Physics 11

**Section 7.4: Law of Conservation of Energy**

The Law of conservation of energy states…

For a single object, we can use the following formula

This is particularly useful when \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ because \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

In the following situations, is gravity the only force doing work?

|  |  |
| --- | --- |
| A roller-coaster going down a hill.  A car skidding to a stop. | A pendulum swinging back and forth.  A ball flying through the air with air resistance. |

**Example:** A snowboarder starts at rest on a 45 m hill, travels down a hill into a gulley and up to the top of a 25 m hill. Find his speed at the top of the 2nd hill.