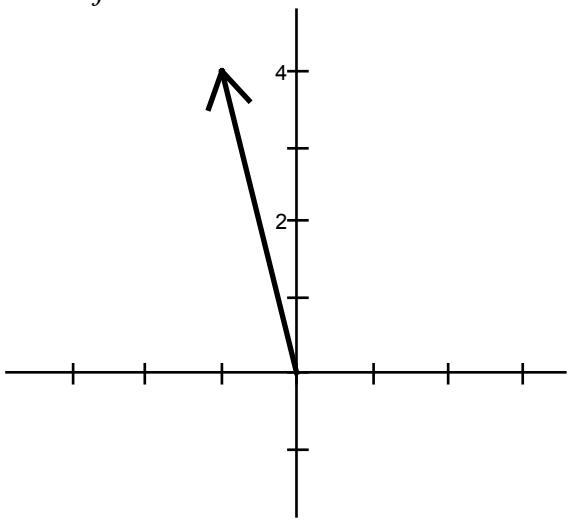
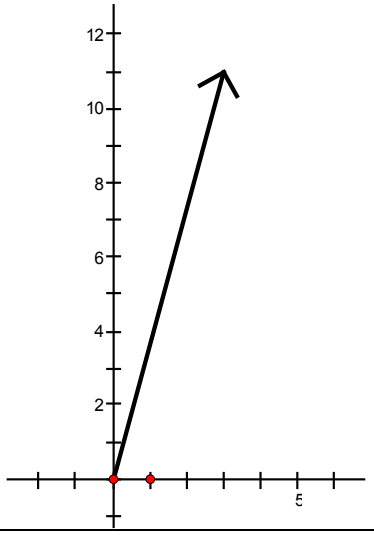
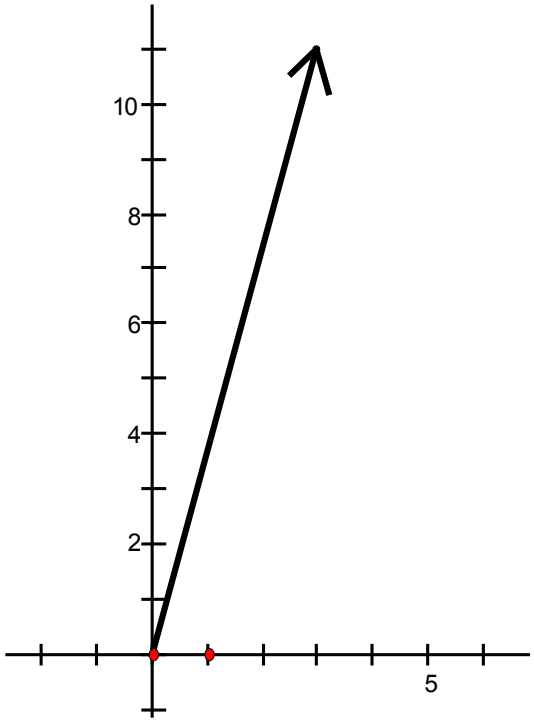
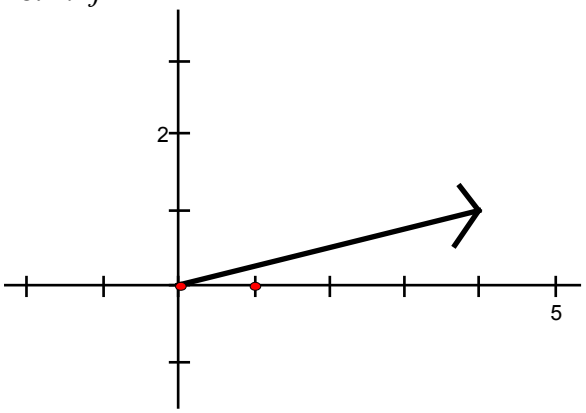
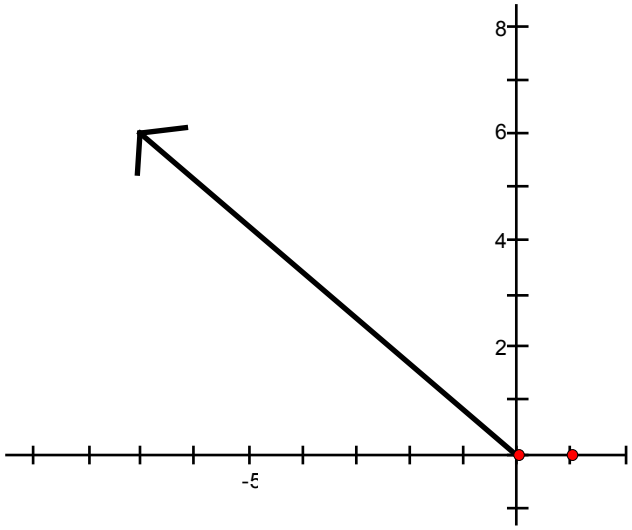
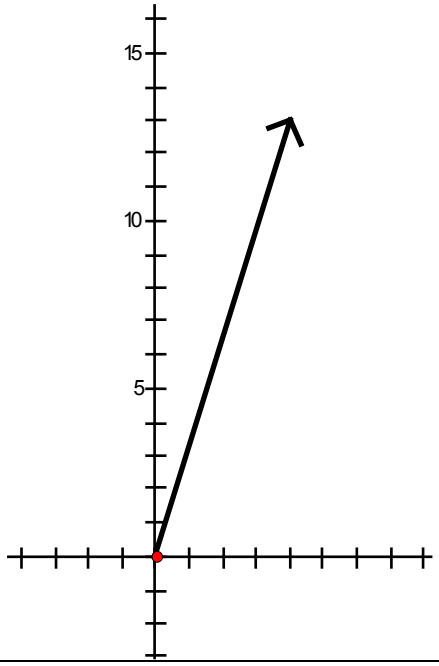
Homework 12 Math 48C Mitchell Schoenbrun
9.5 P. 670 #1-4, 11-21, 36, 39, 44, 45

