Lista de Exercícios 1

Resolver os exercícios extraídos do livro do *Vetores e Geometria Analítica*, de Paulo Winterle (p. 14)

Problemas Propostos

1) A Figura 1.29 apresenta o losango EFGH inscrito no retângulo ABCD, sendo O o ponto de interseção das diagonais desse losango. Decidir se é verdadeira ou falsa cada uma das seguintes afirmações:

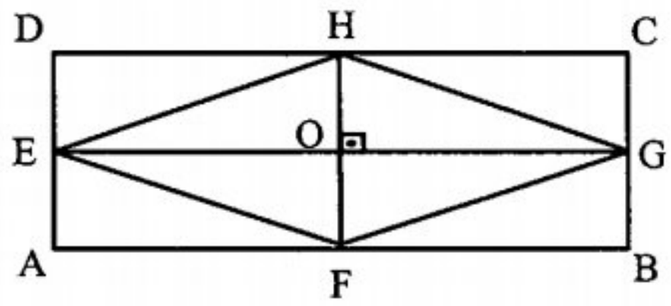


Figura 1.29

a) $\overrightarrow{EO} = \overrightarrow{OG}$ V

b) $\overrightarrow{AF} = \overrightarrow{CH}$ F

c) $\overrightarrow{DO} = \overrightarrow{HG}$ V

d) $|C - O| = |O - B|$ V

e) $|H - O| = |H - D|$ F

f) $H - E = O - C$ F

g) $|\overrightarrow{AC}| = |\overrightarrow{BD}|$ V

h) $|\overrightarrow{OA}| = \frac{1}{2}|\overrightarrow{DB}|$ V

i) $\overrightarrow{AF} \,//\, \overrightarrow{CD}$ V

j) $\overrightarrow{GF} \,//\, \overrightarrow{HG}$ F

k) $\overrightarrow{AO} \,//\, \overrightarrow{OC}$ V

l) $\overrightarrow{AB} \perp \overrightarrow{OH}$ V

m) $\overrightarrow{EO} \perp \overrightarrow{CB}$ V

n) $\overrightarrow{AO} \perp \overrightarrow{HF}$ F

o) $\overrightarrow{OB} = -\overrightarrow{FE}$ V

2) Decidir se é verdadeira ou falsa cada uma das afirmações:

a) Se $\vec{u} = \vec{v}$, então $|\vec{u}| = |\vec{v}|$. V

b) Se $|\vec{u}| = |\vec{v}|$, então $\vec{u} = \vec{v}$. F

c) Se $\vec{u} \,//\, \vec{v}$, então $\vec{u} = \vec{v}$. F

d) Se $\vec{u} = \vec{v}$, então $\vec{u} \,//\, \vec{v}$. V

h) $|5\vec{v}| = |-5\vec{v}| = 5|\vec{v}|$. V

j) Se $\vec{u} \,//\, \vec{v}$, $|\vec{u}| = 2$ e $|\vec{v}| = 4$, então $\vec{v} = 2\vec{u}$ ou $\vec{v} = -2\vec{u}$. V

k) Se $|\vec{v}| = 3$, o versor de $-10\vec{v}$ é $-\frac{\vec{v}}{3}$. V

3/ a) $\vec{DC} + \vec{CH} = \vec{AE}$

b) $\vec{EH} + \vec{FG} = \vec{AB}$

c) $\vec{2AE} + 2\vec{AF} = \vec{AC}$ $\overrightarrow{AB} = \overrightarrow{DB}$

