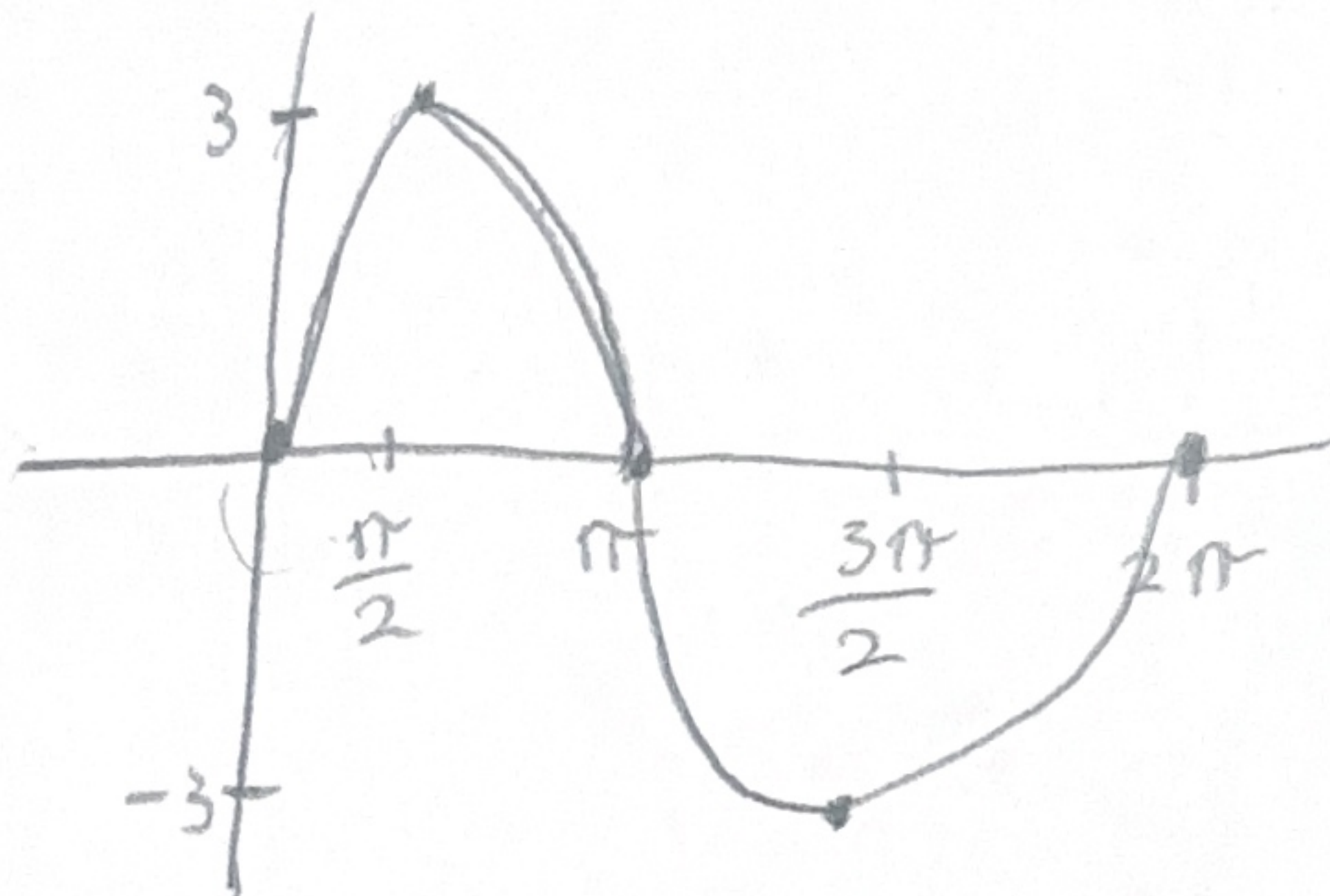


# Sin and Cos Graphs

1.  $Y=3\sin x$

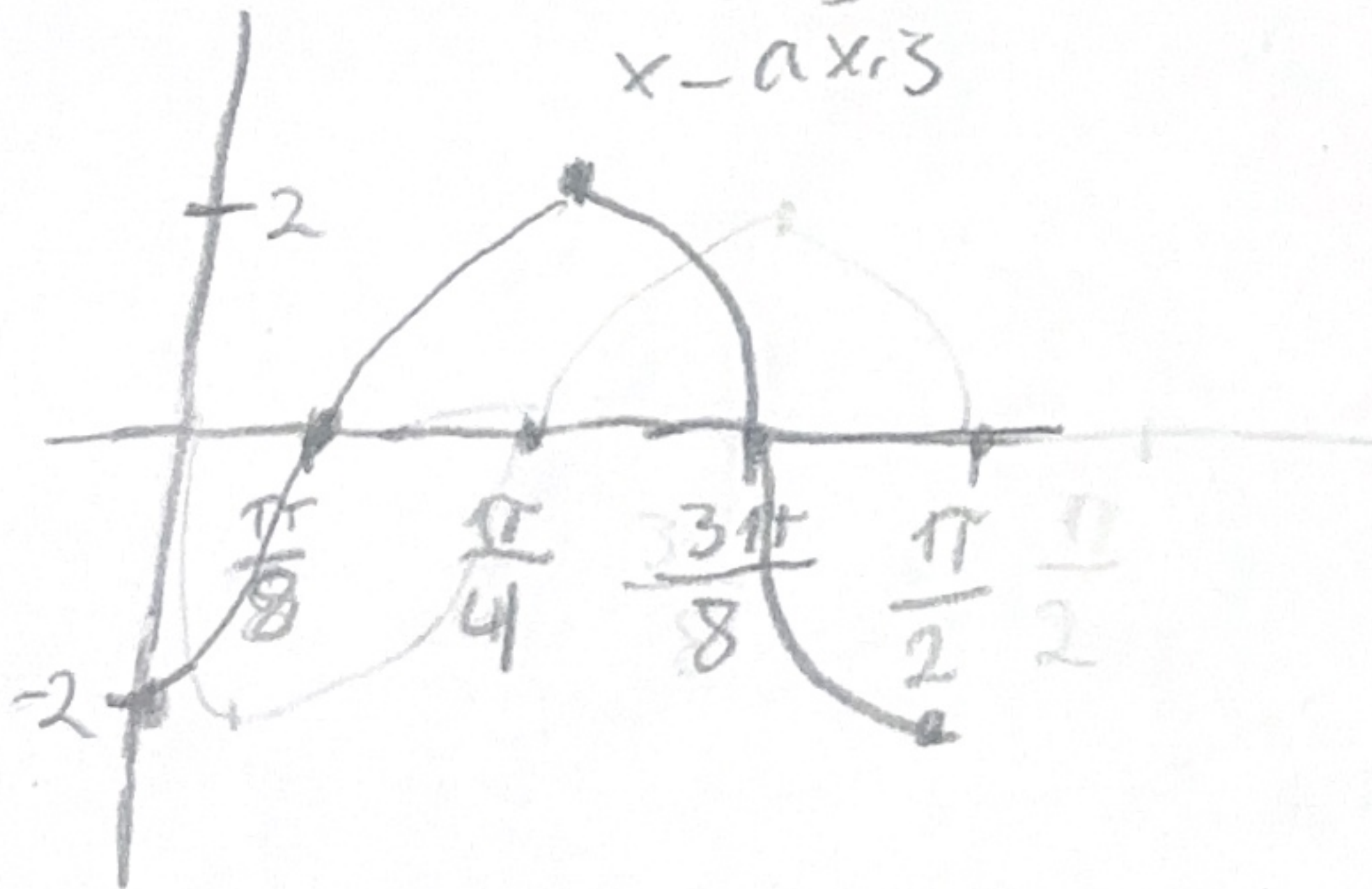


