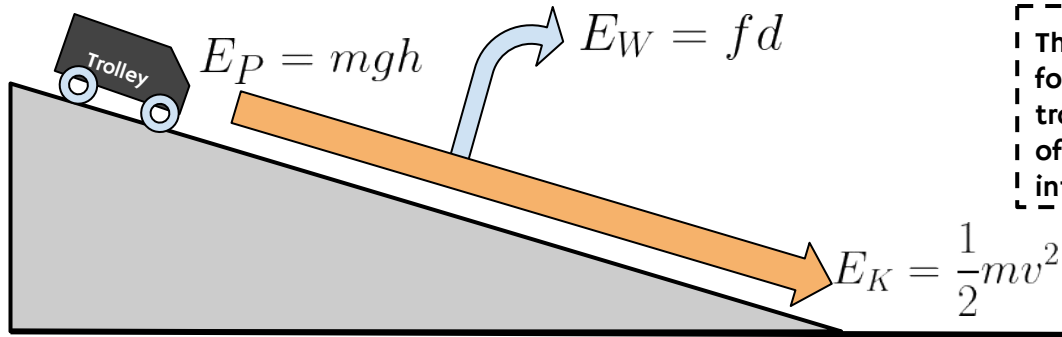


Conservation of Energy



The work done by the force of friction on the trolley transfers some of its kinetic energy into heat.

1. A trolley of mass 9 kg is released from a height of 4 metres. The trolley has a speed of 7m/s at the bottom.

$$E_P =$$

$$E_K =$$

Energy lost due to the work done by friction =

2. A trolley of mass 15 kg is rolled down a slope from a height of 10 metres. The trolley has a speed of 12 m/s at the bottom.

$$E_P =$$

$$E_K =$$

Energy lost due to the work done by friction =

3. A trolley of mass 9 kg is released from a height of 12 metres. The trolley has a speed of 8 m/s at the bottom.

$$E_P =$$

$$E_K =$$

Energy lost due to the work done by friction =

4. A trolley of mass 10 kg is released from a height of 30 m. The speed of the trolley at the bottom is 15 ms^{-1}

$$E_P =$$

$$E_K =$$

Energy lost due to the work done by friction =

5. A trolley of mass 6 kg is released from a height of 12 m. The speed of the trolley at the bottom is 9 ms^{-1}

$$E_P =$$

$$E_K =$$

Energy lost due to the work done by friction =

6. A trolley of mass 2 kg is released from a height of 4 m. The speed of the trolley at the bottom is 7 ms^{-1}

$$E_P =$$

$$E_K =$$

Energy lost due to the work done by friction =

7. The length of the ramp is 5.0m and different surfaces are used in each question. For each question find the force of friction for each surface.