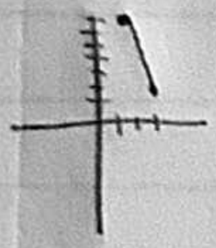
12.1 Homework 9/8/2020

5. $\langle u\cos 45, u\sin 45\rangle$
$\langle \frac{u\sqrt{2}}{2}, \frac{u\sqrt{2}}{2}\rangle$

7. $\langle w\cos -20, w\sin -20\rangle$

9. $P=(3,2) \quad Q=(2,7)$



$PQ=\sqrt{(2-3)^2+(7-2)^2}$ $\quad \theta=\tan^{-1}\left(\frac{5}{-1}\right)$

$PQ=\sqrt{26}$ $\quad \theta=-78.69$

$\langle \sqrt{26}\cos -78.69, \sqrt{26}\sin -78.69\rangle$

11. $P=(3,5) \quad Q=(1,-4)$

$PQ=\sqrt{(1-3)^2+(-4-5)^2}$ $\quad \theta=\tan^{-1}\left(\frac{-9}{-2}\right)$

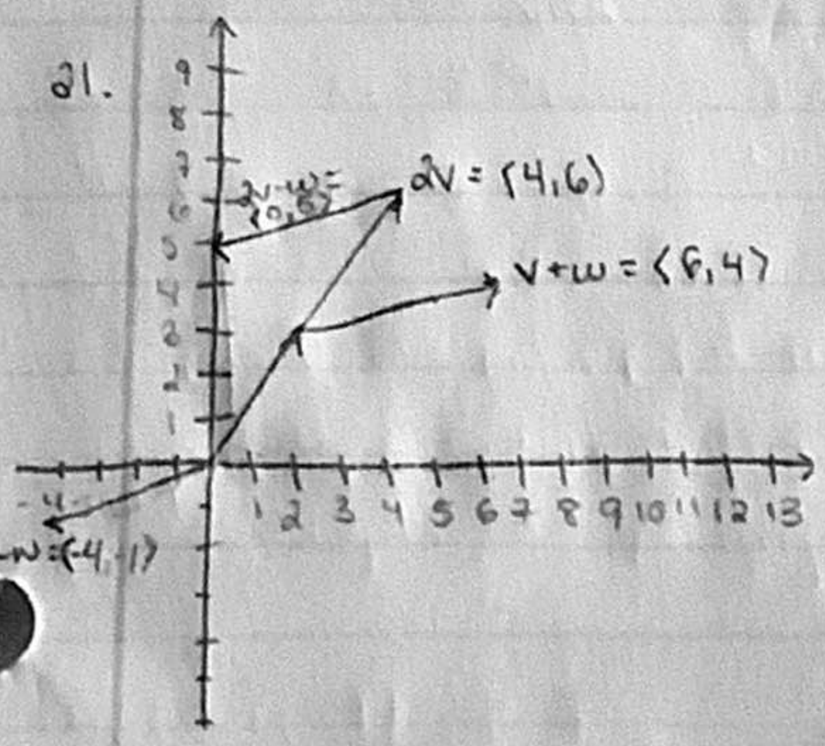
$PQ=\sqrt{85}$ $\quad \theta=1.352$

$\langle \sqrt{85}\cos 1.352, \sqrt{85}\sin 1.352\rangle$

15. $5\langle 6,2\rangle$
$\langle 30,10\rangle$

41.

21.



41. unit vector e_v where $v = \langle 3, 4 \rangle$

$\sqrt{3^2+4^2} = \sqrt{25} = 5$

$e_v = \left\langle \frac{3}{5}, \frac{4}{5} \right\rangle$

47. unit vector e $\theta = \frac{4\pi}{7}$

$\langle 1\cos\frac{4\pi}{7}, 1\sin\frac{4\pi}{7} \rangle$