Name:_____

Unit 2 Graphing Sinusoidal Functions Review

1. $y = C + A\sin B(x - D)$

A represents.... amplitude

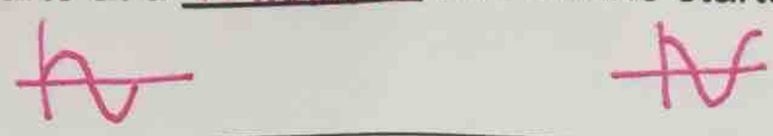
C represents... sinusoidal axis (midline)

B represents.... period

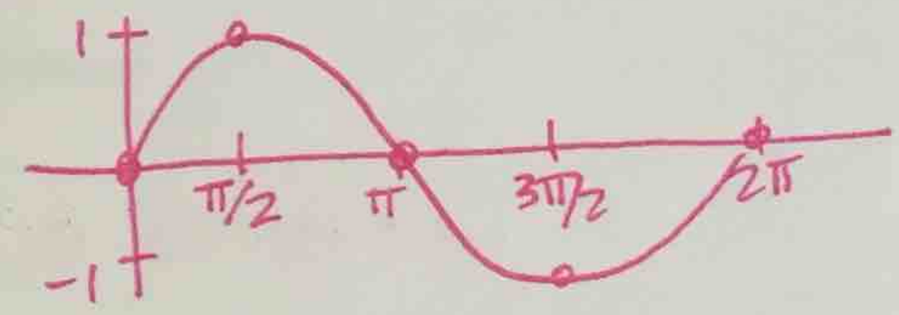
