A 9 kg car travels in a flat circle. At a certain instant the velocity of the car is 16 m/s West and the total acceleration of the car is 3 m/s2 at 54◦ North of West.
What is its radius? Answer in units of km

Solution:

$$a^2 = a_2^2 + a_r^2$$

$$a_r = a * sin54$$

$$a_r = \frac{V^2}{R}$$

$$R = \frac{V^2}{a * sin54} = \frac{16^2}{3sin54} = 105m = 0.105km$$