5.5 Homework Handout: Writing the equation of a sinusoidal function

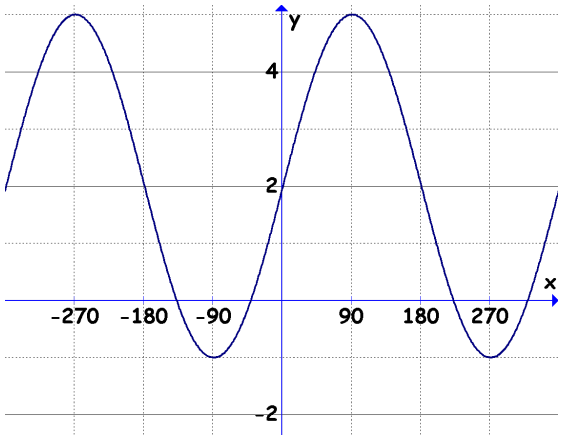
1. Write the equation for the sine function that has the following:

a) amplitude of 4 and period of 180°

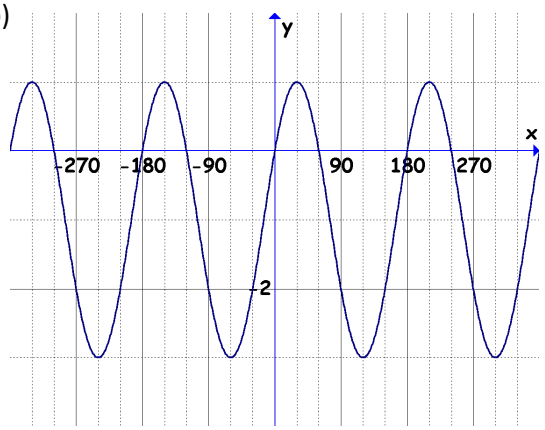
b) amplitude of ½, period of 540°, phase shift of 30° to the left and vertical shift of 4 down

2. Construct the defining equation of each trigonometric function for both Sine and Cosine.

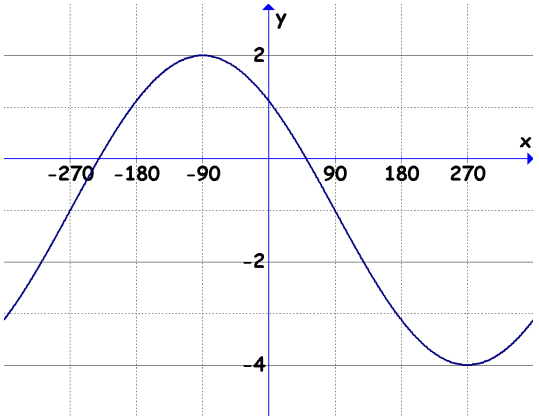
a)



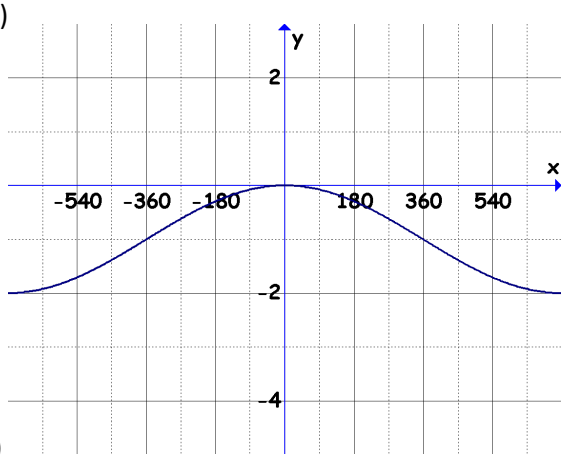
b)



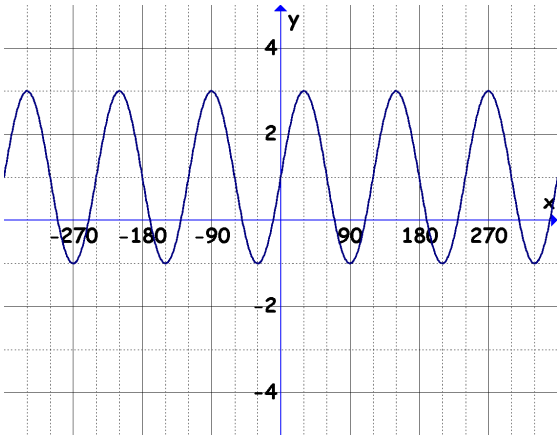
c)



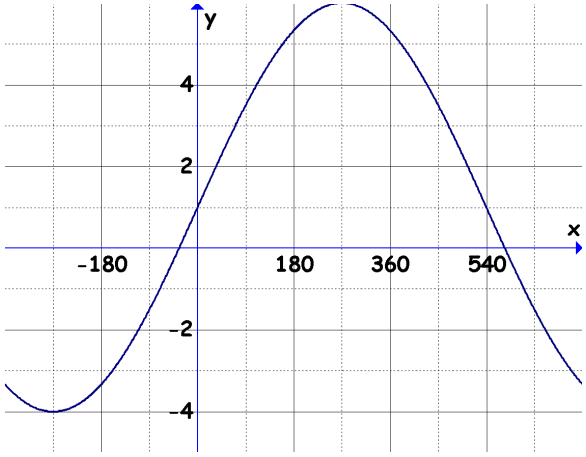
d)



e)



f)



3. Which sine function from the above graphs would have form errors?

Solutions:

1 a) y = 4sin2x b) y = 1/2sin(2/3(x + 30°)) - 4

2. a) y = 3cos(x - 90°) + 2, y = 3sinx + 2 b) y = 2cos(2(x - 30°)) - 1, y = 2sin(2(x + 15°)) - 1

c) y = 3cos(1/2(x + 90°)) - 1, y = -3sin(1/2(x - 90°)) - 1 d) y = cos(1/4x) - 1, y = sin(1/4(x + 360°)) - 1

e) y = 2sin(3x) + 1, y = 2cos(3(x - 30°)) + 1 f) y = 5sin(x/3) + 1, y = 5cos(1/3(x - 270°)) + 1

3. b) since the 5 key points do not intersect on the grid.