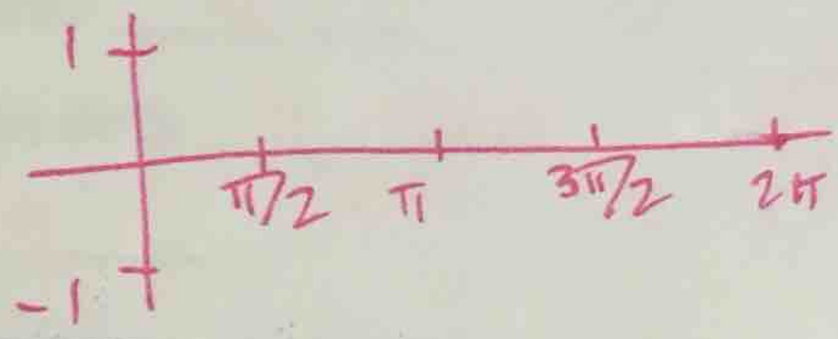
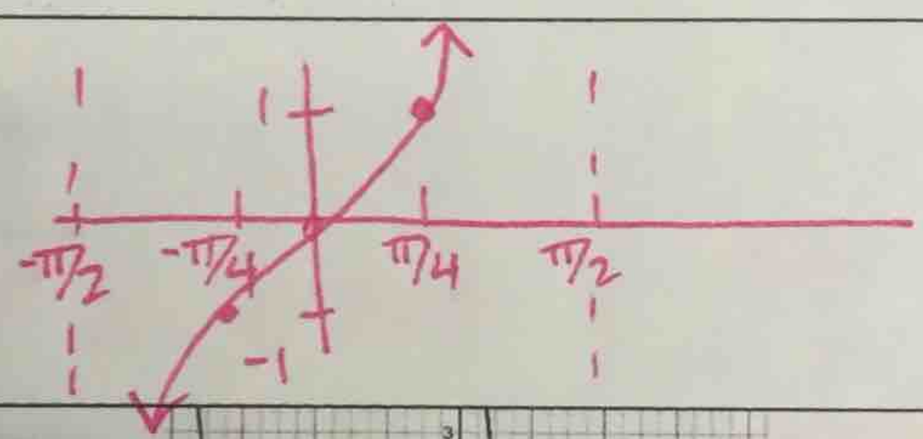
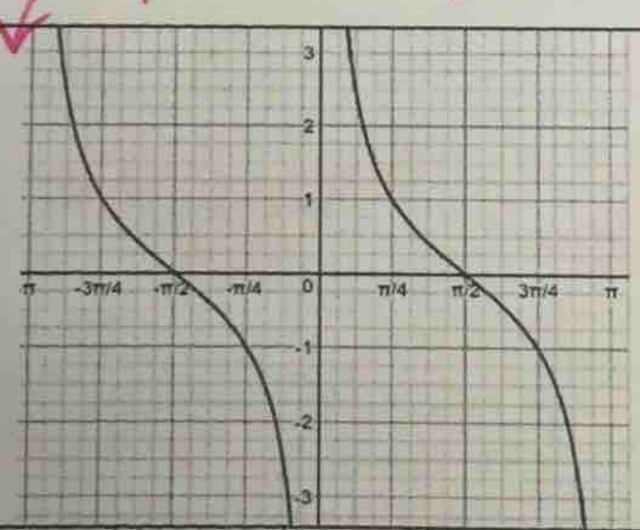
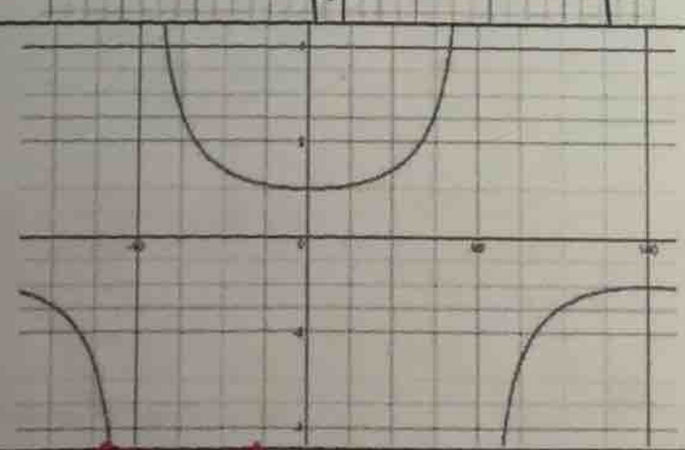
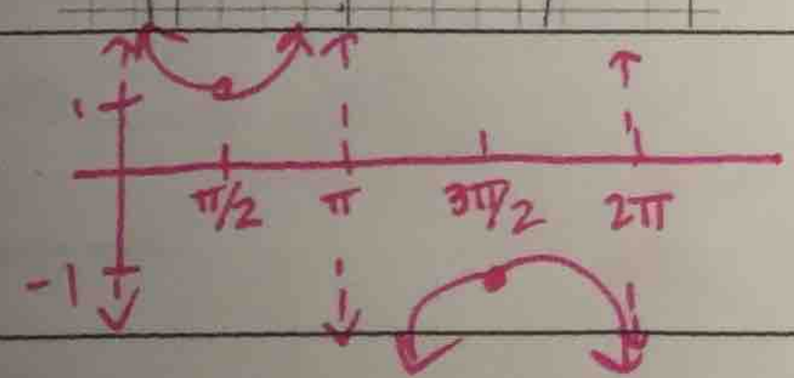
BUT to find period, use the equation: degrees: $\frac{360}{B}$ radians: $\frac{2\pi}{B}$

