Speed and Acceleration

PART 1: CONCEPTS

1. Does the speedometer of a car read average speed or instantaneous speed?
   _____ How do you know?

2. If the speedometer of your car reads a constant speed of 40km/hr, can you say the car has a constant velocity?
   _____ Explain your answer.

3. What two controls on a car cause a change in speed?
   _____

   _____

4. What control causes a change in velocity?
   _____

5. What is the acceleration of a car that travels at a constant speed?
   _____

PART 2: CALCULATIONS

6. It takes Serina 0.25 hour to drive to school. Her route is 16 km long. What is Serina's average speed on her drive to school?

GIVEN:	WORK:
FORMULA:	
	ANSWER:

7. In a competition, an athlete threw a flying disk 139 meters through the air. While in flight, the disk traveled at an average speed of 13.0 m/s. How long did the disk remain in the air?

GIVEN:	WORK:
FORMULA:	
	ANSWER:

8. A runner covers the last straight stretch of a race in 4 s. During that time, he speeds up from 5 m/s to 9 m/s. What is the runner's acceleration in this part of the race?

GIVEN:	WORK:
FORMULA:	
	ANSWER:

9. If you shout into the Grand Canyon, your voice travels at the speed of sound (340 m/s) to the bottom of the canyon and back, and you hear an echo. How deep is the Grand Canyon at a spot where you can hear your echo 5.2 seconds after you shout?

GIVEN:	WORK:
FORMULA:	
	ANSWER:

10. Falling objects drop with an average acceleration of 9.8 m/s^2. If an object falls from a tall building, how long will it take before it reaches a speed of 49 m/s?

GIVEN:	WORK:
FORMULA:	
	ANSWER:

11. Josh rolled a bowling ball down a lane in 2.5 s. The ball traveled at a constant acceleration of 1.8 m/s^2 down the lane and was traveling at a speed of 7.6 m/s by the time it reached the pins at the end of the lane. How fast was the ball going when it left Tim's hand?

GIVEN:	WORK:
FORMULA:	
	ANSWER: