

6. (a) Solve, for  $-180^\circ \leq \theta \leq 180^\circ$ , the equation

$$9 \sin 2\theta = 16 \tan \theta$$

giving your answers, where necessary, to one decimal place.

*[Solutions based entirely on graphical or numerical methods are not acceptable.]*

**(6)**

- (b) Deduce the smallest positive solution to the equation

$$9 \sin (2x - 60^\circ) = 16 \tan (x - 30^\circ)$$

**(2)**

**(Total for Question 6 is 8 marks)**