Dec

answers pg 389 #10-14
Extra Practice Acceleration Assignment

Warm-Up

1. If a car accelerates from 5 m/s to 15 m/s in 2 seconds, what is the car's average acceleration?

$$a = \frac{v_f - v_i}{t} = \frac{15\text{m/s} - 5\text{m/s}}{2\text{s}} = \frac{10\text{m/s}}{2\text{s}} = 5\text{m/s/s}$$

2. How long does it take to accelerate an object from rest to 30 m/s if the acceleration was 5 m/s^2?

$$t = \frac{v_f - v_i}{a} = \frac{30\text{m/s} - 0\text{m/s}}{5\text{m/s}^2} = 6\text{s}$$

Test Dec 13th Chp 10

Sep 29-9:59 AM

Answers pg 389 #10-14

10. You are coasting on your skateboard at 1.4m/s and you decide to speed up. If you accelerate at 0.50m/s^2 for 7.0 s, what is your final speed?

v_i = 1.4m/s
a = 0.50m/s^2
t = 7.0 s

$v_f = v_i + at$
v_f = 1.4m/s + (0.50m/s^2)(7.0s)
v_f = 1.4m/s + 3.5m/s
v_f = 4.9m/s

11. A train is moving at 5.0km/h and accelerates at 95km/h^2 for 0.50h. What is the final speed at the end of the 0.50h?

v_i = 5.0km/h
a = 95km/h^2
t = 0.50h

$v_f = v_i + at$
v_f = 5.0km/h + (95km/h)(0.50h)
v_f = 5.0km/h + 47.5km/h
v_f = 52.5 km/h

12. A car travelling at a constant speed approaches the top of a hill. The car rolls down the hill at an acceleration of 2.0m/s^2 for 8.0 s and reaches a final speed of 26m/s. What was the initial speed of the car before accelerating down the hill?

a= 2.0m/s^2
t = 8.0s
v_f = 26m/s

$v_i = v_f - at$
v_i = 26m/s - (2.0m/s^2)(8.0s)
v_i = 26m/s - 16 m/s
v_i = 10m/s

Mar 1-1:53 PM

13. An octopus can accelerate rapidly by squirting a stream of water for propulsion. An octopus moving at 0.10m/s accelerates at 5.5m/s^2 to a final speed of 3.5m/s. What is the elapsed time during the acceleration?

v_i = 0.10m/s
a = 5.5m/s^2
v_f = 3.5m/s
t = ?

$$t = \frac{v_f - v_i}{a} = \frac{3.5\text{m/s} - 0.10\text{m/s}}{5.5\text{m/s}^2} = \frac{3.4\text{m/s}}{5.5\text{m/s}^2} = 0.618\text{ s}$$

14. The NASA space shuttle touches down on a runway at an initial speed of 95m/s and accelerates at a rate of -4.40m/s ^{2} . How much time does it take for the shuttle to stop?

v_i = 95m/s
a = -4.40m/s^2
t = ?
v_f = 0m/s

$$t = \frac{v_f - v_i}{a} = \frac{0\text{m/s} - 95\text{m/s}}{-4.40\text{m/s}^2} = \frac{-95\text{m/s}}{-4.40\text{m/s}^2} = 21.59\text{s}$$

Mar 1-1:55 PM

Complete Extra Practice Acceleration Assignment

Don't forget:
1. Show all work. Including writing a sentence.
2. Put on a separate sheet of paper.
3. Use the correct formula.
4. Convert if needed.

Once complete pass in for grading. It will be marked as an assignment.

Total: /35

Sep 30-3:05 PM

answers pg 389 #10-14.notebook