d) $\vec{EH} + \vec{EF} = \vec{AD}$

e) $\vec{EO} + \vec{BG} = \vec{AD}$

f) $2\vec{DE} + 2\vec{DC} = \vec{AD}$

g) $\frac{1}{2}\vec{BC} + \vec{EH} = \vec{AH}$

h) $\vec{FC} + \vec{FG} = \vec{AB}$

i) $\vec{OG} - \vec{HO} = \vec{AC}$

j) $\vec{AE} + \vec{FO} + \vec{AD} = \vec{AC}$

4) ____/____/____

a) $\vec{AD} + \vec{AB} = \vec{AC}$

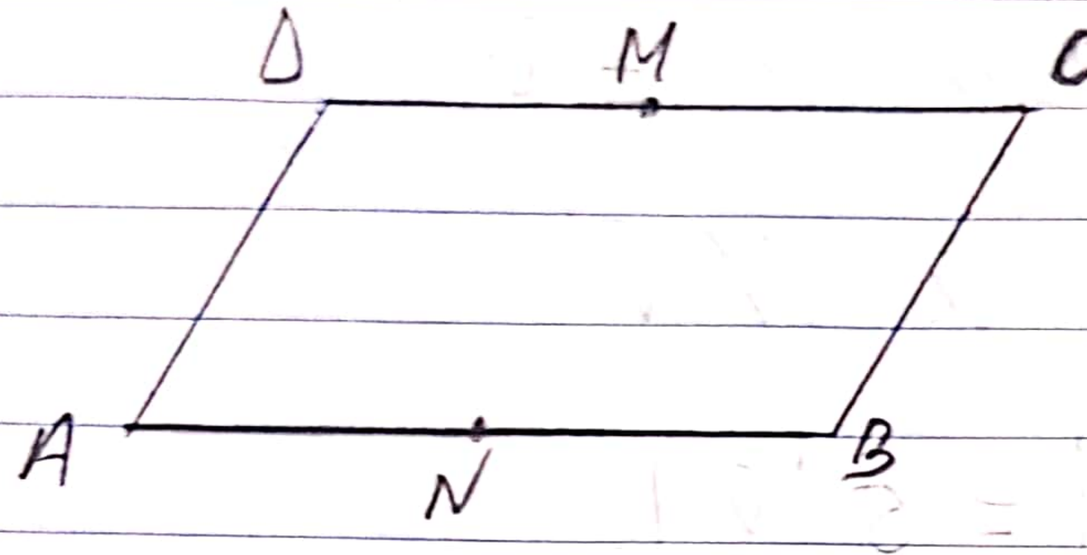
b) $\vec{BA} + \vec{DA} = \vec{CA}$

c) $\vec{AC} - \vec{BC} = \vec{AB}$

d) $\vec{AN} + \vec{BC} = \vec{AM}$

e) $\vec{MD} + \vec{MB} = \vec{MN}$

f) $\vec{BM} - \frac{1}{2}\vec{DC} = \vec{BD}$



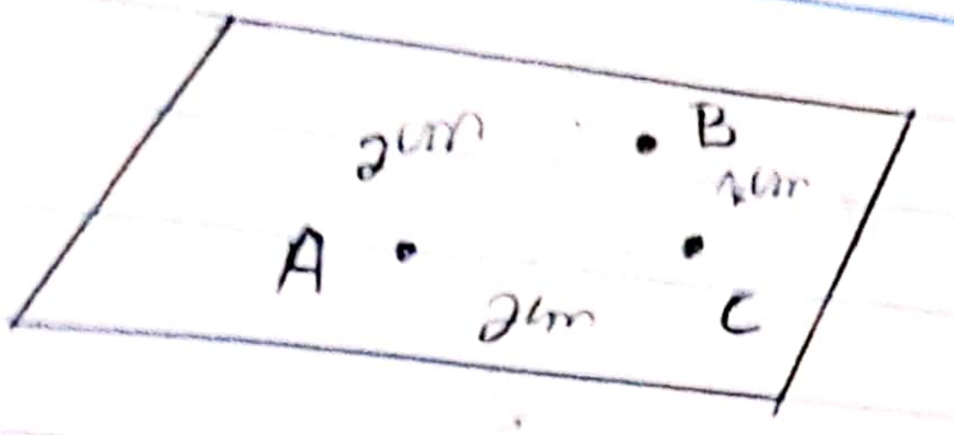
5) Apresentar graficamente $\vec{u} - \vec{v}$

a)

b)

c)

d)



