

Answer on Question #58756, Physics / Mechanics | Relativity

An automobile is running on a circular high way with a velocity of 120 m/s. The radius of the high way is 1000m. What is the centripetal acceleration?

Solution:

Centripetal acceleration is part of moving in a circular path. Centripetal acceleration points toward the center of the circular path of the train, but is felt by passengers as a force pushing them to the outer edge of the circular path.

The equation for centripetal acceleration is:

$$a_r = \frac{v^2}{r}.$$

Hence,

$$a_r = \frac{120^2}{1000} = 14.4 \text{ m/s}^2$$

Answer. 14.4 m/s².