

1.1.4

$$\text{a) } \underbrace{\overrightarrow{AB} + \overrightarrow{BD}}_{\overrightarrow{AD}} + \overrightarrow{DC} = \overrightarrow{AD} + \overrightarrow{DC} = \overrightarrow{AC}$$

$$\text{b) } \underbrace{\overrightarrow{AD} + \overrightarrow{DC}}_{\overrightarrow{AC}} + \underbrace{\overrightarrow{DE} + \overrightarrow{EB} + \overrightarrow{BC}}_{\overrightarrow{DC}} = \overrightarrow{AC} + \overrightarrow{DC}$$

$$\text{c) } \overrightarrow{AC} - \underbrace{\overrightarrow{BD}}_{+\overrightarrow{DB}} - \underbrace{\overrightarrow{AB}}_{+\overrightarrow{BA}} = \underbrace{\overrightarrow{DB} + \overrightarrow{BA} + \overrightarrow{AC}}_{\overrightarrow{DC}} = \overrightarrow{DC}$$

$$\text{d) } \overrightarrow{DA} - \underbrace{(\overrightarrow{DB} + \overrightarrow{BC} + \overrightarrow{CD})}_{\overrightarrow{DD}=\vec{0}} = \overrightarrow{DA}$$

$$\text{e) } \overrightarrow{EC} - \underbrace{\overrightarrow{ED}}_{+\overrightarrow{DE}} + \overrightarrow{CB} - \underbrace{\overrightarrow{DB}}_{+\overrightarrow{BD}} = \underbrace{\overrightarrow{DE} + \overrightarrow{EC} + \overrightarrow{CB} + \overrightarrow{BD}}_{\overrightarrow{DD}=\vec{0}} = \vec{0}$$

1.1.5

$$\text{a) } \vec{a} = \overrightarrow{AB} + \underbrace{\overrightarrow{FG}}_{\overrightarrow{BC}} = \underbrace{\overrightarrow{AB} + \overrightarrow{BC}}_{\overrightarrow{AC}} = \overrightarrow{AC}$$

$$\text{b) } \vec{b} = \overrightarrow{AG} + \underbrace{\overrightarrow{CD}}_{\overrightarrow{GH}} = \underbrace{\overrightarrow{AG} + \overrightarrow{GH}}_{\overrightarrow{AH}} = \overrightarrow{AH}$$

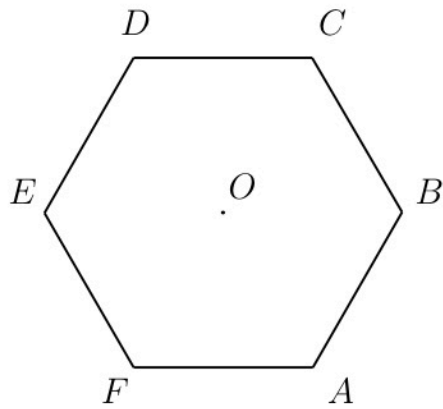
$$\text{c) } \vec{c} = \underbrace{\overrightarrow{EB}}_{\overrightarrow{HC}} + \overrightarrow{CA} = \underbrace{\overrightarrow{HC} + \overrightarrow{CA}}_{\overrightarrow{HA}} = \overrightarrow{HA}$$

$$\text{d) } \vec{d} = \overrightarrow{EH} + \underbrace{\overrightarrow{DC}}_{\overrightarrow{HG}} + \overrightarrow{GA} = \underbrace{\overrightarrow{EH} + \overrightarrow{HG} + \overrightarrow{GA}}_{\overrightarrow{EA}} = \overrightarrow{EA}$$

$$\text{e) } \vec{e} = \overrightarrow{AH} + \underbrace{\overrightarrow{EB}}_{\overrightarrow{HC}} = \underbrace{\overrightarrow{AH} + \overrightarrow{HC}}_{\overrightarrow{AC}} = \overrightarrow{AC}$$

