

# Vectors Worksheet

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## Finding Average Speed, Resultant Displacement and Average Velocity

Name: \_\_\_\_\_ Date: \_\_\_\_\_

- Show all work, all units, label the vectors. Use the most suitable method (either algebra or vectors)
1. [ 2 ] Jason drives his Audi R8 down the street. He travels 185 m [E], stops to say hi to his friend and then travels another 110 m [E] to the store. He then speed back down the road 200 m [W].
    - a) Calculate the total distance he travels?
    - b) Calculate his resultant displacement?
  2. [ 3 ] Alex drives her Ferrari convertible 150 km [N] to meet with her friend. She then travels 450 km [E] to meet with another friend.
    - a) Calculate the total distance she travelled?
    - b) Calculate her resultant displacement [Size and Direction]?
  3. [ 1 ] Describe a situation in which the average velocity of an object is zero, but the average speed is not zero. Include a calculation if it helps in the description. Use full sentences.
  4. [ 4 ] Super Turtle travels 400 km [W] in 2.5 hours. It then travels 700 km [N] in 4 hours and then 100 km East [E] in 3h. Calculate:
    - a) The total time of the trip.
    - b) The average speed.
    - c) The average velocity.
  5. [ 5 ] A rocket powered hovercraft moves 500 km [E] then changes direction and travels 1000 km [S 40° W] ( or 1000 km [ 40° W of S ] ). The trip takes a total of 95 minutes. Calculate:
    - a) How many hours is 95 minutes?
    - b) The average speed (km/h).
    - c) The average velocity (km/h).
  6. [ 5 ] Superwoman, in a rush to see the new Superman movie, flies from her home 350 km [W], she then changes direction and travels 1100 km [S], realizing she flew past the theatre, she changes direction and travels 600 km [E20°N]. The trip takes her 2.3 hours. Calculate:
    - a) Her average speed (km/h).
    - b) Her average velocity (km/h).