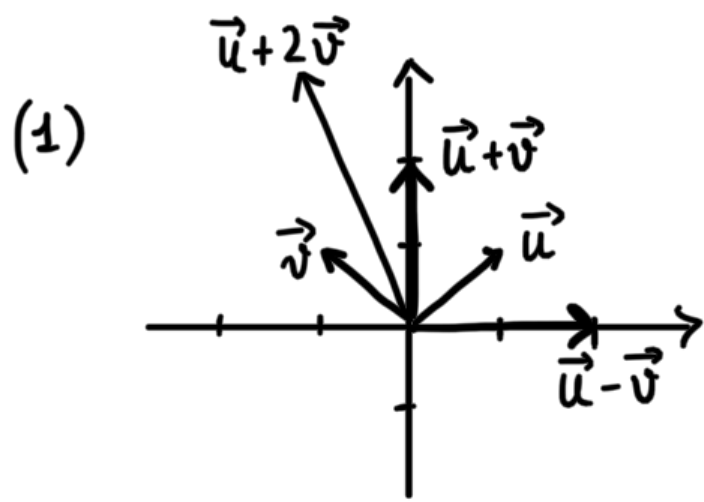


PROBLEM SHEET 13



(2) (a) $(3, -4)$

(b) $(2, 3, -4)$

(3) $\vec{w} = \left(-\frac{8}{3}, \frac{1}{2}, \frac{8}{3}\right)$

(4) $\|\vec{u} + \vec{v}\| = \sqrt{73}$

$$\|\vec{u} - 3\vec{v}\| = \sqrt{131}$$

$$\|\vec{u}\| - 3\|\vec{v}\| = \sqrt{17} - 3\sqrt{26}$$

(5) (a) -8

(b) 12

(6) $-\frac{45\sqrt{3}}{2}$

(7) Yes = Yes, Yes, No

(8) (a) $\frac{38}{5\sqrt{58}}$

(b) $-\frac{38}{5\sqrt{58}}$