

Name: _____

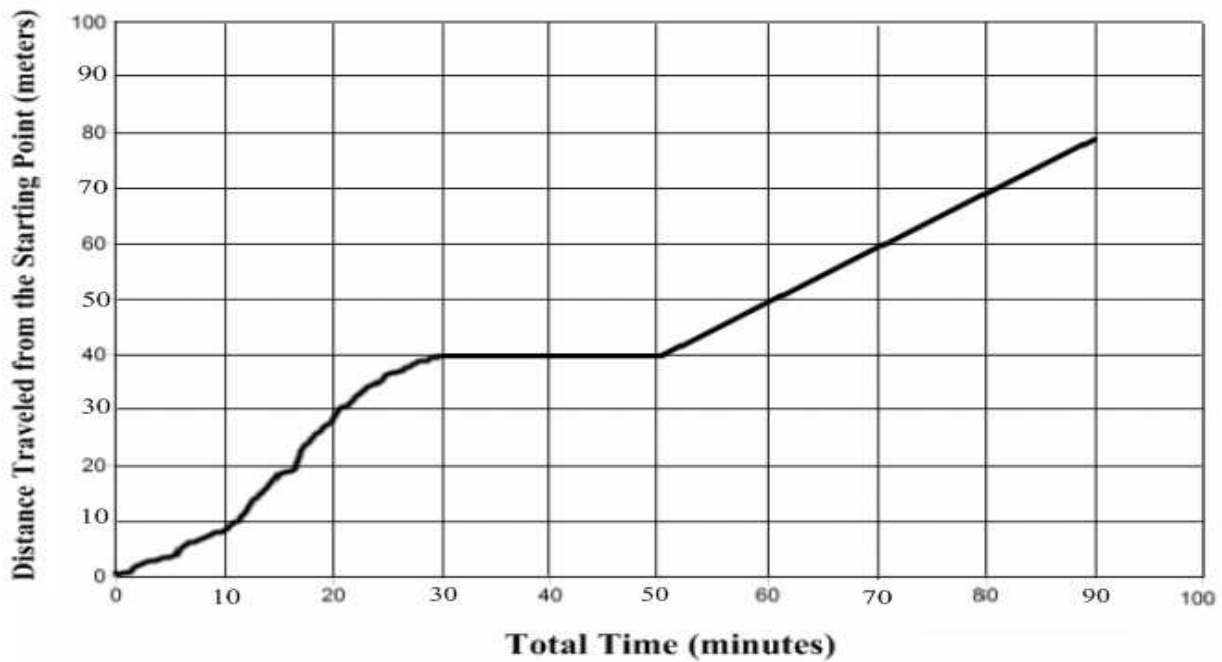
Date: _____

6th Force & Motion Summative Assessment

1. During a youth track event, a runner travels a distance of 100 meters in a time of 20 seconds.
- What is the runner's average speed?
 - Name a force that could change the speed of the runner and explain how this force would affect the speed of the runner.

2. A mountain biker is in a race and his team tracks his motion on a distance vs. time graph (illustrated below). During the race, the biker has a flat tire and must stop to change it before finishing the race.
- How long did it take the mountain biker to change the flat tire? Describe how you get your answer using information from the graph.
 - For how long was the mountain biker moving at constant speed? Describe how you get your answer using information from the graph.

Mountain Biker's Total Distance Traveled vs. Time Graph



3. A swimmer is competing in a 300-meter race. Her coach monitored her progress during the race and plotted her total distances traveled at the end of each one-minute time interval on a bar graph.

Use the graph to answer the following questions.

- During which minute is the swimmer moving the slowest? Describe how you get your answer using information from the graph.
- During which time intervals did the swimmer's speed change? Describe how you get your answer using information from the graph.

0 to 1 minute

1 to 2 minute

2 to 3 minute

3 to 4 minute

4 to 5 minute

5 to 6 minute

- During which time intervals were the forces on the swimmer balanced? Describe how you get your answer using information from the graph.

