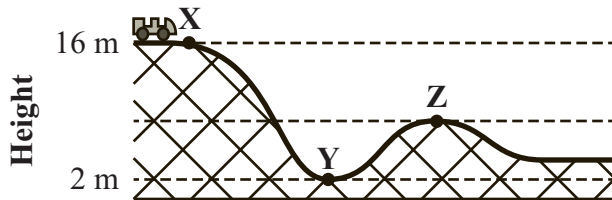


The diagram below shows three points on a roller coaster track. A car starts from rest at point X and travels along the track. Assume friction is negligible.



- Identify whether the car's gravitational potential energy increases, decreases, or stays the same as the car moves from point X to point Y.
- Identify whether the car's kinetic energy increases, decreases, or stays the same as the car moves from point Y to point Z.

The car has a mass of 600 kg.

- Calculate the gravitational potential energy of the car at its maximum height. Show your calculations and include units in your answer.
- Calculate the maximum kinetic energy of the car. Show your calculations and include units in your answer.