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This is a problem involving uniform circular motion.

A sprinter is running around the bend of a track with radius of 30 m, at a speed of 11 m/s. What is the acceleration of the sprinter and in what direction does the acceleration $\vec{a}$ point?

Solution: Use the centripetal acceleration equation: $a = \frac{v^2}{r}$

$a = ?$ (magnitude of centripetal acceleration)

$v = 11\ m/s$ (speed of the sprinter, which is the magnitude of the sprinter's velocity)

$r = 30m$ (radius of the bend)

Substitute:

$$a = \frac{(11)^2}{30} = 4.03\ m/s^2$$ (answer)

and $\vec{a}$ points towards the center of the bend