

Speed, Velocity & Acceleration Problems

Directions: Answer each question in your science journal. For each problem, write out the equation, plug in the numbers, and show your work, including units! Then, circle your final answer.

Part I: Speed & Velocity

- 1) A school bus travels 15 kilometers in 0.75 hours. What is the speed of the school bus?
- 2) An object travels at a speed of 50 km/hr for 24 hours. What distance does it cover?
- 3) A cyclist travels 10,000 meters at a speed of 2.5 m/sec. How long will it take to complete the trip?
- 4) A bird flies at a speed of 25 km/hr for 2 days straight. What distance the bird travel?
- 5) A satellite travels at a speed of 15,000 mi/hr for 30 days. How far has the satellite traveled?
- 6) A skier travels 1200 meters in 56 seconds. What is the speed of the skier?
- 7) A golf ball travels 250 yards in 6.4 seconds. What is the speed of the golf ball?
- 8) A car travels 500 miles at an average speed of 54.9 mi/hr. How long will the trip take?
- 9) A plane travels at a speed of 200 m/sec over a distance of 55000 meters. How long did it take?
- 10) If you travel at a speed of 15 MPH, how many miles will have been traveled in one hour?
- 11) If you travel 720 meters in 30 seconds, what is your speed?
- 12) Calculate the speed of a ship that travels a distance of 365.9 miles in a time of 3 days, and 90 minutes. What is the speed of the ship in MPH?
- 13) Celebrity cruise line is heading to your favorite destination at a whopping 50 km/hr. How far will the ship travel in 14 hours?
- 14) Lead Foot Landis is cruising the turnpike at 65 MPH so that she is not late for to the Britney Spears concert. The concert is 77 miles away....How long will it take Lead Foot Landis to get to the concert?
- 15) The speeding bullet is traveling at 1,000 m/s at a distance of 40 meters. What is the bullet's time?
- 16) Super Man's speed is 500 m/s at a distance of 20 meters. What is Super Man's time?
- 17) The road runner is zooming don the desert highway. Beep Beep! How fast is he zooming if it takes him 1.2 hours to zoom down 15 miles of desert highway?
- 18) Tasmanian Devil is spinning in circle. Taz spins out of control and covers 25 feet in 6 seconds. How fast was Taz spinning?
- 19) Super Duck is flying South for the winter. He is flying at a speed of 8 MPH for 8 hours (remember ducks don't need to stop for potty breaks... don't look up). How far did he travel?
- 20) A truck travels 300 kilometers in 5 hours. What is the speed of the truck?
- 21) A plane flew 2450 meters in 15 seconds. What was the speed of the plane?
- 22) The speed of a ship is 75 km/hr. How far will the ship travel in 8 hours?
- 23) A cheetah runs 2 km/min. How far will it run in one half hour?
- 24) A ball travels 100 meters at a speed of 20 meters/second. How long will it take to travel this distance?
- 25) A person is late to the bus stop. He is 1 kilometer away and can run 4 km/hr. How long will it take him to reach the bus stop?
- 26) A jogger runs the first 1000 m of a race in 250 sec. What is the jogger's speed?

- 27) The Space Shuttle Discovery travels in orbit at 21,000 km/hr. How far will it travel after 5 hr?
- 28) A car traveled 1025 km from El Paso to Dallas in 13.5 hr. What was its average velocity?
- 29) If a plane traveled 400 km in 30 min, what was the speed of the plane in km/hr?
- 30) A student walks 10 blocks to a computer store. (Assume all the blocks are equal length.)
 - a. How long will it take him to reach the computer store if he walks 3 blocks in 2 min?
 - b. What is his average velocity?
- 31) If the average speed of a car is 45 km/hr, how far can it travel in 40 min?
- 32) The speed of light is 3×10^8 m/sec. How long does it take light to travel the 149×10^9 m distance from the sun to the Earth?
- 33) A student practicing for a track meet ran 250 m in 30 sec.
 - a. What was her average speed?
 - b. If on the following day she ran 300 m in 30 sec, by how much did her speed increase?

Part II: Acceleration Problems

- 34) A driver starts his parked car and within 5 hrs reaches a velocity of 54 km/hr as he travels east. What is his acceleration?
- 35) A science student drops a rock down a mine shaft. The rock falls at an acceleration of -9.8 m/s^2 . If it takes 3 sec for the rock to hit the bottom of the shaft, what is the speed of the rock just before impact?
- 36) A car traveling north with a velocity of 30 m/sec slows down to a velocity of 10 m/sec within 10 sec. What is the car's deceleration?
- 37) A car accelerated from 0 m/sec to 30 m/sec in 10 sec. What was the rate of acceleration?
- 38) A train accelerated from 5 km/hr to 55 km/hr in 0.5 hr. What was the rate of acceleration?
- 39) A roller coaster is moving at 25 m/sec at the bottom of a hill. Three seconds later it reaches the top of the next hill, moving at 10 m/sec. What is the deceleration of the roller coaster?
- 40) A driver starts his parked car and within 0.15 hr reaches a velocity of 74 km/hr as he travels east. What is his acceleration?
- 41) A car traveling north with a velocity of 35 m/sec slows down to a velocity of 8 m/sec within 7 seconds. What is the car's deceleration?
- 42) A space ship is traveling at 24,000 m/sec in orbit around the Earth. The space ship turns on its rocket thrusters for 6.5 seconds and reaches a velocity of 28,400 m/sec. What is the acceleration of the space ship?
- 43) An airplane was traveling at 220 m/sec toward Philadelphia. In order to avoid a storm it increased its velocity to 300 m/sec in 15 seconds. What is the acceleration of the plane?
- 44) A car was traveling at 45 m/sec toward a traffic signal, when the light suddenly turned red. The driver slammed on his brakes stopping the car in 3.3 seconds. What is the acceleration of the car?
- 45) A car accelerates from 0 to 72 km/hour in 0.25 hr. What is the car's acceleration?
- 46) A space ship is traveling at 20,000 m/sec. At $T = 5$ sec, the rocket thrusters are turned on. At $T = 55$ sec, the space ship reaches a speed of 24,000 m/sec. What is the space ship's acceleration?
- 47) Falling objects drop with an average acceleration of 9.8 m/sec/sec , or 9.8 m/sec^2 . If an object falls from a tall building, how long will it take before it reaches a speed of 49 m/sec?