

WEEK 1

HW: N/A

QUIZ

1. Fill in the blanks on these rules of vector algebra. For vectors $\underline{a}, \underline{b}, \underline{c}$ and scalars λ, μ .

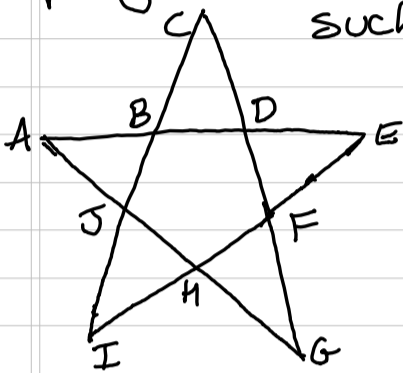
$$\underline{a} + \underline{b} = \underline{b} + \underline{\quad} \quad (\lambda + \mu)\underline{b} = \underline{\quad} + \mu\underline{b}$$

$$\underline{a} + (-\underline{a}) = \underline{\quad} \quad \underline{b} + \underline{0} = \underline{\quad}$$

$$\lambda(\underline{a} + \underline{b}) = \lambda\underline{a} + \underline{\quad} \quad \|\lambda\underline{a}\| = \underline{\quad}$$

$$(\underline{a} \underline{\quad}) + \underline{c} = \underline{\quad} (\underline{b} + \underline{c})$$

2. The points ABCDEFGHIJ make a regular pentagram, with BDFHJ being a regular pentagon such that:



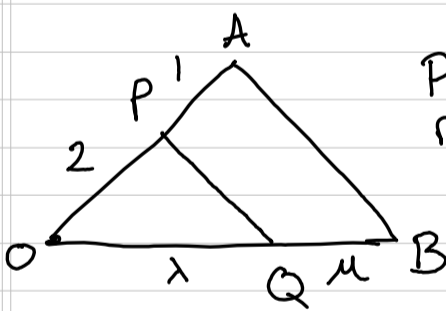
$$|AH| = \psi |AE|$$

$$|EF| = \psi |AH|$$

$$|SH| = \psi |EF|$$

Determine ψ .

3.



P splits OA in the ratio 2:1, Q splits OB in $\lambda:\mu$.

Using Position vectors determine what λ and μ must be for the triangles OAB and OPQ to be similar.