PVA Diagrams

Scott N. Walck

September 12, 2024

PVA Diagram 1

A rock is launched from the ground at an angle of 30° above horizontal with a speed of 50 m/s. Make a PVA diagram of the motion using a time interval of one second.

PVA Diagram 2

A ball is thrown horizontally from the top of an 80-m building at 40 m/s. Make a PVA diagram with $\Delta t = 1$ s until it hits the ground.

PVA Diagram 3

Starting from a point 16 meters to the west of the center of a large carousel, a child moves 4 m/s to the north. The child experiences an acceleration of 1 m/s toward the center of the carousel. Make a PVA diagram of the motion using a time interval of one second.

PVA Diagram 4

Launch a ball at 45° above horizontal from the top of a 40-m building with a speed of 30 m/s. Use a time interval of 1 second and do 4 or 5 steps.

Practice PVA Diagram 1

A ball is thrown from the ground straight up in the air, reaches some maximum height, then falls to be caught by a person on top of a building, 20 m above the ground. The ball is thrown with an initial velocity of 25 m/s. Make a PVA diagram of the motion using a time interval of one second. Approximately how much time elapsed between throwing and catching?

Practice PVA Diagram 2

Starting from a point 80 meters to the east of the center of a very large carousel, a person moves 20 m/s to the north. The person experiences an acceleration of 5 m/s toward the center of the carousel. Make a PVA diagram of the motion using a time interval of one second.

Practice PVA Diagram 3

A water balloon is launched at an angle of 55° above horizontal at a speed of 25 m/s. It lands on top of a building 15 m high. Make a PVA diagram of the motion using a time interval of one second. Approximately how much time elapsed between launching and landing? Approximately how high does the balloon get before coming back down?