Q1 - Answer = c

Q2 - Problem A - Last name A-K

A solid sphere of mass 10 kg and radius 10 cm rolls without slipping at 2.5 m/s. What is its total kinetic energy? Recall that $I_{sphere} = 2/5\ MR^2$.

A. 62 J

B. 4400 J

C. 22 J

D. 31 J

E. **44 J**

$$KE = 1/2MV^2(1+I/(MR^2))$$

$$= 1/2 \times 10 \times 2.5^2(1+2/5)$$

$$= 44\ J$$

Q1 - Answer = c
Q2 - Problem B - Last Name L-Z

- A solid brass cylinder of mass 7.5 kg and radius 20 cm rolls without slipping on the ground at a speed of 3.5 m/s. What is its total kinetic energy? Recall that $I_{cylinder} = 1/2\ MR^2$.

A. **69 J**

B. 46 J

C. 35 J

D. 7000 J

E. 92 J

$$KE = 1/2MV^2(1+I/(MR^2))$$

$$= 1/2x7.5x3.5^2(1+1/2)= 69\ J$$