D represents... horizontal shift (phase shift)

sin starts at a middle and cosine starts at a high



2. Parent Functions

Name	Equation	Graph	Period	Sinusoidal Axis
Sine	y=sinx		2π OR 360°	y=0
cosine	$y = \cos x$		2π or 360°	y=0
Tangent	y=tanx		π or 180°	y=0
cotangent	y=cotx		π or 180°	y=0
secant	y=secx $\frac{1}{\cos x}$		2π or 360°	y=0
cosecant	$y = \csc x$ $\frac{1}{\sin x}$		2π or 360°	y=0

Draw 2 cycles of each graph in radians.

3. $y = -3 + 7\sin 4\left(x - \frac{\pi}{4}\right)$ (Radians)

A. Amplitude: 7

B. Period: $\frac{2\pi}{4} = \frac{\pi}{2}$ CP: $\frac{\pi}{2} \div 4 = \frac{\pi}{8}$

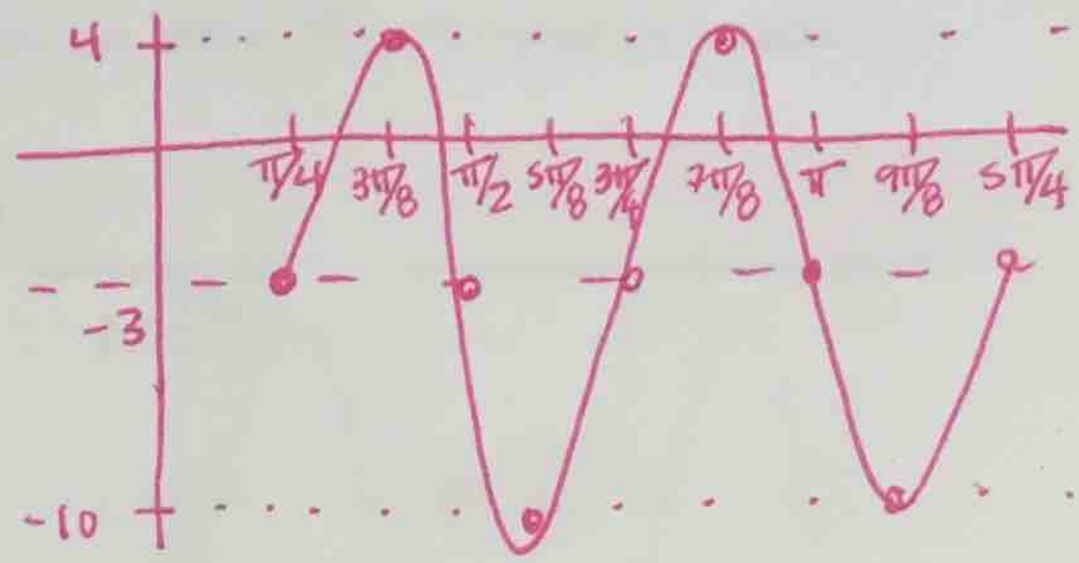
C. Sinusoidal Axis (midline): -3

D. Phase Shift (horizontal shift): $\pi/4$ (right)

middle

E. Maximum y-value: 4

$-3+7$



reflection

4. $y = 5 - 4\cos\frac{\pi}{5}(x+3)$ (Radians)

A. Amplitude: 4

B. Period: $2\pi \div \frac{\pi}{5} = 10$ CP: $\frac{10}{4} = 2.5$

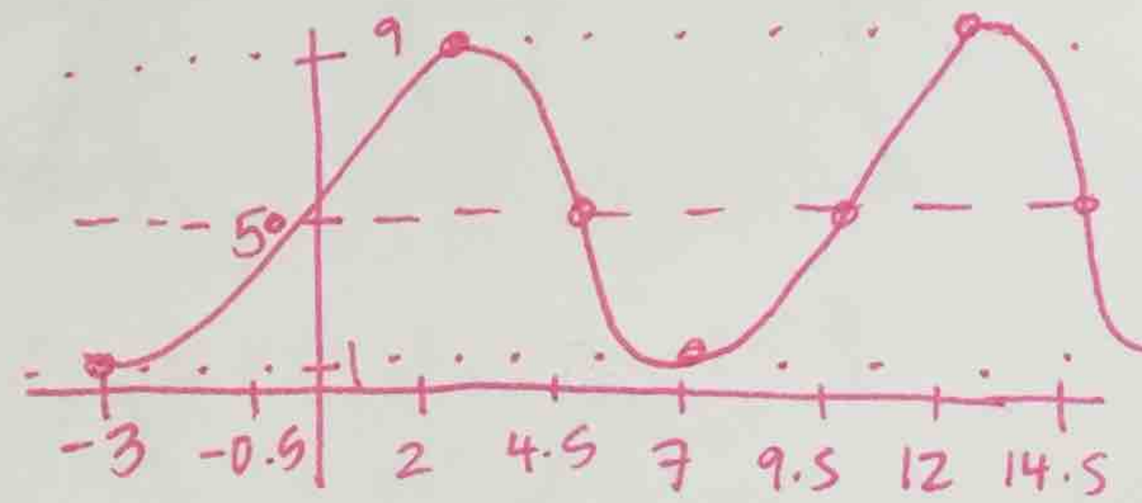
C. Sinusoidal Axis (midline): 5

D. Phase Shift (horizontal shift): -3 (left)

low

E. Maximum y-value: 9

$5+4$



reflection

5. $y = -4\cos 4(x-60)$ (Degrees)

