Q1 - Answer = c

Q2 - Problem A - Last name A-K

A car travels around a level, circular track with radius 100 m. If the coefficient of friction between tires and road is equal to 1.0, what is maximum speed the car can go without slipping?

A. 10 m/s

B. 31 m/s

C. 98 m/s

D. 192 m/s

E. 980 m/s

$mv^2/r = \mu mg$; $v = (\mu gr)^{1/2} = (1.0 \times 9.8 \times 100)^{1/2} = 31$

Q1 - Answer = c

Q2 - Problem B - Last Name L-Z

- An automobile goes around a circular level track of radius 75 m at a speed of 25 m/s. What is the coefficient of friction between tires and road if the car is not to slip?

A. 0.83

B. 1.03

C. 2.2

D. 0.49

E. 0.63

$mv^2/r = F_f = \mu mg$; $m = v^2/(r\,g) = (25)^2/(75 \times 9.8) = 0.85$