/30

Vectors Worksheet

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. [5] Madi rides her bike down the street. She travels 485 m [W], stops to say hi to her friend and then travels another 600 m [W] to the store. She then rides back down the road 350 m [E].
   a) Calculate the total distance she travels?
   b) Calculate her resultant displacement?

2. [5] Emilie drives her Ferrari convertible 200 km [N] to meet with her friend. She then travels 550 km [E] to meet with another friend.
   a) Calculate the total distance she travelled?
   b) Calculate her resultant displacement [Size and Direction]?

3. [2] 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. [6] Super Turtle travels 500 km [E] in 2.5 hours. It then travels 300 km [S] in exactly 2 hours and then 200 km [W] in 3 hours. Calculate:
   a) The total time of the trip.
   b) The average speed.
   c) The average velocity.

5. [6] A rocket powered hovercraft moves 500 km [E] then changes direction and travels 1000 km [S 30^0 E] (*or* 1000 km [60^0 S of E]). 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. [6] Superwoman, in a rush to see the new Superman movie, flies from her home 200 km [E], she then changes direction and travels 500 km [N], realizing she flew past the theatre, she changes direction and travels 600 km [W30^0S]. The trip takes her 4.5 seconds. Calculate:
   a) Her average speed (km/s).
   b) Her average velocity (km/s).