

12.1-12.2 (Sept 13th)

12.1-#5, 7, 9, 11, 15, 21, 41, 47

12.2-#11, 13, 19, 25, 27, 31, 49, 51

5) $\cos 45 = \frac{\sqrt{2}}{2} \|u\|$

$\sin 45 = \frac{\sqrt{2}}{2} \|u\|$

$\left\langle \frac{\sqrt{2}}{2} \|u\|, \frac{\sqrt{2}}{2} \|u\| \right\rangle$

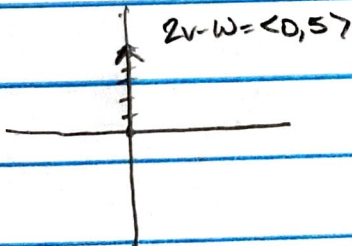
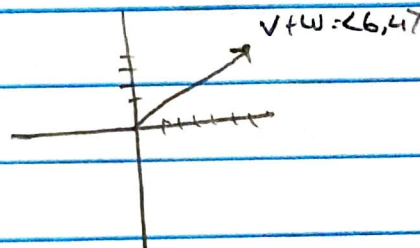
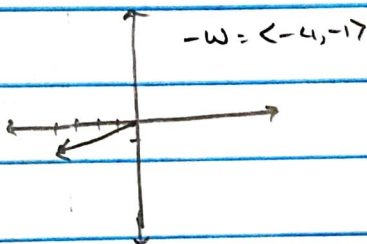
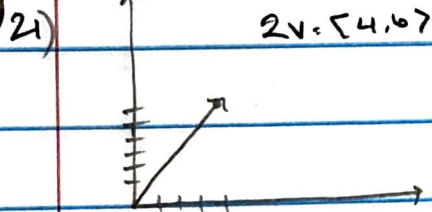
7) $\cos(-20) \|w\|, \sin(-20) \|w\|$

$\left\langle 0.94 \|w\|, -0.342 \|w\| \right\rangle$

9) $\vec{p} = \langle -1, 5 \rangle$

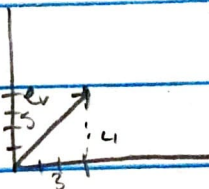
11) $\vec{p} = \langle -2, -9 \rangle$

15) $\langle 30, 10 \rangle$



41) $v = \langle 3, 4 \rangle$

$\vec{e}_v = \left\langle \frac{3}{5}, \frac{4}{5} \right\rangle$



47) $\vec{e} = \left\langle \cos \frac{4\pi}{7}, \sin \frac{4\pi}{7} \right\rangle$

11) $P = \langle 1, 4, 3 \rangle$

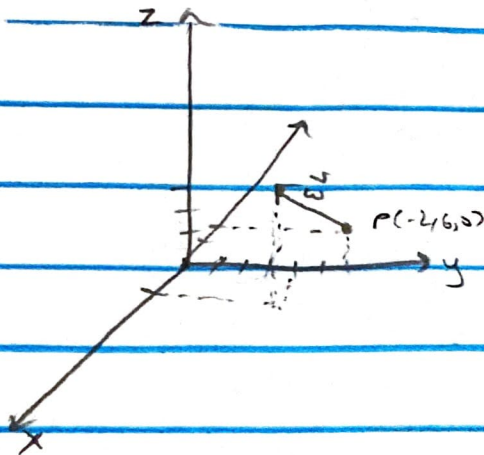
$\langle 3, -2, 3 \rangle = \langle 1-a_1, 4-b_1, 3-c_1 \rangle$

$1-a_1=3 \quad 4-b_1=-2 \quad 3-c_1=3$

$a_1=1-3 \quad b_1=4+2 \quad c_1=3-3$

$a_1=-2, b_1=6, c_1=0$

$P = \langle -2, 6, 0 \rangle$



13) a) a and c are parallel

b) a points in the same direction

19) $\langle -16, -22, -6 \rangle + \langle 8, 4, 4 \rangle$

$\langle -8, -18, -2 \rangle$

25) Not parallel

27) Not parallel

31) $\langle -4, 4, 2 \rangle$

$\|v\| = 6$

$\langle \frac{4}{6}, \frac{-4}{6}, \frac{2}{6} \rangle = \langle \frac{2}{3}, -\frac{2}{3}, \frac{1}{3} \rangle$

49) $r_1(t) = \langle 5, 5, 2 \rangle + t \langle 0, -2, 1 \rangle$

$r_2(t) = \langle 5, 5, 2 \rangle + t \langle 0, -20, 10 \rangle$

51) $P = \langle -1, 2, 2 \rangle$ vector $v = \langle 4, -4, 1 \rangle$

$Q = \langle 0, 1, 1 \rangle$ vector $w = \langle 2, 2, 1 \rangle$

They do not intersect because vector w is below vector v .

