National 5 Physics Vector Homework

1. A model train travels around 10 m of track at an average speed of 1·5 ms^{-1}. Calculate the time taken for this journey?

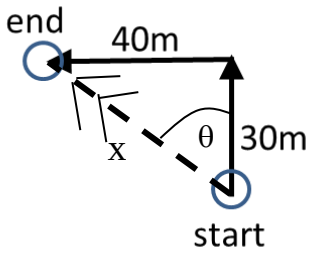
2. Tanya takes 26 seconds to swim one length of a swimming pool.
   If the pool is 50 metres long calculate her average speed.

3. Describe what is meant by a scalar quantity.

4. Describe what is meant by a vector quantity.

5. A delivery lorry travels 80 km, North then travels South for 100 km.
   (a) State the distance travelled by the lorry.
   (b) State the final displacement of the lorry for this journey.

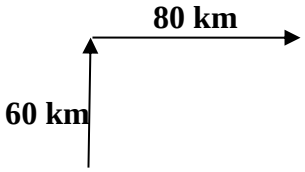
6. During an orienteering exercise, a boy walks 30 m, North then 40 m, West.



   (a) State the distance travelled during this exercise.
   (b) Calculate the displacement of the boy for this journey.

7. A car travels 8 km, East followed by 8 km, South.
   (a) State the distance travelled by the car.
   (b) Calculate the final displacement of the car from its starting point.

8. A lorry travels 60 km, North, then 80 km, East, as shown here.
   The journey takes 2 hours.
   (a) State the distance travelled by the lorry.
   (b) Calculate the overall displacement of the lorry.
   (c) Calculate the lorry's average speed in km h^{-1}.
   (d) Calculate the lorry's average velocity in km h^{-1}.



9. A robot moves 6 m, North, followed by 6 m, East, at a steady speed of 2 ms^{-1}.
   (a) State the distance travelled by the robot.
   (b) Calculate the displacement of the robot from his start point.
   (c) Calculate the time taken for the robot to complete these moves.
   (d) Calculate the average velocity of the robot.