A. Amplitude: 4

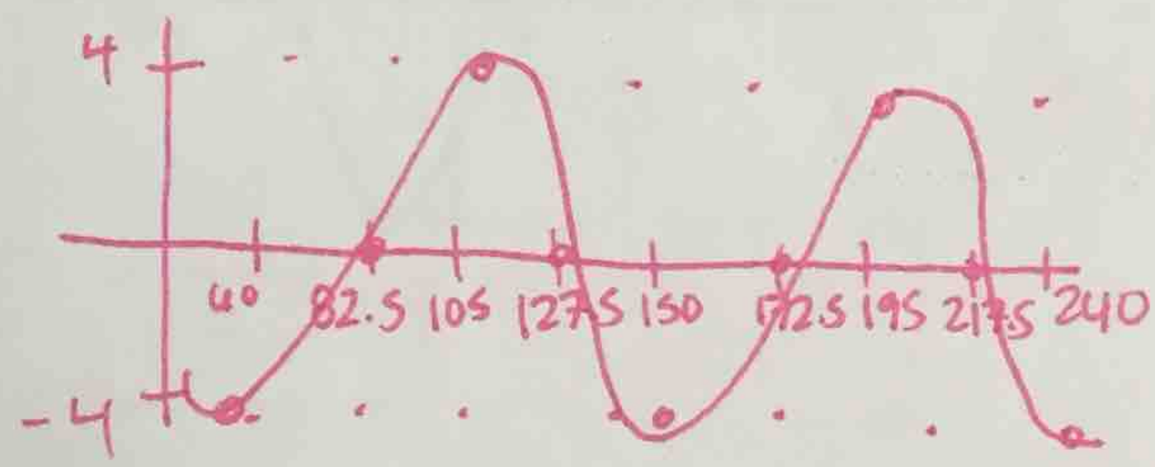
B. Period: $\frac{360}{4} = 90°$ CP: $\frac{90}{4} = 22.5$

C. Sinusoidal Axis (midline): 0

D. Phase Shift (horizontal shift): 60 (right)

low

E. Maximum y-value: 4



6. $y = 6 + 10\sin 2(x+90)$ (Degrees)

A. Amplitude: 10

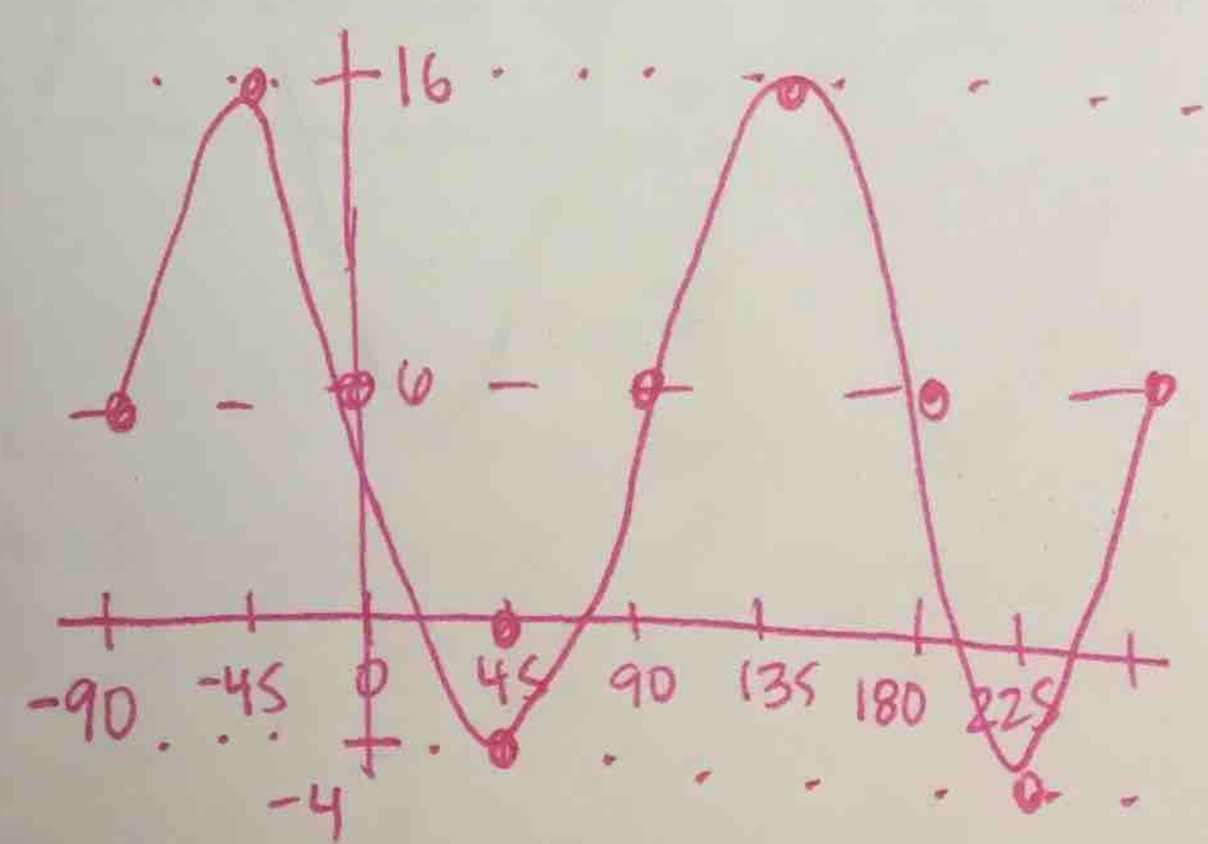
B. Period: $\frac{360}{2} = 180$ CP: $\frac{180}{4} = 45$

C. Sinusoidal Axis (midline): 6

D. Phase Shift (horizontal shift): -90 (left)

middle

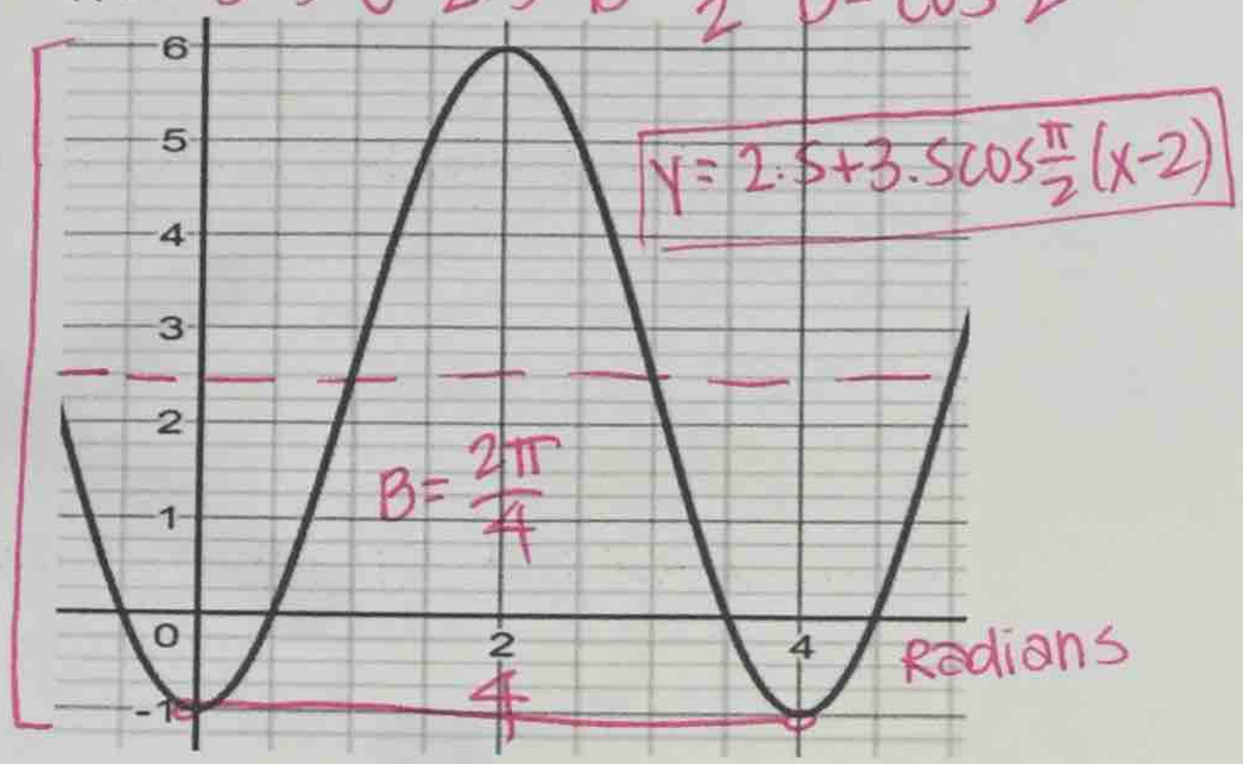
E. Maximum y-value: 16



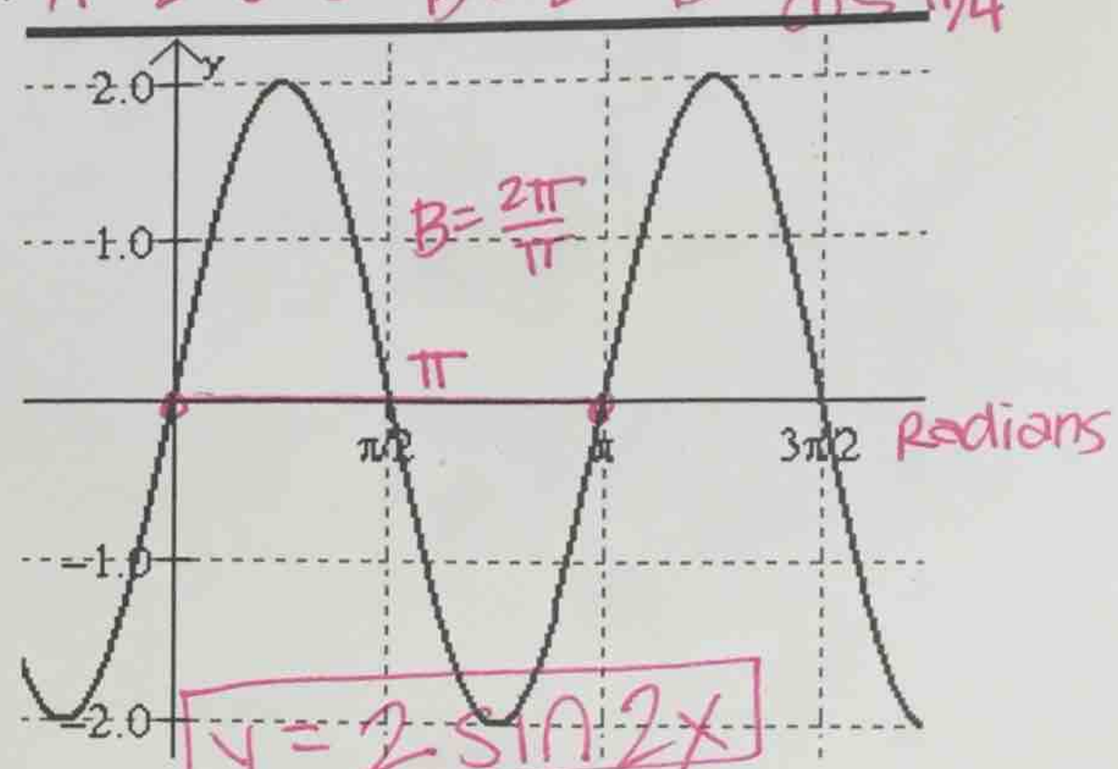
$y = C + A\cos B(x-D)$

