

2. (a) Show that

$$\sin 3x = 3 \sin x - 4 \sin^3 x \quad (3)$$

Hence find

$$(b) \int \cos x (6 \sin x - 2 \sin 3x)^{\frac{2}{3}} dx \quad (3)$$

$$(c) \int (3 \sin 2x - 2 \sin 3x \cos x)^{\frac{1}{3}} dx \quad (4)$$