0 to 1 minute

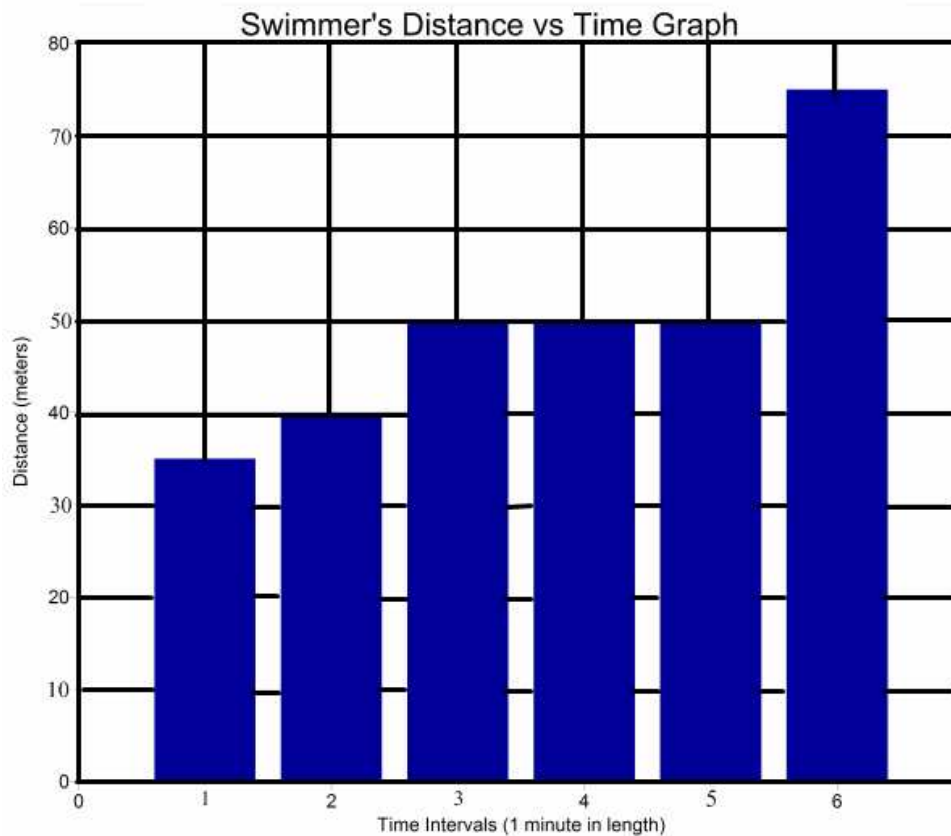
1 to 2 minute

2 to 3 minute

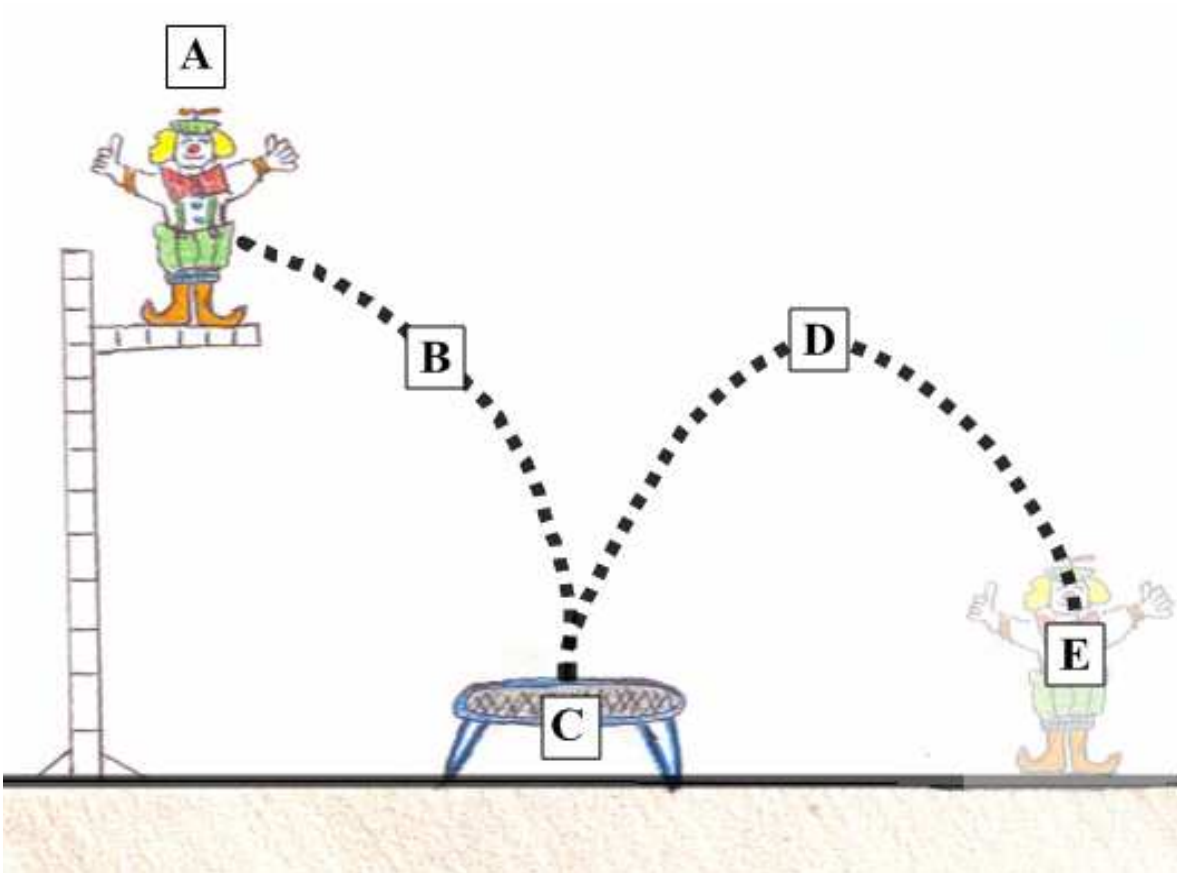
3 to 4 minute

4 to 5 minute

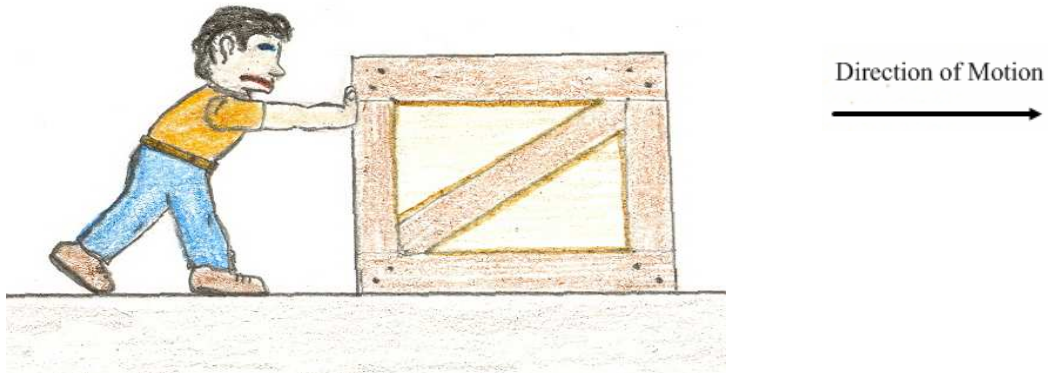
5 to 6 minute



4. During a circus act, a clown completes a stunt. He jumps from the top of a tall platform and lands on a large trampoline, which then launches him back up into the air where he eventually lands on the ground.
- At which identified locations (**A**, **B**, **C**, **D**, or **E**) does the force of **gravity** act on the circus clown? Explain why you chose that location (or locations).
 - Name two other forces that act on the clown during the stunt and identify the location (or locations) where these forces act.