Write the equation of the graph as either sine or cosine. Check the axis to see if the graph is in radians or degrees.

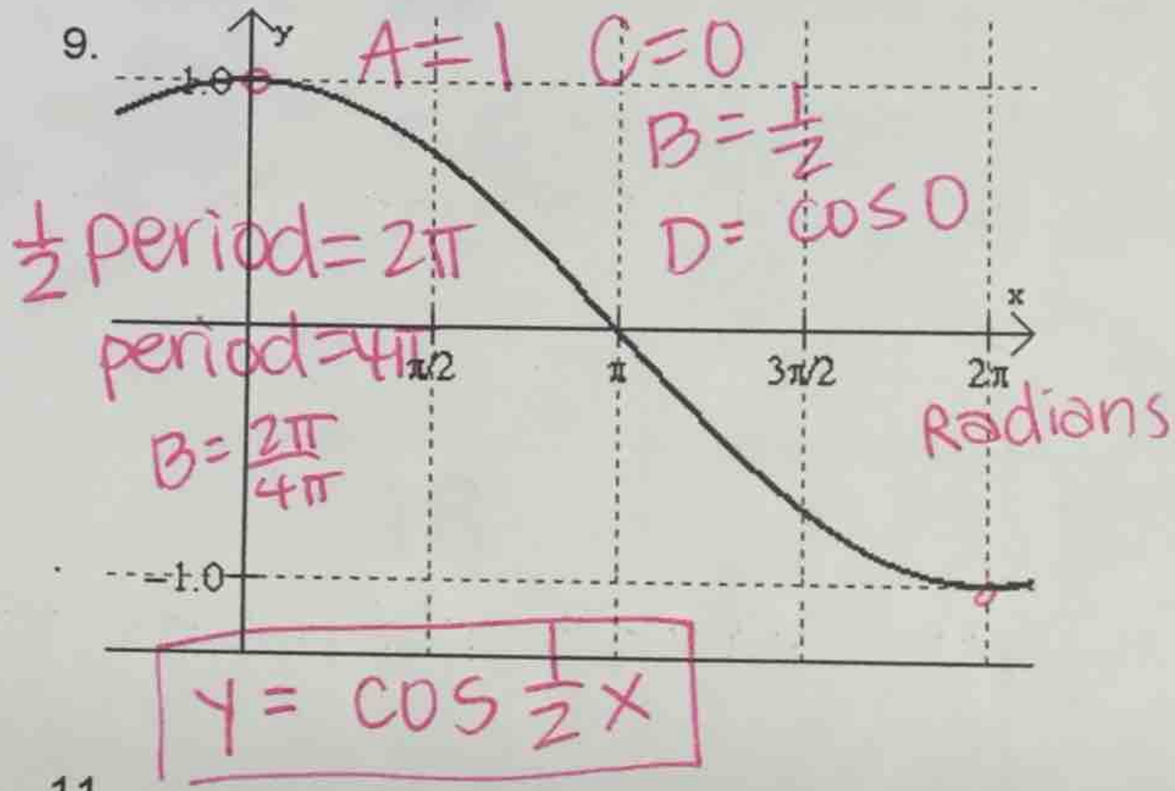
7. $A=3.5$ $C=2.5$ $B=\frac{\pi}{2}$ $D=\cos 2$



