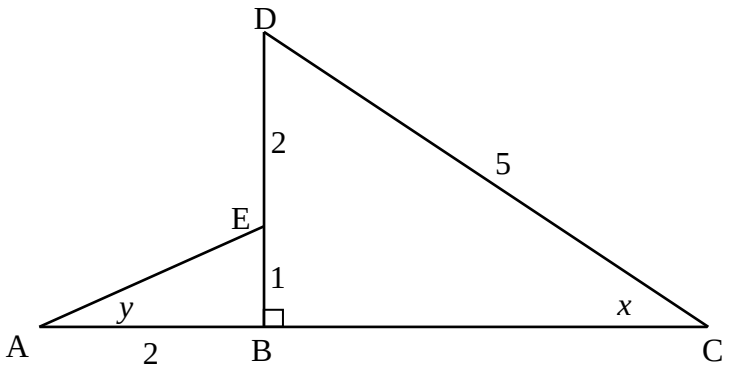
Higher Homework 3 – Trigonometry

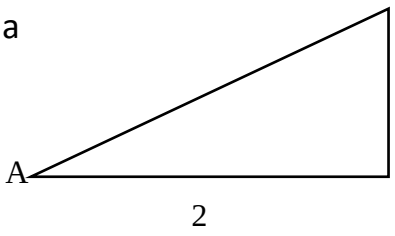
1. Express cos$x$ + $\sqrt{3}$sin$x$ in terms of kcos(x – α)° $0 \leq \alpha \leq 2\pi°$, k > 0 4

2. Using diagram below.



Show clearly that $\cos(x+y) = \frac{\sqrt{5}}{5}$ 4

3. The diagram shows a right angled triangle with a height 1 unit, base 2 units an angle of a° at A.



(a) Find the exact value of (i) sin a°
(ii) sin 2a° 3

(b) By expressing sin 3a° as sin(2a + a)°, find the exact value of sin3a 4