

The car takes a turn at 9 m/s.

a) What is the car's centripetal acceleration?

b) How many g's is that?

$$accel_{CENTRIPETAL} = \frac{v^2}{r}$$

then divide by 10 to convert to g's

*a) The v in the formula is the velocity in m/s.
The r in the formula is the radius, which is on the diagram.*

$$\begin{aligned} accel &= \frac{v^2}{r} \\ &= \frac{(9)^2}{(5)} \\ &= \frac{(81)}{(5)} \\ &= 16.2 \text{ m/s}^2 \end{aligned}$$

b) To get g's, divide by 1g, which Earth's gravity: 10 m/s^2

$$\frac{16.2}{10} = 1.62 \text{ g's}$$