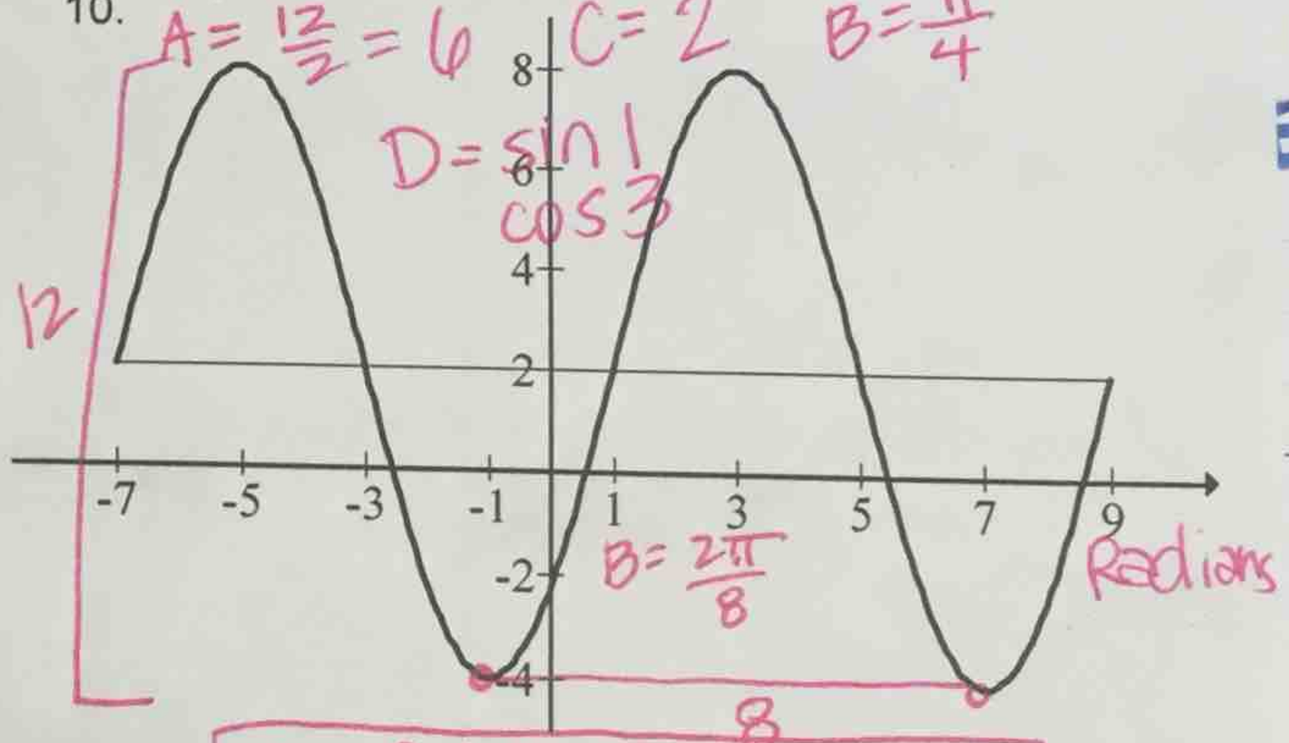
8. $A=2$ $C=0$ $B=2$ $D=\sin 0$ $\cos \pi/4$



