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Question: A large rock became visible to a driver at a distance of 175 ft. ...

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A large rock became visible to a driver at a distance of 175 ft. Assuming a perception-reaction time of 0.8 s, an initial speed of 42 mi/h, a coefficient of friction of 0.5, and a level roadway, calculate the speed at impact.

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Expert Answer



Aaron Jones answered this
785 answers

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We know that,

$$u = 42 \text{ mi/hr}$$

after conversion the speed becomes,

$$u = 61.6 \text{ ft/sec}$$

$$a = -fg$$

$$= -0.5 \times 32.2$$

$$= -16.1$$

Distance covered in time t as follows:

$$\text{distance} = \text{speed} \times \text{time}$$

$$= 61.6 \times 0.8$$

$$= 49.28 \text{ ft}$$

Remaining distance will be $175 - 49.28 = 125.72 \text{ ft}$

This distance is covered after breaks are fully applied

$$v^2 - u^2 = 2as$$

$$v^2 - 61.6^2 = 2 \times (-16.1) \times 125.72$$

$$v = \sqrt{253.624}$$

$$v = 15.92 \text{ ft/sec}$$

$$v = 10.85 \text{ mile/hr}$$

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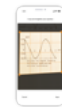
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... speed of 42 mph, a coefficient of friction equal to 0.5, and a level roadway, calculate the speed at impact.

A: [See answer](#) 100% (1 rating)

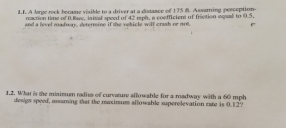
Q: A large rock became visible to a driver at a distance of 175ft. Assuming a perception-reaction time of 0.8 s, an initial speed of 42mi/h, a coefficient of friction equal to 0.5, and a level roadway, calculate the speed at impact.

A: [See answer](#) 100% (2 ratings)

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Vehicles A and B are traveling toward each other in the opposing lanes on a straight segment of a two-lane highway at 35 and 40 mph

[See answer](#)

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Q: vehicles Bare traveling toward each other in opposing lanes on a two lane highway If critical rates of angular change of the drivers are at 35 and 40 mi/h, respectively. If the critical rates of angular change of the two drivers are 0.0065 and 0.0055 rad/s determine which driver will be the first to displace ally and (b) the longitudinal distance between vehicles when the...

A: [See answer](#)

Q: What is the maximum allowable degree of curve (arc definition) for a two-lane highway if $e_{max} = 0.08$, $f_s = 0.12$, and the design speed is 50 mi/h?

A: [See answer](#) 80% (5 ratings)

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