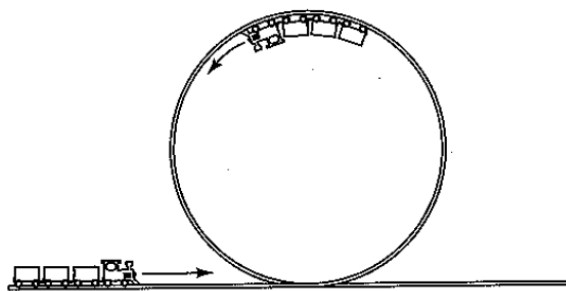


Name:

10 minutes.

True or false?

- (a) A roller coaster (approximated as a point particle) is going through a loop. The coaster always experiences a normal force at top of the loop.



- (b) A roller coaster (approximated as a point particle) is going through a loop. The normal force that the coaster may experience at top of the loop is a reaction force due to the roller coaster's "action force" on the track.
- (c) Two people are involved in a tug of war. They are exerting forces on each other through a rope, which is held perfectly horizontal, and both people are at rest in an equilibrium. Assume that the rope is massless. The two people are exchanging Newton's 3rd law pair forces (true or false?). **Explain your answer, in a sentence or two.**
- (d) In the monkey on a rope problem (see diagram below), the monkey's upward motion involves acceleration only, without any deceleration.
- (e) In the monkey on a rope problem (see diagram below), the monkey's upward motion involves acceleration only, without any deceleration, if the gravity is suddenly turned off. **Explain your answer, in a sentence or two.**

