

More Vector Practice Worksheet

1) A speedboat traveling 30mph has a compass heading of 100° . The current velocity has a magnitude of 15 mph and is heading 22° east of north. Find the resultant velocity of the boat and the bearing. (thousandths)

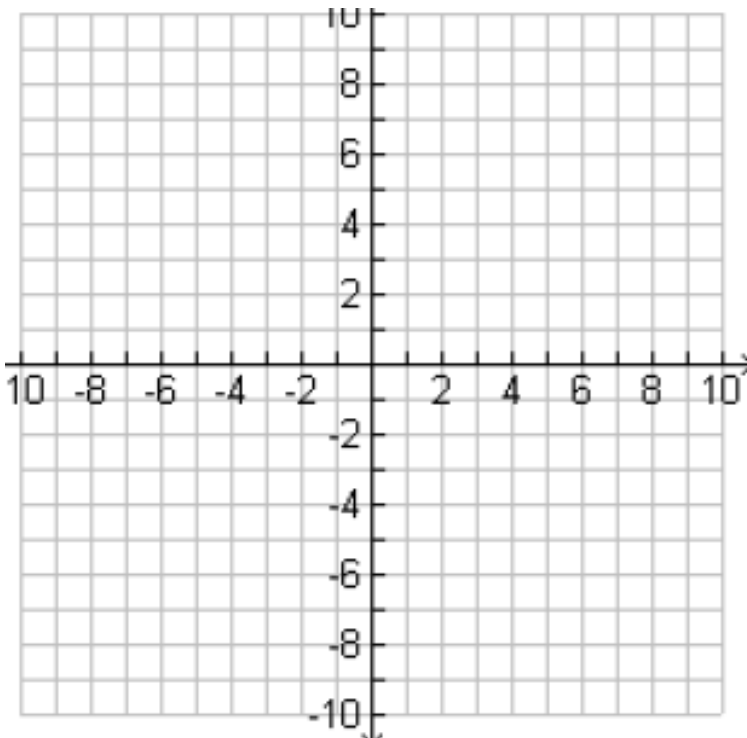
2) Given the following: $\vec{v} = \langle 4, 3 \rangle$; $\vec{u} = \langle -3, -6 \rangle$; and $\vec{w} = \langle 8, -1 \rangle$

a) Find $\vec{u} + \vec{v}$ b) Find $\frac{1}{2}\vec{v} - 2\vec{w}$

3) Given $A(5, 7)$ and $G(-1, 3)$.

a) Find \overline{GA} b) Find $\|\overline{GA}\|$

4) Given $\vec{u} = \langle 3, 5 \rangle$ and $\vec{v} = \langle -6, 2 \rangle$. Sketch \vec{u} , \vec{v} , and $\vec{u} + \vec{v}$



5. A 30 lb box is sitting on a ramp at a 12° angle from the horizontal. Find the magnitude of the force keeping the box from sliding down the ramp. (hundredths)

6. A ship traveling 250 knots at a course of S 40° E encounters a current from the SW at 30 knots. Find the resultant speed and direction. (tenths)
7. A plane has a velocity of 400 mph to the SW. A wind from the west is blowing at 50 mph. Find the resultant speed and direction. (tenths)
8. A plane flying 530 mph N 30° W encounters a wind blowing from the west at 40 mph. Find the resultant speed and direction. (tenths)
9. A ramp with a 15° incline, has a 50 lb box sitting on it. What is the magnitude of the force parallel to the ramp? (hundredths)
10. A heavy chair is dragged 20 feet across the classroom, using a force of 80 lbs. Find the work done if the direction of the force is 52° above the horizontal. (hundredths)

From Sec.6.7

11. Given A (-2, 3), B (1, 5), and C (-3, 4). Find the measure of angle ABC. (hundredths)

Answers: 1) 36.223 mph and N 76.106° E

$$2) \quad \vec{u} + \vec{v} = \langle 1, -3 \rangle \quad \frac{1}{2}\vec{v} - 2\vec{w} = \left\langle -14, \frac{7}{2} \right\rangle$$

$$3) \quad \overline{GA} = \langle 6, 4 \rangle \quad \text{and} \quad \|\overline{GA}\| = 2\sqrt{13}$$

4) Sketch

5) 6.24 lbs 6) 249.2 knots; S 46.9° E or 133.1° from North

7) 366.4 mph ; S 39.5° W or 219.5° from North

8) 511.2 mph; N 26.1° W or 333.9° from North

9) 12.94 lbs 10) 985.06 ft-lbs 11) 19.65°