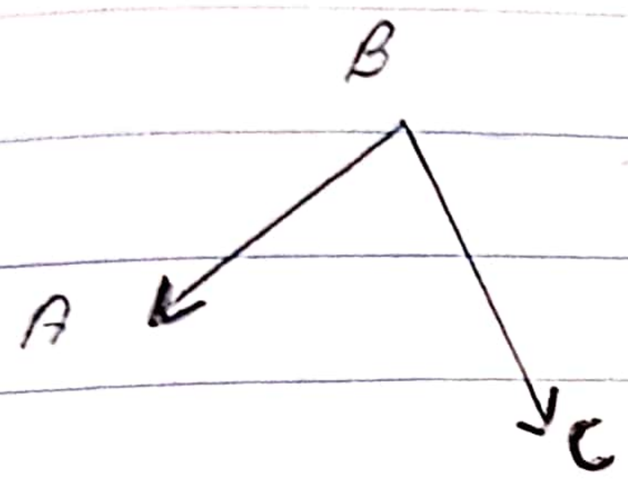
a) $\vec{n} = \vec{BA} + 2\vec{BC}$

$\vec{n} = 2\vec{CA} + 2\vec{BA}$

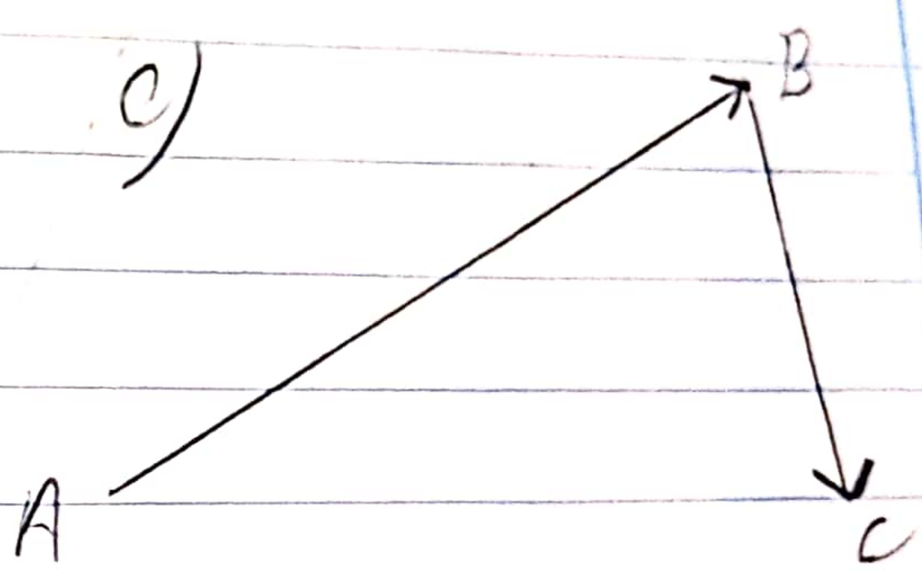
c) $\vec{n} = 3\vec{AB} - 2\vec{BC}$

d) $\vec{n} = \frac{1}{2}\vec{AB} - 2\vec{CB}$

a)



c)



b)

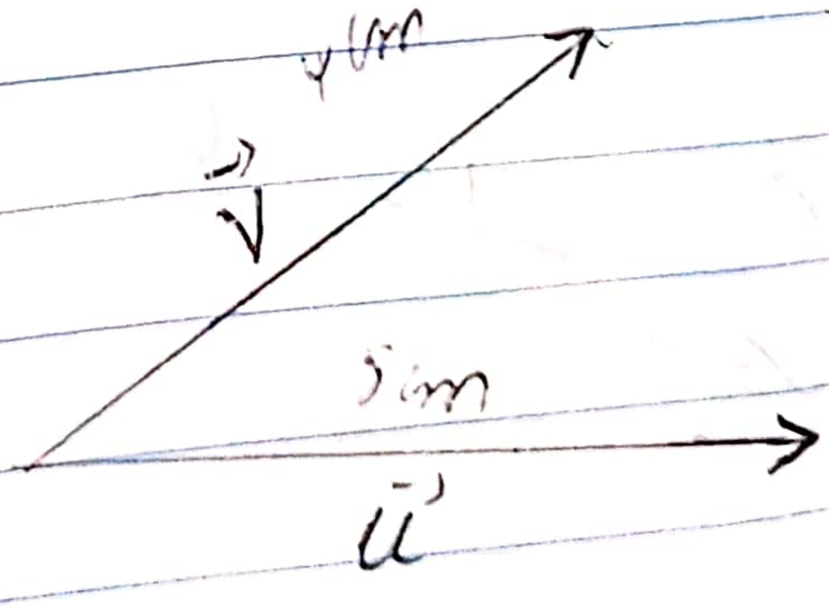
d)

