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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. [2] Tess drives her Audi R8 down the street. She travels 185 m [W], stops to say hi to her friend and then travels another 90 m [W] to the store. She then speeds back down the road 250 m [E].
   a) Calculate the total distance she travels?
   b) Calculate her resultant displacement?

2. [3] Tiffany drives her Ferrari convertible 150 km [S] to meet with her friend. She then travels 550 km [W] 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 [E] in 2.5 hours. It then travels 700 km [S] in 4 hours and then 200 km East [W] 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 [N 40^0 W] (*or* 1000 km [40^0 W of N]). 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 500 km [S], realizing she flew past the theatre, she changes direction and travels 600 km [E30^0N].   The trip takes her 2.3 hours. Calculate:
   a) Her average speed (km/h).
   b) Her average velocity (km/h).