DUE: A-Day Monday 03/07/16, B-day Tuesday 03/08/16

Pre-Calculus: Lesson 4.5b Graphs of Sine and Cosine Functions p.299, #21-27 odd, #33, 35, 39, and 41.

Please complete the assignment using the "tri-fold" method (You may use www.calcchat.com to check your work):

Describing the Relationship Between Graphs **In Exercises 21–28, describe the relationship between the graphs of f and g. Consider amplitudes, periods, and shifts.**

21. $f(x) = \sin x$
$g(x) = \sin(x - \pi)$

22. $f(x) = \cos x$
$g(x) = \cos(x + \pi)$

23. $f(x) = \cos 2x$
$g(x) = -\cos 2x$

24. $f(x) = \sin 3x$
$g(x) = \sin(-3x)$

25. $f(x) = \cos x$
$g(x) = -5 \cos x$

26. $f(x) = \sin x$
$g(x) = -\frac{1}{2} \sin x$

27. $f(x) = \sin 2x$
$g(x) = 3 + \sin 2x$

28. $f(x) = \cos 4x$
$g(x) = -2 + \cos 4x$

Sketching Graphs of Sine or Cosine Functions **In Exercises 33–38, sketch the graphs of f and g in the same coordinate plane. (Include two full periods.)**

33. $f(x) = \sin x$
$g(x) = -4 \sin x$

34. $f(x) = \sin x$
$g(x) = \sin\frac{x}{3}$

35. $f(x) = \cos x$
$g(x) = 1 + \cos x$

36. $f(x) = 2 \cos 2x$
$g(x) = -\cos 4x$

37. $f(x) = -\frac{1}{2} \sin\frac{x}{2}$
$g(x) = 3 - \frac{1}{2} \sin\frac{x}{2}$

38. $f(x) = 4 \sin \pi x$
$g(x) = 4 \sin \pi x - 3$

Graphing Sine and Cosine Functions **In Exercises 39–42, use a graphing utility to graph f and g in the same viewing window. (Include two full periods.) Make a conjecture about the functions.**

39. $f(x) = \sin x$
$g(x) = \cos\left(x - \frac{\pi}{2}\right)$

40. $f(x) = \sin x$
$g(x) = -\cos\left(x + \frac{\pi}{2}\right)$

41. $f(x) = \cos x$
$g(x) = -\sin\left(x - \frac{\pi}{2}\right)$

42. $f(x) = \cos x$
$g(x) = -\cos(x - \pi)$