Worksheet: Vector Math Practice **Name**_____

1) A river flows at a speed of 12 m/s from north to south. A powerboat can move at a constant maximum speed of 23 m/s in still water.

   a. What is the maximum velocity of the boat upstream (upstream means traveling against the current)? _____

   b. What is the maximum velocity of the boat downstream? _____

   c. If the boat were headed east across the river at its maximum speed, what would the resultant velocity of the boat be?

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2) A plane is travelling toward the east with a velocity of 120 km/h. It encounters a wind blowing toward the east at 0.20 **km/min**. What is the velocity of the plane in km/h?

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3) A girl walks 26 m at an angle of 39° W of S.

   a. How far west of her starting point is she?

_____

   b. How far south of her starting point is she?

_____

4) A pitcher can throw a ball at a velocity of 125 km/h straight ahead (draw this down on your paper). If he throws the ball straight when a cross-wind is blowing at 28 km/h to the left,

   a. What will be the **magnitude** of the ball's resultant velocity?

   _____

   b. The direction of the ball will be off _____° to the (left, right).

5) A plane heads due north, but because of a wind blowing to the west, the plane flies at a **resultant** velocity of 620 mi/h, 22° W of N. What was the velocity of the wind?

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