

Outcome 1 Practice Questions

Solve the following problems as best you can. Remember to include **the formulas you are using** and **show all your work** to receive full marks.

- 1) Peter is driving his car to work when he passes through a speed trap. Since the RADAR gun is broken, the police had to resort to a mathematical method of getting his speed. They measured that Peter had driven a distance of 200m in 6.9 seconds. What was Peter's speed in: **[2 marks]**

a) meters per second

b) kilometers per hour

- 2) In an effort to get into better shape, Chris starts an exercise program. He jogs 20.0 m [E] in 5.00 s, then sprints another 30.0 m [E] in 5.00 s, before turning around and walks 45.0 m [W] in 15.00 s to a park bench to relax! Determine Chris's: **[4 marks]**

a) total distance traveled:

b) total displacement from his starting position:

c) average speed:

d) average velocity:

- 3) Quagmire is driving his van and reaches a velocity of 28 m/s [West] in 4.5 seconds. What is the acceleration of the Quagmire's van? **[1 marks]**
- 4) Brian loaded Stewie into a giant slingshot, pulled him back as far as he could and fired him off (hey it's a cartoon – he will be fine eventually). If Stewie has a mass of 12kg, and released with a force of 330 N, what was the acceleration acting on Stewie's body at the moment he was released? **[1 marks]**
- 5) Stewie developed a repulsor ray, essentially it's an energy pistol that pushes objects away from the person firing the device. If he aimed his repulsor at Peter, whose mass is 128 kg and the gun expended 2.25 kJ of energy (work) to push Peter a distance of 12.0m, at what acceleration was Peter pushed? **[1 marks]**