Physical Science Chapter 11   Acceleration-11A

(Do not write on this sheet) Show the set up in the equation for each problem

Velocity equals distance divided by time, or: $$A = \frac{V_f - V_i}{t}$$

Problems:

1. Find the acceleration if are car is at a stoplight and accelerates to 70 mi/hr in 21 sec.

2. Find the acceleration if a military plane traveling at 680 mi/hr speeds up to 1130 mi/hr in 18 sec.

3. A bird is headed towards southern Mexico in the fall. What is its acceleration if it goes from25 mi/hr to 0 mi/hr in 3 sec?

4. A roller coaster goes from 3 km/hr to 80 km/hr in 5.3 sec. What was its acceleration?

5. A rifle bullet is going 2760 ft/s and hits a tree. It slows to 0 ft/s in 0.13sec. What was its acceleration?

6. A parachute jumper leaps from the top of a cliff. He is falling at 157 km/hr. He pulls the ring on his parachute and slows to 18 km/hr in 7.4 sec. What was his acceleration?

7. A baseball is thrown at 94 mi/hr and stops in the catcher's glove in 0.87 sec. What was the baseball's acceleration?

8. A diver jumps off the high platform and is going 9.8 m/s when she hits the water. Her speed slows to 1.7 m/s in 1.15 sec. What was her acceleration?

9. An F-22 fighter jet is going 1100 mi/hr. It fires a sidewinder missile which is going 4250 mi/hr in 2.7 sec. What was the missile's acceleration?

10. A shark is cruising at 1.2 m/s. It speeds up to catch a surfer, and in 5.3 sec. is going 3.5 m/s. What was the shark's acceleration?

In freefall gravity accelerates objects at 9.8 m/s. This means that every second it falls faster. You can calculate the speed of an object by multiplying the acceleration of gravity (9.8 m/s) times the number of seconds it falls

11. A book is dropped off a desk. It hits the floor in 0.95 sec. How fast was it going?

12. A marble is dropped off the top of a stadium. It falls for 2.07 sec. How fast was it going

13. A person high dives off a cliff. He falls 7.5 sec. How fast was he going when he hit the water?

10. A brick falls off a building for 8.2 sec before hitting the ground. How fast was it going?

15. A pencil drops 4.5 sec before hitting the ground. How fast was it going?

Speed Practice #1

1. A high-speed train takes 2 hours to travel from Paris to Lyons for a total of 454 km south. What is the average velocity of the train?

2. A boy walks 12 km in 2 hours. What is his average speed in km/hr?

3. A high school athlete runs 100 m in 12.2 seconds. What is his average speed?

4. A bullet is shot from a rifle with a velocity of 720 m/s. How much time is required for the bullet to strike a target 3240 m to the east?

5. A rocket launched into outer space travels 24,000km during the first 3 hours after launch. What is the average speed?

6. Light from the sun reaches the earth in 480 seconds. The speed of light is 300,000,000 m/s. How far is the earth from the sun?

7. On a baseball diamond, the distance from home plate to the pitcher's mound is 18.5 m. If a pitcher is capable of throwing a ball at 38.5 m/s, how much time does it take a thrown ball to reach home plate

8. A car is driven 60 km west in 40 minutes, what is the average velocity?

9. A truck is driven 70 km in 50 minutes. What is the average speed?

10. A train is traveling 301 km/hr. When it is 36 meters from the road crossing, the engineer blows the whistle. How much time does the train have before it goes through the crossing?