Equations from Graphs:

Step 1: Determine the features of a sinusoidal graph:

Equation of S.A: $y = 2$
Amplitude: 2
Period: $180°$

$P = HS \cdot 360°$

$HS = \frac{180°}{360°}$

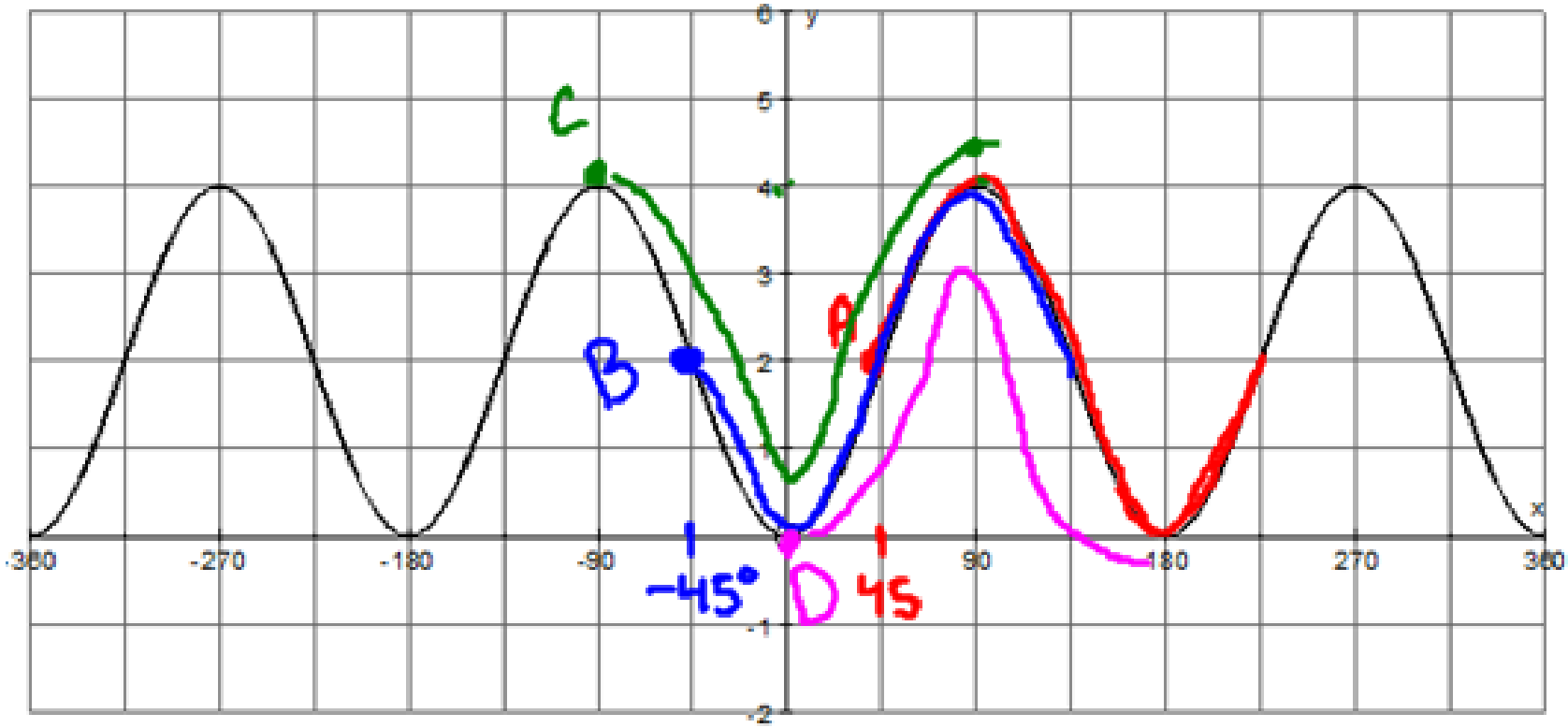
Step 2: Identify the transformations:

VS = 2
VT = 0
HS = $\frac{1}{2}$

Step 3: Choose a starting point for the graph (HT)

HT =

Step 4: Write the equation – remember to take the reciprocal of horizontal stretches and change the signs of horizontal translations.



VS 2
VT 2
HS $\frac{1}{2}$

A) $y = \sin x$ (HT: $+45°$)

$y = 2\sin(2(x - 45°)) + 2$

B) $y = -\sin x$ (HT: $-45°$)

$y = -2\sin(2(x + 45°)) + 2$

C) $y = \cos x$ (HT: $\pm 90°$)

$y = 2\cos(2(x \pm 90°)) + 2$

D) $y = -\cos x$ (HT: $0°$)

$y = -2\cos(2(x - 0)) + 2$

$= -2\cos(2x) + 2$