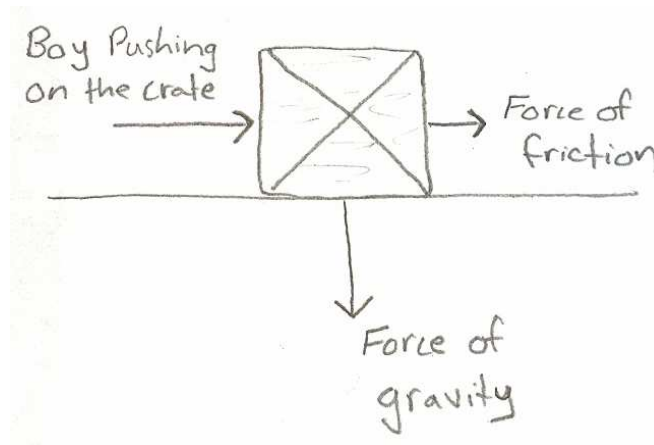


A teacher gave her science class a test. Each student was asked to do the following:



A boy is pushing a large crate across the floor at constant speed. Identify all of the forces acting on the crate and then draw a force diagram. Remember that a good force diagram shows the approximate sizes and directions of all of the forces that are acting on the crate.

The student provides the following force diagram in his response:



5. Carefully review the student's force diagram and label all of the errors. Draw a correct force diagram that will show this student how to correctly answer this question.