$a=3$   $b=1$ , Period  $= 2\pi$   $h=0$   $k=0$

mid, high, mid, low, mid

2.  $Y=-2\cos(4x)$

reflects  
x-axis

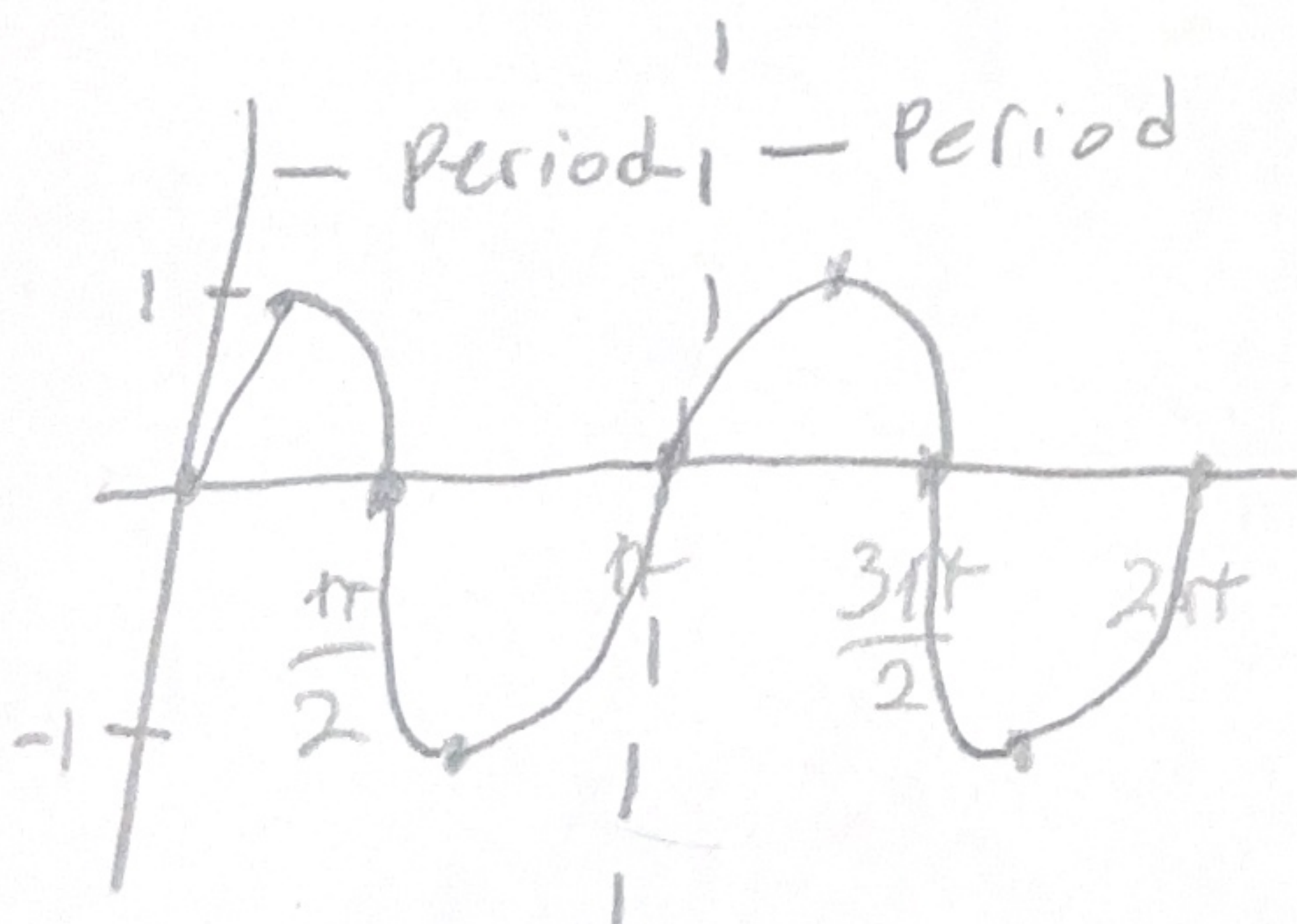


$a=2$   $b=4$ ,  $\frac{2\pi}{b} \rightarrow \frac{2\pi}{4} \rightarrow \frac{\pi}{2}$   $h=0$   $k=0$

