Worksheet: Kinematics Part 2 - a $v_{final} = v_{initial} + at$

NAME:

1. Read the following problem
2. Highlight your “proof” for assigning variables
3. List the givens
4. Solve
5. Write your answer with the proper units

A car is traveling in a straight line has a speed of 17.1 m/s at some instant. After 9.20 s, its speed is 9.41 m/s. What is its average acceleration in this time interval? - 3 pts -

- Initial velocity - m/s, starting from rest, initially/beginning, how fast...
- Final velocity - m/s, comes to a stop/rest, finally/end, how fast...
- Acceleration - m/s^2
- Time - s, how long...

Givens	Work

Answer

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The current holder of the Outright World Land Speed Record is Thrust SSC, a twin turbofan jet-powered car which achieved 763.035 mph (341 m/s) in October 1997. This was the first car to break the sound barrier. If the car started from rest and accelerated over a time period of 16 seconds. What was the car’s acceleration? - 3 pts -
● Initial velocity - m/s, starting from rest, initially/beginning, how fast... ● Final velocity - m/s, comes to a stop/rest, finally/end, how fast... ● Acceleration - m/s^2 ● Time - s, how long...

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Suppose a plane starts from rest. The place accelerates down the runway and at t = 29 s attains a velocity of v = +72 m/s, where the plus sign indicates the velocity points to the right. Determine the average acceleration of the plane. - 3 pts -
● Initial velocity - m/s, starting from rest, initially/beginning, how fast... ● Final velocity - m/s, comes to a stop/rest, finally/end, how fast... ● Acceleration - m/s^2 ● Time - s, how long...

Givens	Work

Answer

Worksheet: Kinematics Part 2 - a

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<table>
<tr><td colspan="2">If a sports car can go from rest to 23.0 m/s in 7.60 s, what is the magnitude of its average acceleration? - 3 pts -</td></tr>
<tr><td colspan="2">● Initial velocity - m/s, starting from rest, initially/beginning, how fast...
● Final velocity - m/s, comes to a stop/rest, finally/end, how fast...
● Acceleration - m/s^2
● Time - s, how long...</td></tr>
<tr><td>Givens</td><td>Work</td></tr>
<tr><td colspan="2">Answer</td></tr>
</table>

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A car is driving at a velocity of 4.19 m/s. The car then accelerates to a velocity of 8.22 m/s for 5.31 s. What is the car’s acceleration? - 3 pts -

- Initial velocity - m/s, starting from rest, initially/beginning, how fast...
- Final velocity - m/s, comes to a stop/rest, finally/end, how fast...
- Acceleration - m/s^2
- Time - s, how long...

Givens	Work

Answer

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A snowmobile on a frozen pond is moving at 15.0 m/s when the driver decides to pass a slow-moving sled. If the driver accelerates to a speed of 19.5 m/s in a time of 4.00 seconds then what was the acceleration? - 3 pts -
● Initial velocity - m/s, starting from rest, initially/beginning, how fast... ● Final velocity - m/s, comes to a stop/rest, finally/end, how fast... ● Acceleration - m/s^2 ● Time - s, how long...

Givens	Work

Answer