

A car is travelling to the right with a speed of $42 \frac{\text{m}}{\text{s}}$ when the driver slams on the brakes.

The car skids for 4.0 s with constant acceleration before it comes to a stop.

What is the displacement of the car as it skids to a stop?

A child blows a leaf from rest straight up in the air. The leaf has a constant upward acceleration of magnitude $1.0 \frac{\text{m}}{\text{s}^2}$.

How much time does it take the leaf to displace 1.0 m upwards?

A car is traveling to the right with a speed of $2.0 \frac{\text{m}}{\text{s}}$ on an icy road when the brakes are applied. The car slows down with constant acceleration for 3.0 m until it comes to a stop.

How long does it take the car to slide to a stop?

A motorbike is traveling to the left with a speed of $27.0 \frac{\text{m}}{\text{s}}$ when the rider slams on the brakes. The bike skids 41.5 m with constant acceleration before it comes to a stop.

What was the acceleration of the motorbike as it came to a stop?

A car is traveling to the right with a speed of $29 \frac{\text{m}}{\text{s}}$ when the driver slams on the accelerator to pass a truck. With a constant acceleration, the car passes the truck in 110 m and reaches a speed of $34 \frac{\text{m}}{\text{s}}$.

What was the acceleration of the car as it sped up?

A boat is drifting to the right with a speed of $5.0 \frac{\text{m}}{\text{s}}$ when the driver turns on the motor. The motor runs for 6.0 s causing a constant leftward acceleration of magnitude $4.0 \frac{\text{m}}{\text{s}^2}$.

What is the displacement of the boat over the 6.0 s time interval?

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A basketball is rolling rightward onto the court with a speed of $4.0 \frac{\text{m}}{\text{s}}$, and slows down with a constant leftward acceleration of magnitude $0.50 \frac{\text{m}}{\text{s}^2}$ over 14 m.

What is the velocity of the basketball after rolling for 14 m?

A dog walking to the right with a speed of $1.5 \frac{\text{m}}{\text{s}}$ sees a cat and speeds up with a constant rightward acceleration of magnitude $12 \frac{\text{m}}{\text{s}^2}$.

What is the velocity of the dog after speeding up for 3.0 m?

Give the correct sign for your answer, using a coordinate system where rightward is positive.

Round the answer to two significant digits.

A bumblebee is flying to the right when a breeze causes the bee to slow down with a constant leftward acceleration of magnitude $0.50 \frac{\text{m}}{\text{s}^2}$. After 2.0 s, the bee is moving to the right with a speed of $2.75 \frac{\text{m}}{\text{s}}$.

What was the velocity of the bumblebee right before the breeze?

Give the correct sign for your answer, using a coordinate system where rightward is positive.

It took a squirrel 0.50 s to run 5.0 m leftward to a nearby tree while maintaining a constant acceleration. The squirrel was running $15 \frac{\text{m}}{\text{s}}$ leftward when it reached the tree.

What was the squirrel's initial velocity?