

# Wave Equation

## All solutions between 0 and $2\pi$

1. Express  $f(x) = 3\cos x - 2\sin x$  in the form  $k\cos(x - \alpha)$ .  
Hence solve the equation  $3\cos x - 2\sin x = 1$
2. Express  $f(x) = 2\cos x + 4\sin x$  in the form  $k\sin(x - \alpha)$ .  
Hence solve the equation  $2\cos x + 4\sin x = 3$ .
3. Express  $f(x) = -5\cos x + 2\sin x$  in the form  $k\sin(x + \alpha)$ .  
Solve the equation  $-5\cos x + 2\sin x = 4$
4. Express  $f(x) = 6\cos x - 3\sin x$  in the form  $k\cos(x - \alpha)$ .  
Hence solve the equation  $6\cos x - 3\sin x = 4$
5. Express  $f(x) = \cos x - 3\sin x$  in the form  $k\sin(x + \alpha)$ .  
Hence solve the equation  $\cos x - 3\sin x = 2$