

Exam Review - Problem #1 - Calculating \vec{R}

$\vec{A} = 28.9 \text{ m/s}^2, \text{ S}$ and $\vec{B} = 37.1 \text{ m/s}^2, \text{ E}$. Calculate \vec{R} .

Exam Review - Problem #2 - General Kinematic Problem

A car moving with a velocity of 3.45 m/s [W] accelerates uniformly for 5.21 s over a distance of 110 m . Determine the final velocity of the car.

Exam Review - Problem #3 - Freely Falling Body

A cliff diver begins her dive by jumping vertically upward. What was the diver's initial velocity if it takes her 5.4 s to hit the water 112 m below?

Exam Review - Problem #4 - First Law Problem

A box of mass 15.32 kg is being pulled to the left across a horizontal surface by an applied force of 58 N. The box is moving at constant speed. What is the coefficient of kinetic friction? Include an FBD for the box.

Exam Review - Problem #5 - Second Law Problem (Type II)

A 75 kg bobsled is pushed along a horizontal surface by two athletes. After the bobsled is pushed distance of 4.5 m starting from rest, its speed is 6.0 m/s. Find the magnitude of the net force on the bobsled.

Exam Review - Problem #6 - Second Law Problem (Type III)

In a physics lab, Amanda applies a 34.5 N rightward force to a cart to accelerate it across a horizontal surface at a rate of 1.28 m/s^2 . The coefficient of friction between the cart and surface is 0.648. Determine the mass of the cart.

Exam Review - Problem #7 - Impulse-Momentum Theorem

A skateboard is rolling across a smooth, flat floor with a momentum of $6.0 \text{ kg}\cdot\text{m/s}$ [N] when a boy kicks it, causing it to speed up to 4.5 m/s in 0.50 seconds without changing direction. If the force exerted by the boy on the skateboard in its direction of motion was 6.0 N , what was the mass of the skateboard?

Exam Review - Problem #8 - Work-Kinetic Energy Theorem

A 2.5 g bullet hits a tree and slows uniformly to a stop while penetrating a distance of 12 cm into the tree's trunk. If a force of magnitude 1276 N was exerted on the bullet to bring it to rest, what was the initial kinetic energy of the bullet?