Section 1: The compound angle identities

Exercise level 1

1. Given that x is an acute angle and that $\cos x = 0.6$, find $\sin 2x$, $\cos 2x$ and $\sin 3x$ without using a calculator.

2. Given that x and y are acute, $\cos x = \frac{3}{5}$ and $\sin y = \frac{12}{13}$, find values for $\sin(x + y)$, $\cos(x - y)$ and $\tan 2x$.

3. Find values for x in the range $0 \leq x \leq \pi$.
   (i) $\cos 3x \cos 2x - \sin 3x \sin 2x = 0.5$
   (ii) $\sin 5x \cos x + \cos 5x \sin x = 1$