7 Given that

$$\frac{3+\sin^2\theta}{\cos\theta-2}=3\cos\theta$$

(a) show that $\cos\theta=-\frac{1}{2}$

(4)

(b) Hence solve the equation

$$\frac{3+\sin^2 3x}{\cos 3x-2}=3\cos 3x \quad \text{for } 0^\circ \leqslant x < 180^\circ$$

(4)

Question 7 continued

(Total for Question 7 is 8 marks)