

Third review for Math 13 Fall 2005

Nikos Apostolakis

Please note: You should fully justify your answers.

1. Solve the following equations

(a) $\sin 5x = 1/2$.

(b) $\sin 4x = \cos 4x$, for $0 \leq x < 2\pi$.

(c) $\cos 3x - \cos 6x = 0$, for $0 \leq x < 2\pi$.

2. Find

(a) $\sin(\cos^{-1} x)$

(b) $\sin(\cot^{-1} x)$

(c) $\tan(\sin^{-1} x)$

(d) $\sec(\tan^{-1} x)$

3. Solve each of the following systems using Cramer's rule (i.e. using determinants).

(a)
$$\begin{cases} 5x - 7y = -27 \\ 11x + 2y = 45 \end{cases}$$

(b)
$$\begin{cases} -2x - 5y = -11 \\ 3x + 7y = 15 \end{cases}$$

(c)
$$\begin{cases} 2x - 3y + 4z = 9 \\ -3x + 5y - 2z = 3 \\ x - 4y + 5z = 14 \end{cases}$$

(d)
$$\begin{cases} 5x - 2y + 3z = -1 \\ 3x + y - 2z = 25 \\ 2x - 4y + 5z = 16 \end{cases}$$