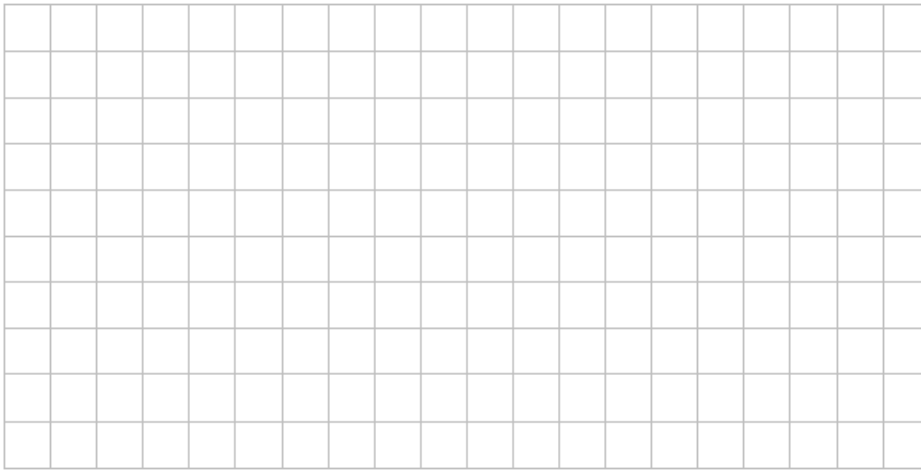


1. Prove the following is an identity:  $\tan^2 x + \sin^2 x = (\sec x + \cos x)(\sec x - \cos x)$

2. On the accompanying grid, sketch the graphs of  $y = 3\cos 2x$  and  $y = -\sin \frac{1}{4}x$  for values of  $x$  in the interval  $-2\pi \leq x \leq 2\pi$ , and state how many values of  $x$  in the interval  $-2\pi \leq x \leq 2\pi$  are solutions of the equation  $3\cos 2x = -\sin \frac{1}{4}x$ .



3. Solve for all values of  $x$  in simplest  $a + bi$  form:  $9x(x - 1) = -3x - 11$

4. If  $\cos \theta = -\frac{1}{4}$  and  $\tan \theta > 0$ , find the exact value of  $\sin \theta$ .

2.

3.

4.