High, mid, low, mid, high  
Low, mid, high, mid, low

3.  $Y=\sin(2x)$

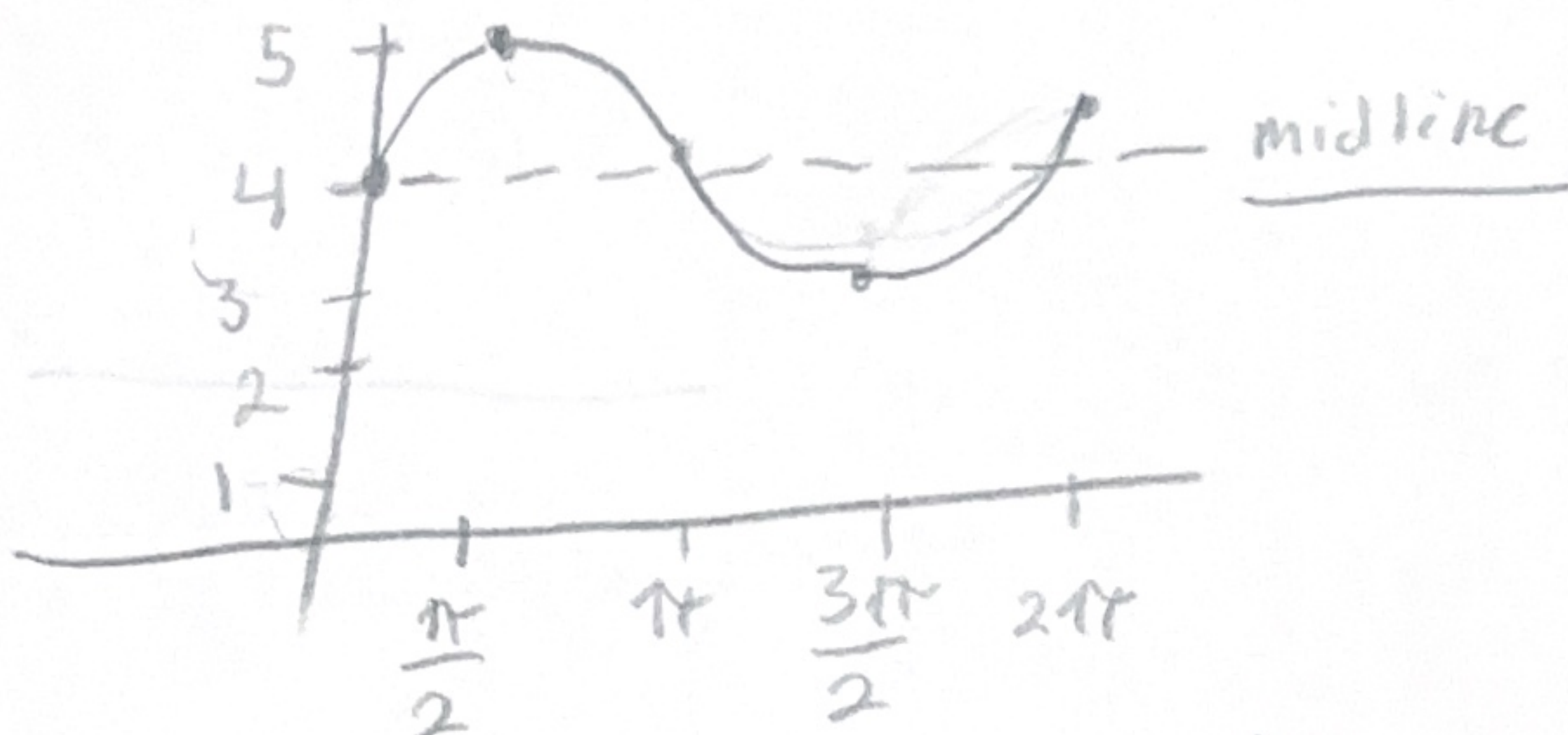
$a=1$   $b=2$ , Period  $= \frac{2\pi}{2} = \pi$   $h=0$   $k=0$





4.  $Y = \sin x + 4$

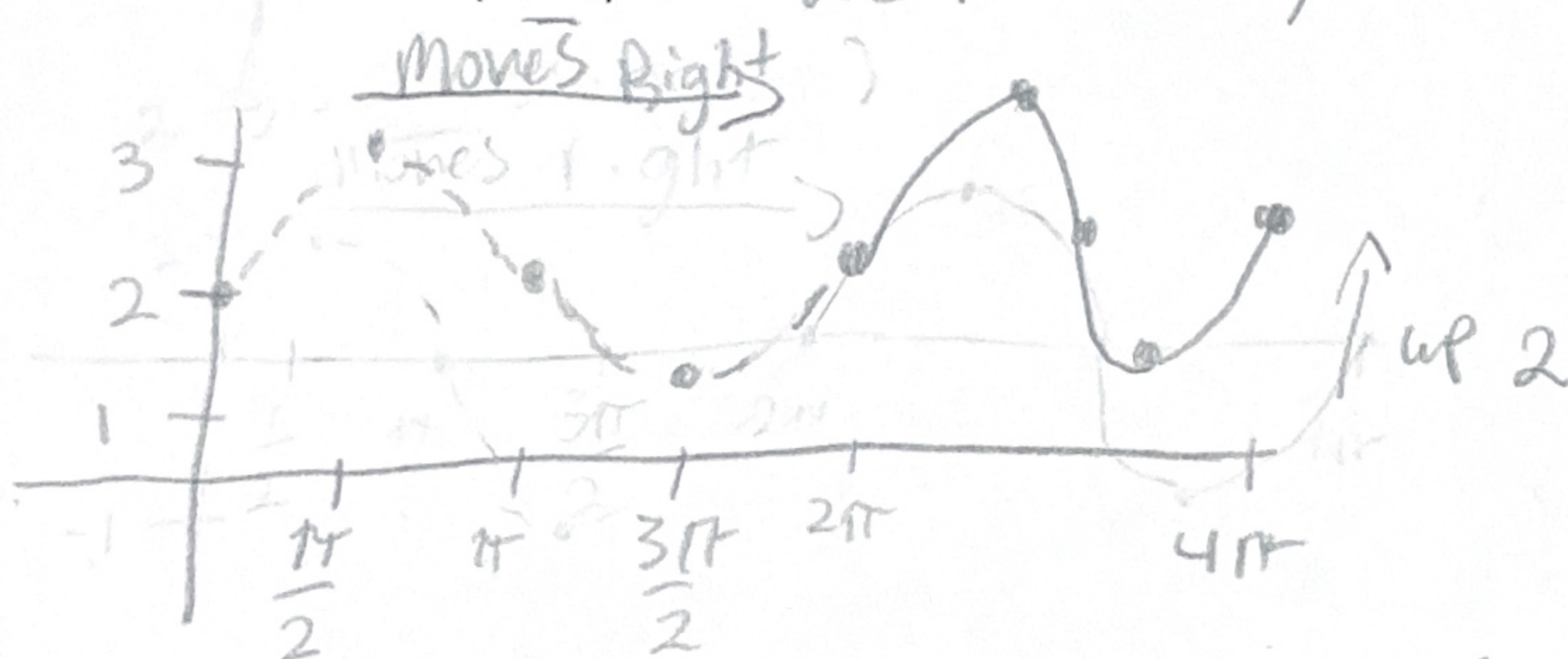
$a = 1$   $b = 1, 2\pi$   $h = 0$   $k = 4, \text{up } 4$



