

Answer on Question #46594 – Physics – Mechanics | Kinematics | Dynamics

sir i am a student of 8 class and i want to know that a toy car will travel farthest on polished marble surface or cemented surface.

Solution:

Coefficient of rolling friction of rubber on polished marble is equal to $\mu_1 = 0.2$ and rubber on cement is equal to $\mu_2 = 0.7$.

$$\begin{aligned}\mu_2 &> \mu_1 \\ \mu_2 N &> \mu_1 N \\ F_{\text{friction1}} &> F_{\text{friction2}}\end{aligned}$$

Thus, on the wet surfaces like polished marble are slippery while dry cemented surface is not. This is because there is less friction ($F_{\text{friction1}} < F_{\text{friction2}}$) and it cant grip to the surface as well.

There is less traction when the surface are polished as the air creates a thin layer between the surface of the road and the tire of the car. This means that the tires cannot grip onto the road and therefore skid.

Hence, toy car will travel farthest on cemented surface because of better traction (bigger friction force) and less slippery.

Answer: toy car will travel farthest on cemented surface