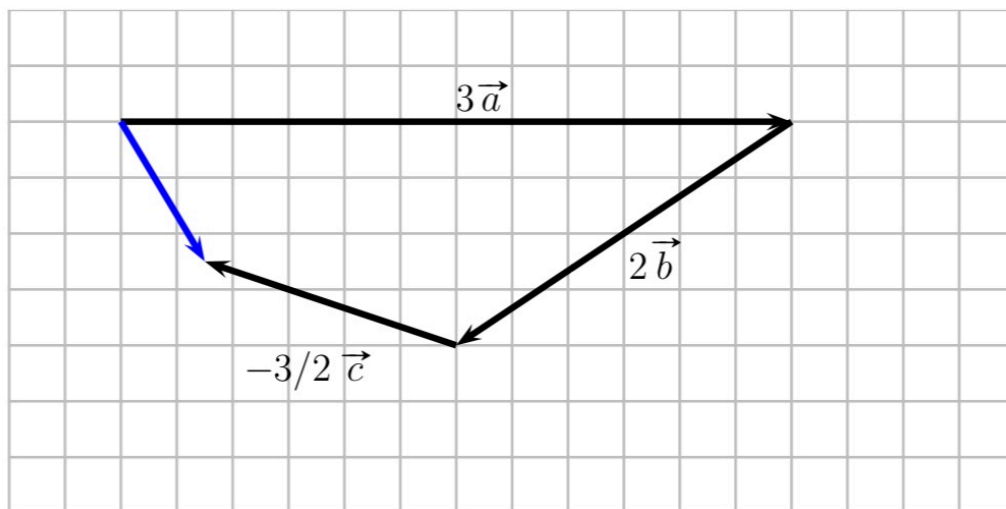
$$\text{f) } \vec{f} = \overrightarrow{AB} + \underbrace{\overrightarrow{CC}}_{\vec{0}} + \overrightarrow{BH} + \underbrace{\overrightarrow{GF}}_{\overrightarrow{HE}} = \underbrace{\overrightarrow{AB} + \overrightarrow{BH} + \overrightarrow{HE}}_{\overrightarrow{AE}} = \overrightarrow{AE}$$

1.1.6



- a) $\vec{a} = \overrightarrow{AB} + \underbrace{\overrightarrow{CD}}_{\overrightarrow{BO}} = \underbrace{\overrightarrow{AB} + \overrightarrow{BO}}_{\overrightarrow{AO}} = \overrightarrow{AO} = \overrightarrow{FE}$
- b) $\vec{b} = \overrightarrow{AB} + \underbrace{\overrightarrow{FE}}_{\overrightarrow{BC}} = \underbrace{\overrightarrow{AB} + \overrightarrow{BC}}_{\overrightarrow{AC}} = \overrightarrow{AC}$
- c) $\vec{c} = \overrightarrow{AC} \underbrace{- \overrightarrow{FE}}_{+ \overrightarrow{EF}} = \overrightarrow{AC} + \underbrace{\overrightarrow{EF}}_{\overrightarrow{CB}} = \underbrace{\overrightarrow{AC} + \overrightarrow{CB}}_{\overrightarrow{AB}} = \overrightarrow{AB}$
- d) $\vec{d} = \overrightarrow{EB} + \overrightarrow{DE} = \underbrace{\overrightarrow{DE} + \overrightarrow{EB}}_{\overrightarrow{DB}} = \overrightarrow{DB}$
- e) $\vec{e} = \underbrace{\overrightarrow{FE}}_{\overrightarrow{AO}} + \underbrace{\overrightarrow{FD}}_{\overrightarrow{OD}} = \underbrace{\overrightarrow{AO} + \overrightarrow{OD}}_{\overrightarrow{AD}} = \overrightarrow{AD}$
- f) $\vec{f} = \underbrace{\overrightarrow{FA} + \overrightarrow{AB} + \overrightarrow{BC}}_{\overrightarrow{FC}} + \underbrace{\overrightarrow{DD}}_{\vec{0}} = \overrightarrow{FC}$