5.  $Y = \sin(x - 2\pi) + 2$

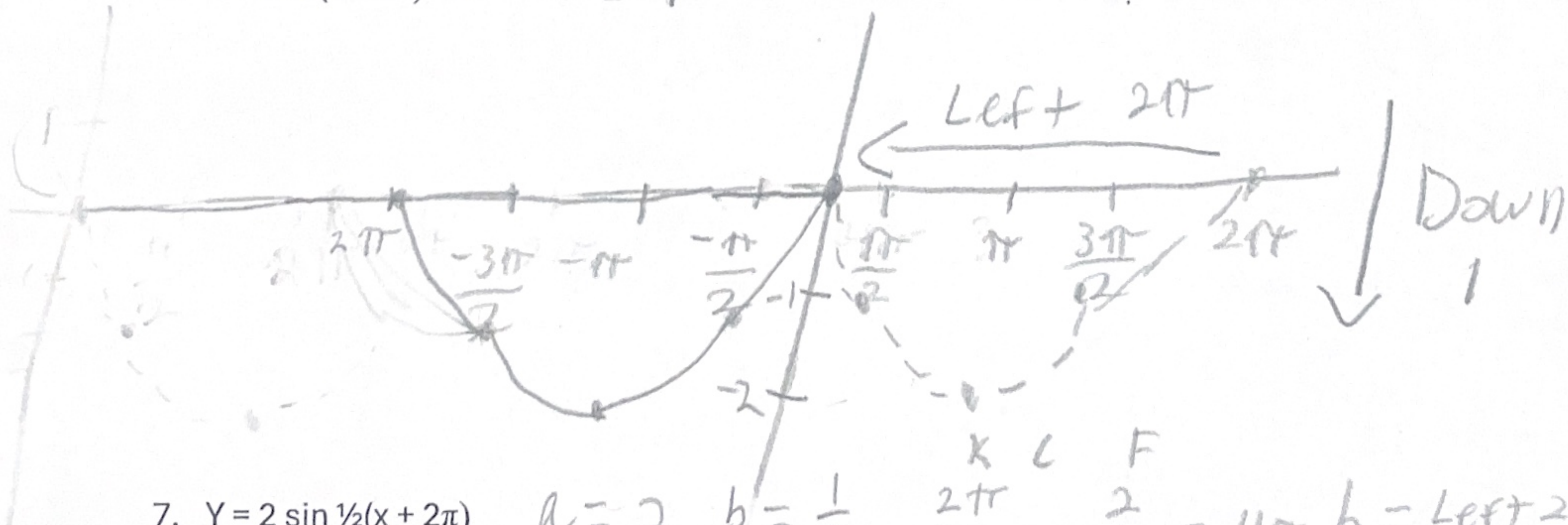
$a = 1$   $b = 1, 2\pi$   $h = 2\pi, \text{right}$

$k = 2, \text{up}$



6.  $Y = \cos(x + 2\pi) - 1$

$a = 1$   $b = 1$   $h = 2\pi$   $k = -1$  (Down)



7.  $Y = 2 \sin \frac{1}{2}(x + 2\pi)$

$a = 2$   $b = \frac{1}{2}, \frac{2\pi}{1} \cdot \frac{2}{1} = 4\pi$   $h = \text{Left } 2\pi$   
 $k = 0$

