

Answer on Question #48677 – Math – Calculus:

Find all solutions to the equation $7\sin^2 x - 14 \sin x + 2 = -5$.

Solution.

$$7 \sin^2 x - 14 \sin x + 2 = -5 \Rightarrow 7\sin^2 x - 14 \sin x + 7 = 0 \Rightarrow$$

$$\Rightarrow \sin^2 x - 2 \sin x + 1 = 0 \Rightarrow (\sin x - 1)^2 = 0 \Rightarrow$$

$$\Rightarrow \sin x - 1 = 0 \Rightarrow \sin x = 1 \Rightarrow x = \frac{\pi}{2} + 2\pi k, k \in \mathbb{Z}.$$

Answer.

$$x \in \left\{ \frac{\pi}{2} + 2\pi k : k \in \mathbb{Z} \right\}.$$