1. Vector	2. Scalar
3. Scalar	4. Vector
11. <4,3>	12. <-5,-1>
13. <-7,0>	14. <6,-2>
15. <0,-6>	
16. $-i+4j$ 	17. $3i+11j$ 
18. $9i+15j$ 	18. $4i+j$ 

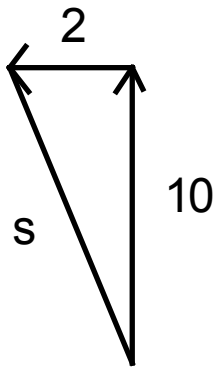
20. $-7i+6j$



21. $4i+13j$



36.



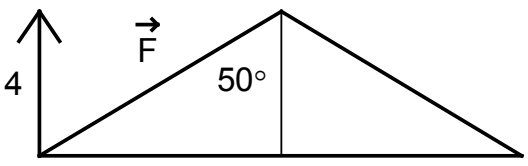
$s=\sqrt{10^2+2^2}\approx 10.2$

39.

a) If boat travels in the same direction as current.

b) For any other direction the speed will be less. If the direction is the opposite of the current, the vector magnitudes are subtracted so the speed will be less. For any other direction the sum of the vectors will be the third side of a triangle and a side of a triangle is always less than the sum of the other two sides.

44.



$\frac{4}{\vec{F}}=\cos\left(50^\circ\right)\rightarrow \vec{F}=\frac{4}{\cos\left(50^\circ\right)}\approx 6.2$

49.

a) It is a vector because it has a magnitude and a direction.

b) $\vec{V}=\langle -565,-217\rangle$

c) $\left\|\vec{V}\right\|=\sqrt{-565^2+-217^2}\approx 605$

605 is the ground speed of the plane.