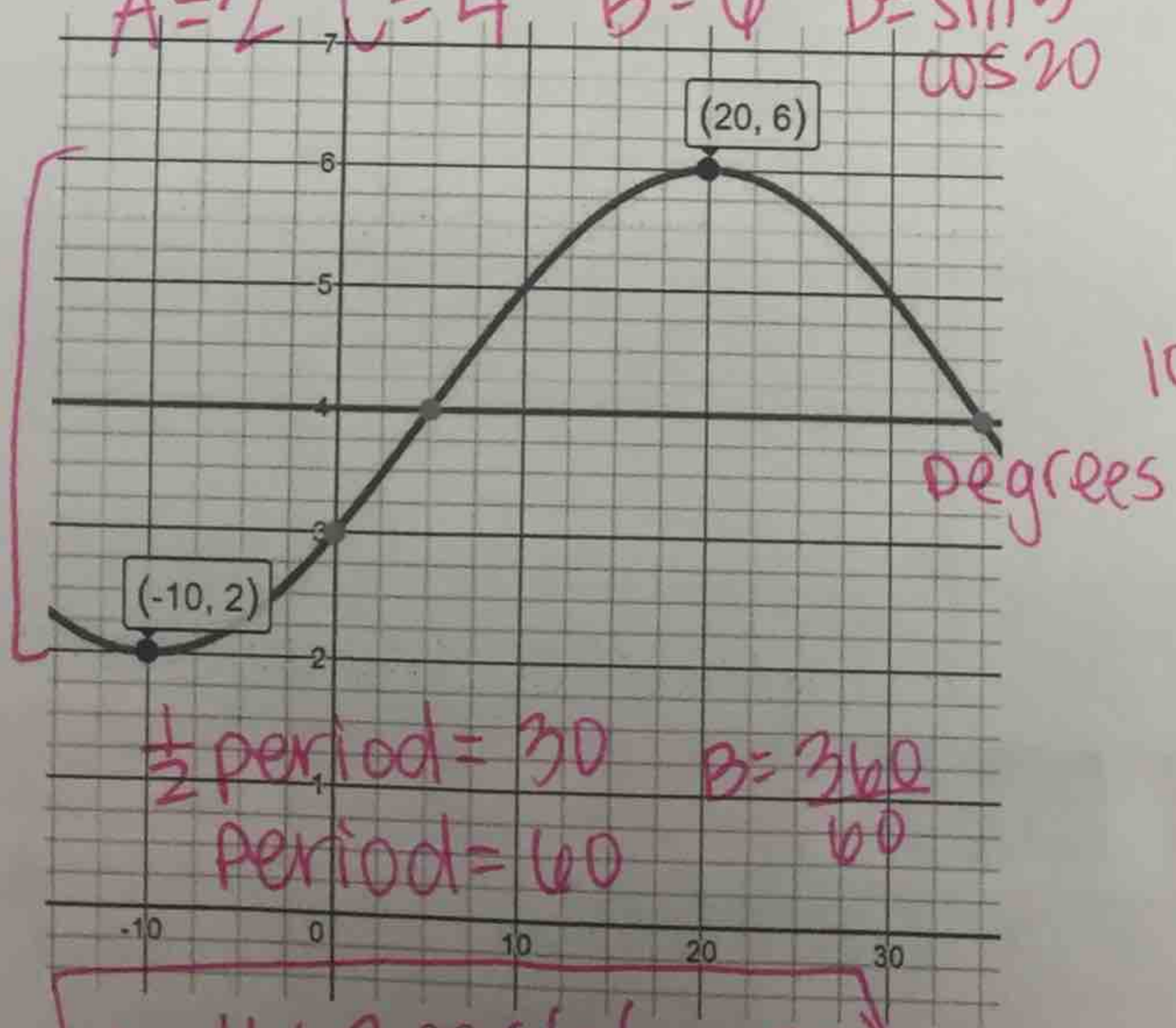
9. $A=1$ $C=0$ $B=\frac{1}{2}$ $D=\cos 0$



10. $A=\frac{12}{2}=6$ $C=2$ $B=\frac{\pi}{4}$ $D=\sin 1$ $\cos 3$



11. $A=2$ $C=4$ $B=6$ $D=\sin 5$ $\cos 20$



12.