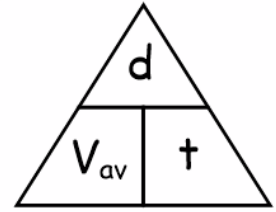


Average Speed Questions



Calculations

- 1) $d = 10.1$ meters $t = 5.0$ seconds $v = ?$
 - 2) $d = 18.6$ km $t = 500$ s $v = ?$ (answer in m/s)
 - 3) $v = 11$ km/h $d = 4.2$ m $t = ?$ (answer in seconds)
 - 4) $t = 5.6$ hours $v = 4.2$ kilometers/hr $d = ?$
 - 5) $t = 11.1$ hours $v = 22$ m/s $d = ?$ (answer in kilometers)
- 6) What is the speed of a jet plane that travels 528 meters in 4 seconds?
 - 7) The space shuttle Endeavor is launched to altitude of 500 km above the surface of the earth. The shuttle travels at an average rate of 700 m/s. How long (in seconds) will it take for Endeavor to reach its orbit?
 - 8) How many seconds will it take for a satellite to travel 450 km at a rate of 120 m/s?
 - 9) How far (in meters) will you travel in 3 minutes running at a rate of 6 m/s?
 - 10) The space shuttle releases a space telescope into orbit around the earth. The telescope is traveling at a speed of 1700 m/s in 25 seconds. What is the distance of the satellite?
 - 11) State which measurements are scalar quantities:
 - a. 12 ms
 - b. 5.00×10^2 MHz
 - c. 3.2 m [up]
 - d. 1.0×10^2 km/h [west]
 - e. 15 cm²
 - f. 50 mL

Theory

- 1) How would you describe speed? Give an example.
- 2) Create a scenario where you need to calculate the time to complete something if given the speed and distance.
- 3) Why can we not use our speed equation for objects in free fall?

Name: _____

Practice (Remember to be as accurate as possible!)

- For this activity, you will need to construct a ramp of any size.
- You will need a timer, protractor, tape and ball
- Once the ramp is built, measure out 1 meter from the bottom of the ramp and mark the floor with tape.
- There will be 3 different angles you will try: 30°, 45°, and 60°. Take a guess at how fast you think the ball can travel the one meter for each angle.
- Releasing the ball from the same spot each time, start the timer at the moment the ball reaches the floor and stop the timer when it reaches one meter. Calculate the speed in meters/second for each.

| | Guess Speed (m/s) | Measured Distance (m) | Time (s) | Actual Speed (m/s) |
|---------------|-------------------|-----------------------|----------|--------------------|
| Trial 1 - 30° | | | | |
| Trial 2 - 45° | | | | |
| Trial 3 - 60° | | | | |

Compare your Guess Speed to your Actual Speed. How is your 'sense' of speed compared to mathematically calculating it? Did it get better as more trials were done? Explain.
