Answer on Question #43546 – Math – Algebra

Prove that sinθ= (x+P)/x real value of x are possible when P ≤ 1/4 .

Solution:

$$\sin\theta = \frac{x+P}{x} = \frac{x}{x} + \frac{P}{x} = 1 + \frac{P}{x}$$

Maximum value of $\sin\theta$ is 1, hence maximum value of parameter P:

$$1 + \frac{P}{x} = 1$$

$$\frac{P}{x} = 0$$

$$P = 0$$

Minimum value of $\sin\theta$ is -1, hence minimum value of parameter P:

$$1 + \frac{P}{x} = -1$$

$$\frac{P}{x} = 2$$

Hence, condition that P must be $P \le \frac{1}{4}$ is not true (for all x from R): maximum value of P is zero, and minimum is undefined (if we consider that “x” is from R).