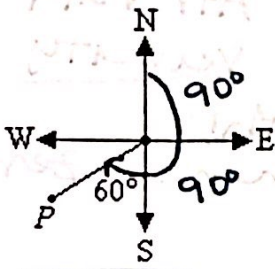
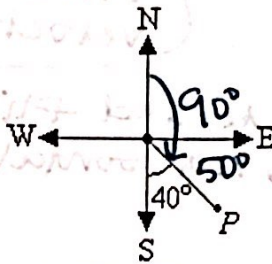


Day 2 Homework

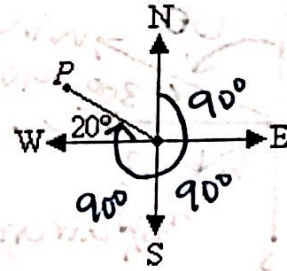
Determine the bearing for each of the following vectors.



1. 240°



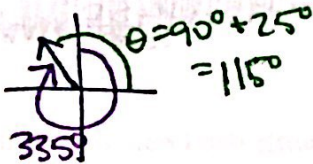
2. 140°



3. 290°

Answer the following Vector Application Problems.

4. An airplane is flying on a bearing of 335° at 530 mph. Find the component form of the velocity of the airplane.



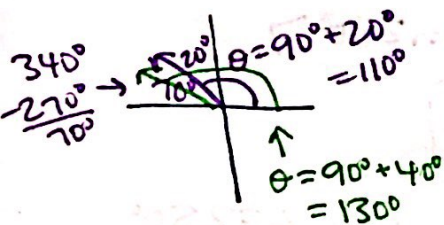
$$\vec{v} = \langle 530 \cos 115^\circ, 530 \sin 115^\circ \rangle$$

$$\approx \langle -223.99, 480.34 \rangle$$

5. An airplane is flying on a compass heading of 340° at 325 mph. A wind is blowing with bearing 320° at 40 mph "bearing"

a) Find the component form of the velocity of the airplane. $\langle -11.16, 305.4 \rangle$

b) Find the actual ground speed and direction of the plane.



$$\vec{v} = \langle 325 \cos 110^\circ, 325 \sin 110^\circ \rangle$$

$$\vec{w} = \langle 40 \cos 130^\circ, 40 \sin 130^\circ \rangle$$

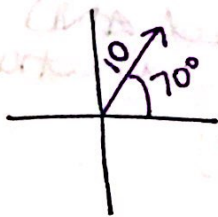
actual ground speed and direction

$$= \vec{v} + \vec{w} \approx \langle -136.87, 336.04 \rangle$$

6. A basketball is shot at a 70° angle with the horizontal direction with an initial speed of 10 m/sec.

a) Find the component form of the initial velocity.

b) Give an interpretation of the horizontal and vertical components of the velocity.



a) $\vec{v} = \langle 10 \cos 70^\circ, 10 \sin 70^\circ \rangle \approx \langle 3.42, 9.397 \rangle$

b) horizontal speed in the absence of air resistance that the ball will maintain

initial vertical velocity of the ball, which will change continuously due to the force exerted by the gravity on the ball 4