

Find the unit vector in the direction  $v$  of by dividing each component of  $v$  by the magnitude of  $v$ .

1.  $v = \langle -3, -4 \rangle$

2.  $v = \langle 8, -15 \rangle$

3.  $v = \langle -9, 40 \rangle$

1.) \_\_\_\_\_

2.) \_\_\_\_\_

3.) \_\_\_\_\_

Given  $v = 3i - 2j$  and  $u = -2i + 3j$ , find the following:

4.  $2u - 3v$

5.  $-5v$

6.  $v - 3u$

4.) \_\_\_\_\_

5.) \_\_\_\_\_

6.) \_\_\_\_\_

7.  $\|v\|$

8.  $\|u\|$

9.  $u + 2v$

7.) \_\_\_\_\_

8.) \_\_\_\_\_

9.) \_\_\_\_\_

10.  $\|u + 2v\|$

11.  $\|u - v\|$

12.  $\frac{1}{2}v - \frac{1}{2}u$

10.) \_\_\_\_\_

11.) \_\_\_\_\_

12.) \_\_\_\_\_