

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 a 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 from 25 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 0.13 sec. 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?