

Problem Set 23

1. Graph the function $f(x) = -2 \sin\left(\frac{x}{2} + \frac{3\pi}{2}\right) + 1$ on the interval $[-4\pi, 4\pi]$.
2. Graph the function $f(x) = 2 - \frac{1}{2} \cos\left(\pi x - \frac{\pi}{2}\right)$ on the interval $[-2, 2]$.
3. Solve each of the following equations.
 - (a) $\sin x - \sqrt{3} \cos x = -1$
 - (b) $3 \sin x + 2 \cos^2 x = 3$
4. Let $\underline{u} = 5\underline{i} - 12\underline{j}$ and $\underline{v} = 3\underline{i} + 4\underline{j}$. Find each of the following.
 - (a) The angle formed by $\underline{u}$ and $\underline{v}$.
 - (b) $\underline{u} + \underline{v}$
 - (c) $\underline{u} - \underline{v}$
 - (d) The angle formed by $\underline{u} + \underline{v}$ and $\underline{u} - \underline{v}$.
 - (e) The polar form of $\underline{v}$.
 - (f) The vector we obtain when we rotate $\underline{u}$ by 90° .
 - (g) The vector we obtain when we rotate $\underline{u}$ by -90° .
5. Solve each of the following triangles.
 - (a) $a = 5$ $b = 6$ $c = 7$
 - (b) $a = 4$ $b = 5$ $\gamma = 29^\circ$