Scalars and Vectors

1. State the definition of a scalar.

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2. State the definition of a vector.

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3. Sort the following quantities into scalars and vectors:

Displacement, acceleration, distance, speed, mass, weight, energy, force, velocity

Scalar	Vector

4. State the definitions of:
   a. Distance

   _____

   b. Displacement

   _____

   c. Speed

   _____

   d. Velocity

   _____

5. Soldiers go on a march in the desert. They first walk 6 km west from their camp, rest for a bit then 10 km east, rest a bit then 4 km west. Calculate:
   a. The distance covered.

   b. The total displacement.

   c. Their displacement at the second rest stop

6. Harry walks 10 km South. Then walks 6 km North.
Calculate:

a. The distance travelled.

b. His total displacement.

7. A cyclist cycles 800 m in a straight line North, turns around and completes a further 1400 m South. The cyclist completes the whole route in 200 s.

a. Calculate the distance covered.

b. Calculate the displacement of the cyclist.

c. Calculate the average speed.

d. Calculate the average velocity.

8. A trolley is pushed 10 m to the right, then 5 m to the left and back 7 m towards the right. The total time taken was 2 minutes.

a. Calculate the total distance covered.

b. Calculate the displacement.

c. Calculate the average speed.

d. Calculate the average velocity.