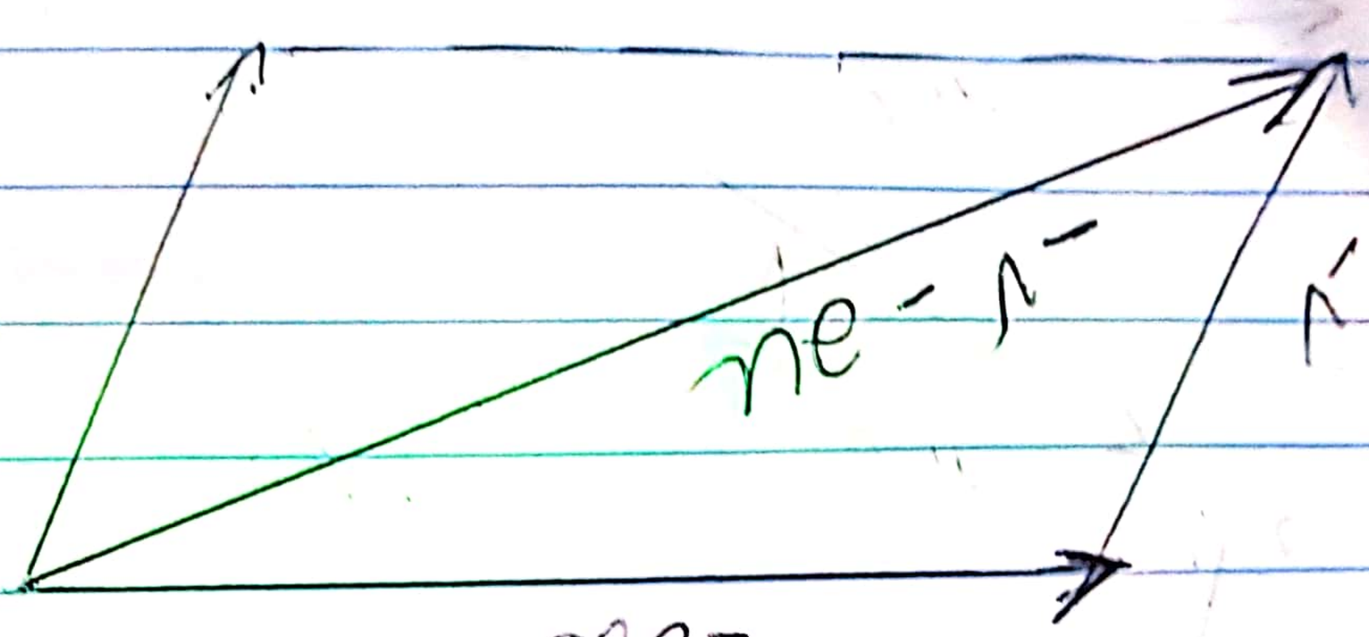
a) $\vec{u} - \vec{v}$

b) $\vec{v} - \vec{u}$

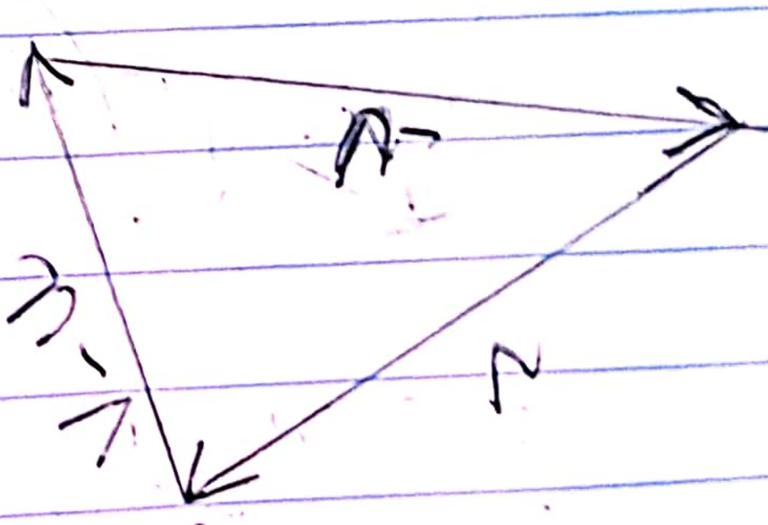