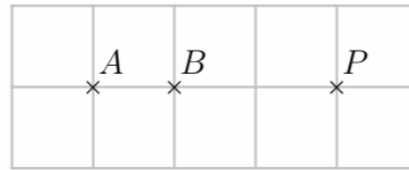
1.1.7



Ex 1.1.8

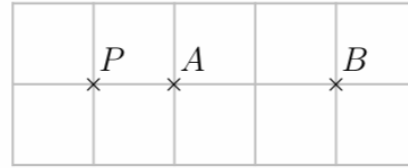
a) $\vec{AP} = 3\vec{AB}$

$\hat{m}$ origine
 $\vec{AP}$ et $\vec{AB}$ $\hat{m}$ sens
 $\|\vec{AP}\| = 3\|\vec{AB}\|$

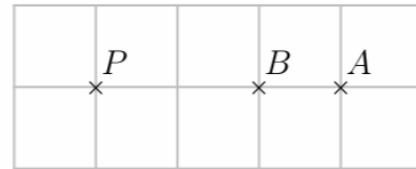


b) $\vec{AP} = \frac{1}{2}\vec{BA}$

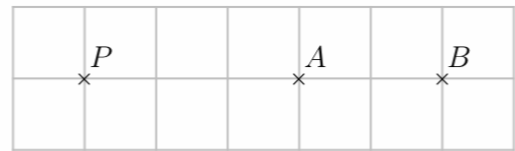
sens oppose
 $\|\vec{AP}\| = \frac{1}{2}\|\vec{BA}\|$ ou $\|\vec{BA}\| = 2\|\vec{AP}\|$



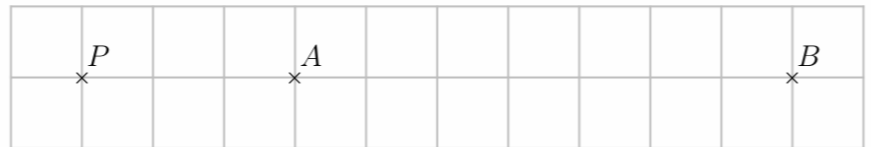
c) $\vec{PA} = -\frac{3}{2}\vec{BP} = \frac{3}{2}\vec{PB}$



d) $\vec{PA} = -\frac{3}{5}\vec{BP} = \frac{3}{5}\vec{PB}$

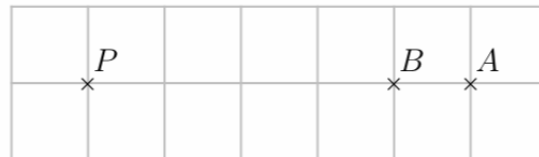


e) $\vec{PA} = \frac{3}{7}\vec{AB}$

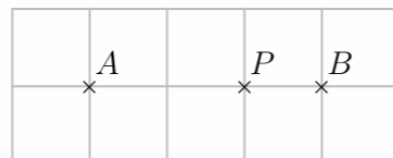


f) $\vec{AP} = \frac{5}{-4}\vec{PB} = -\frac{5}{4}\vec{PB} = \frac{5}{4}\vec{BP}$

ou $\vec{PA} = \frac{5}{4}\vec{PB}$



g) $\vec{PA} = -2\vec{PB} = 2\vec{BP}$



Ex 1.1.9

$$3(\vec{a} - 2\vec{v}) - 6\vec{b} = -7\left(\frac{15}{7}\vec{v} - 3\vec{b}\right) + 12\vec{a}$$

$$3\vec{a} - 6\vec{v} - 6\vec{b} = -15\vec{v} + 21\vec{b} + 12\vec{a}$$

$$-6\vec{v} + 15\vec{v} = 21\vec{b} + 12\vec{a} - 3\vec{a} + 6\vec{b}$$

$$9\vec{v} = 9\vec{a} + 27\vec{b}$$

$$\vec{v} = \vec{a} + 3\vec{b}$$