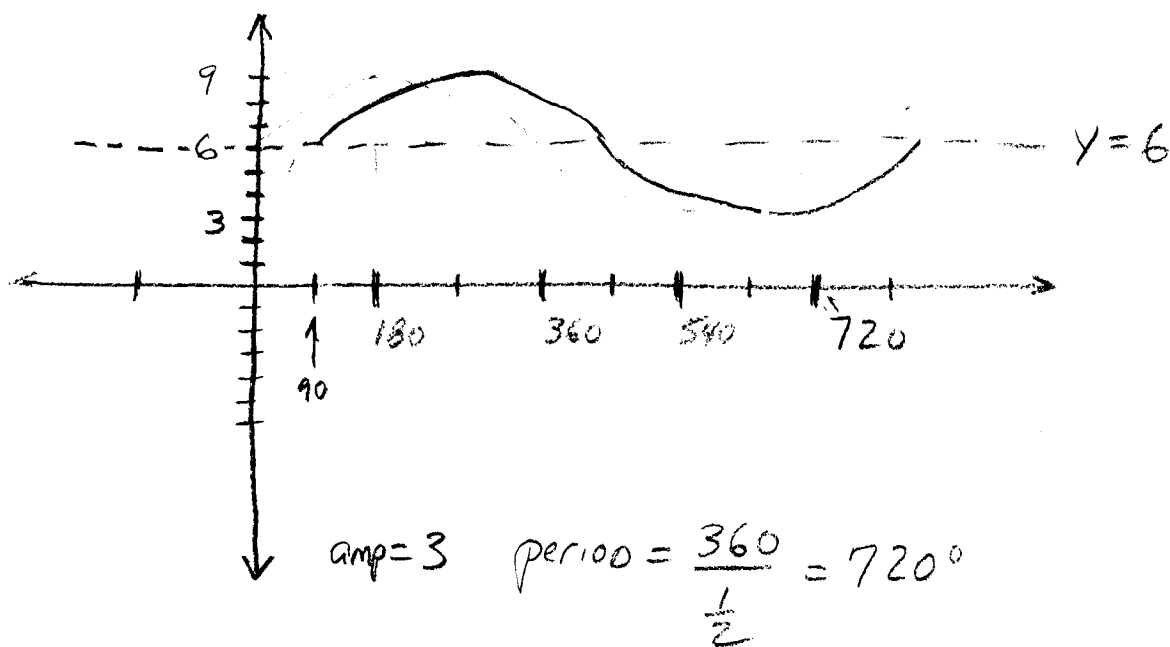
↑
vertical
SHIFT
↑ Y ↓

Y = K = MIDLINE

$y = 3 \sin\left[\frac{1}{2}(\theta - 90^\circ)\right] + 6$

UP = 6

→ 90° to right



4
LOOK AT (EX3) Pg. 772

$$y = 4 \cos \left[\frac{1}{2} \left(\theta - \frac{\pi}{3} \right) \right] - 6$$

State the vertical shift = ? $6 \downarrow$

horizontal shift = ? $\frac{\pi}{3} \rightarrow$
(phase shift)

Amplitude = ? 4

period = ? 4π

midline = ? $y = -6$

Homework: Pg 774 #12, 15.