c) $-\vec{v} - 2\vec{u}$

d) $2\vec{u} - 3\vec{v}$

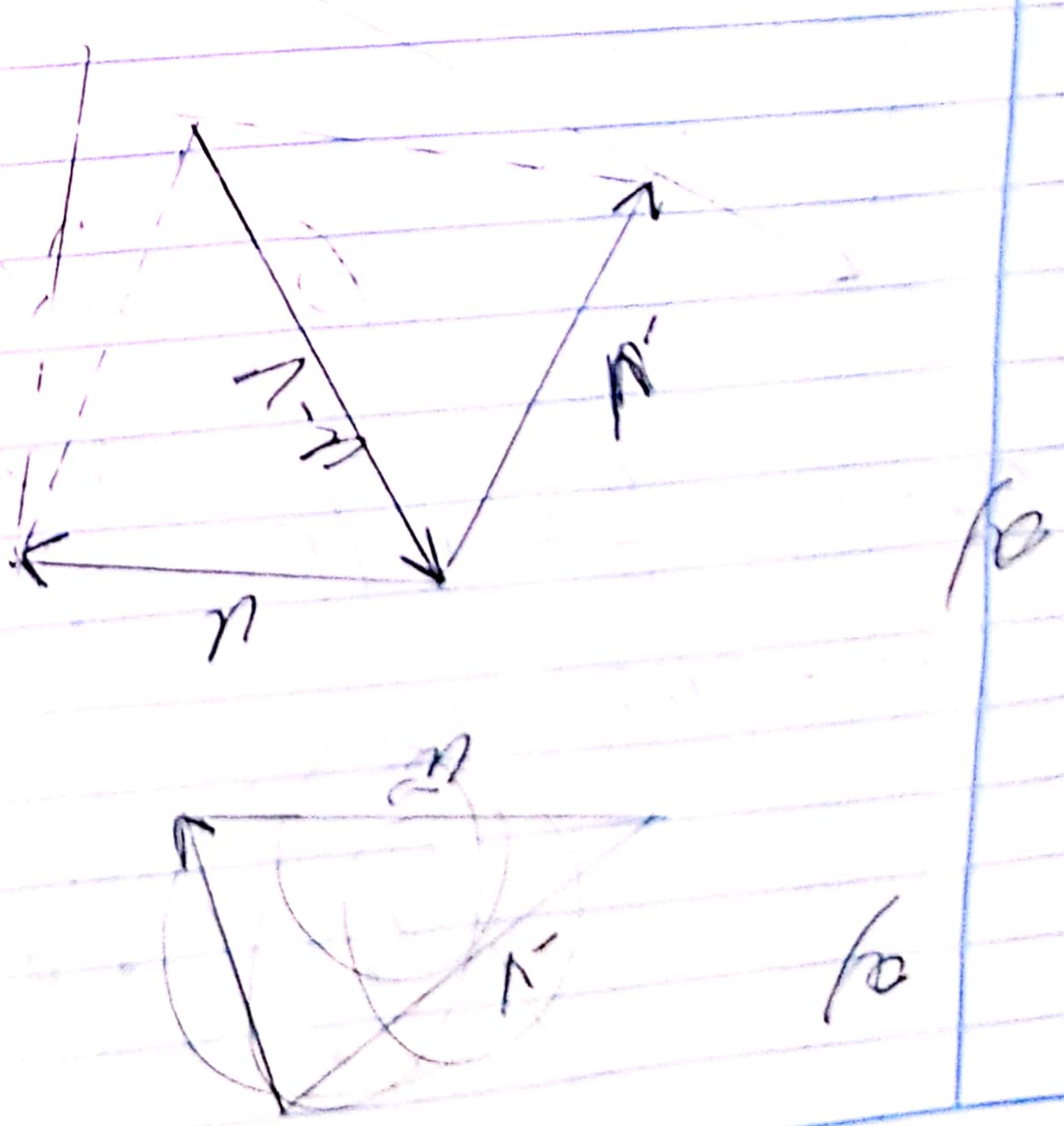




f)



g)



h)

i)