Qualitative Reasoning about Newtonian Processes—2

A miner pulls a wagon of supplies to the top of a hill where he lives by hanging from a rope attached to the wagon. As the cart moves at increasing speed up the hill, the miner moves with increasing downward speed. How does the tension in the rope compare to his weight?

If asked a question about force, you often begin by determining the direction of the acceleration using either a motion diagram or by subtracting velocities. Determine the direction of the miner’s acceleration.

Next, use Newton's second law to determine the direction of the net force acting on the miner.

Construct a free-body diagram for the miner. The arrows representing forces should have the appropriate relative length so that the net force is in the direction determined above.

Finally, answer the question.

\[ T < W \]