

exercice 52 :

① milieu de $[AC]$:

$$\textcircled{1} \left(\frac{x_A + x_C}{2} ; \frac{y_A + y_C}{2} \right)$$

$$\textcircled{1} \left(\frac{-5 + x_C}{2} ; \frac{3 + y_C}{2} \right)$$

$$\left\{ \begin{array}{l} \frac{-5 + x_C}{2} = 0 \\ \frac{3 + y_C}{2} = 21 \end{array} \right.$$

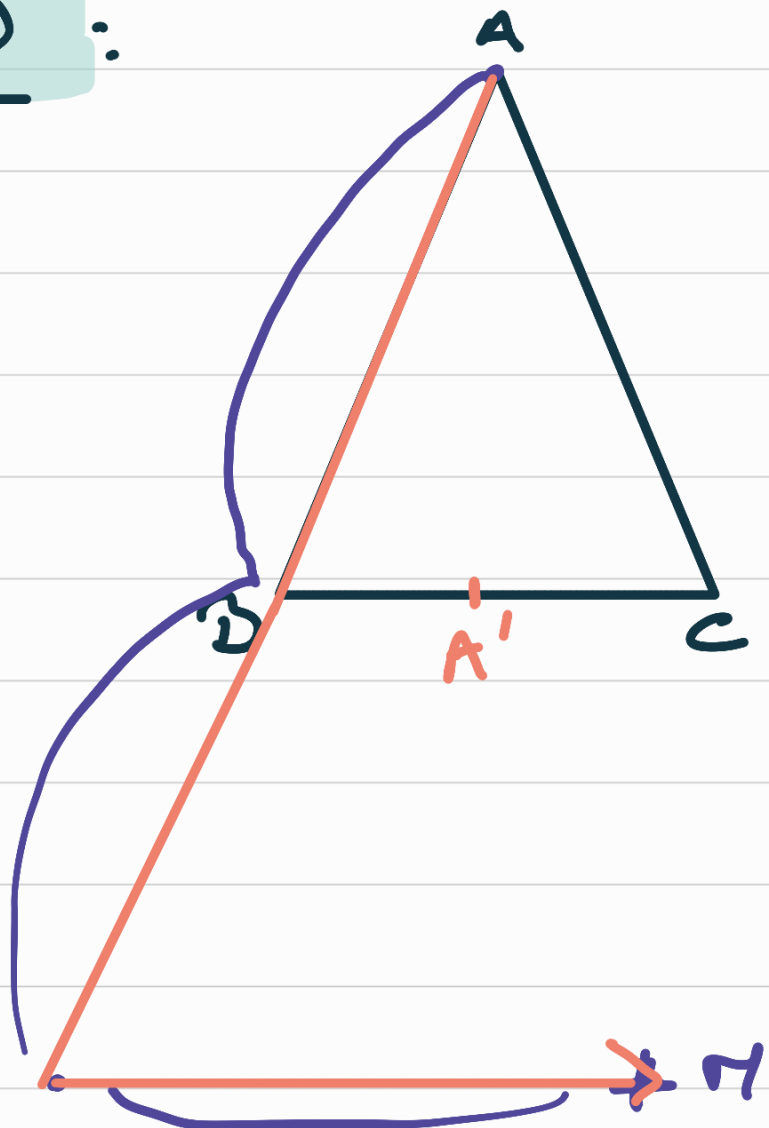
$$\Rightarrow \left\{ \begin{array}{l} -5 + x_C = 0 \times 2 = 0 \\ 3 + y_C = 21 \times 2 = 42 \end{array} \right.$$

$$\Rightarrow \begin{cases} x_c = 0 + 5 = 5 \\ y_c = 42 - 3 = 39 \end{cases}$$

done $C(5; 39)$

exercice 70 :

1)



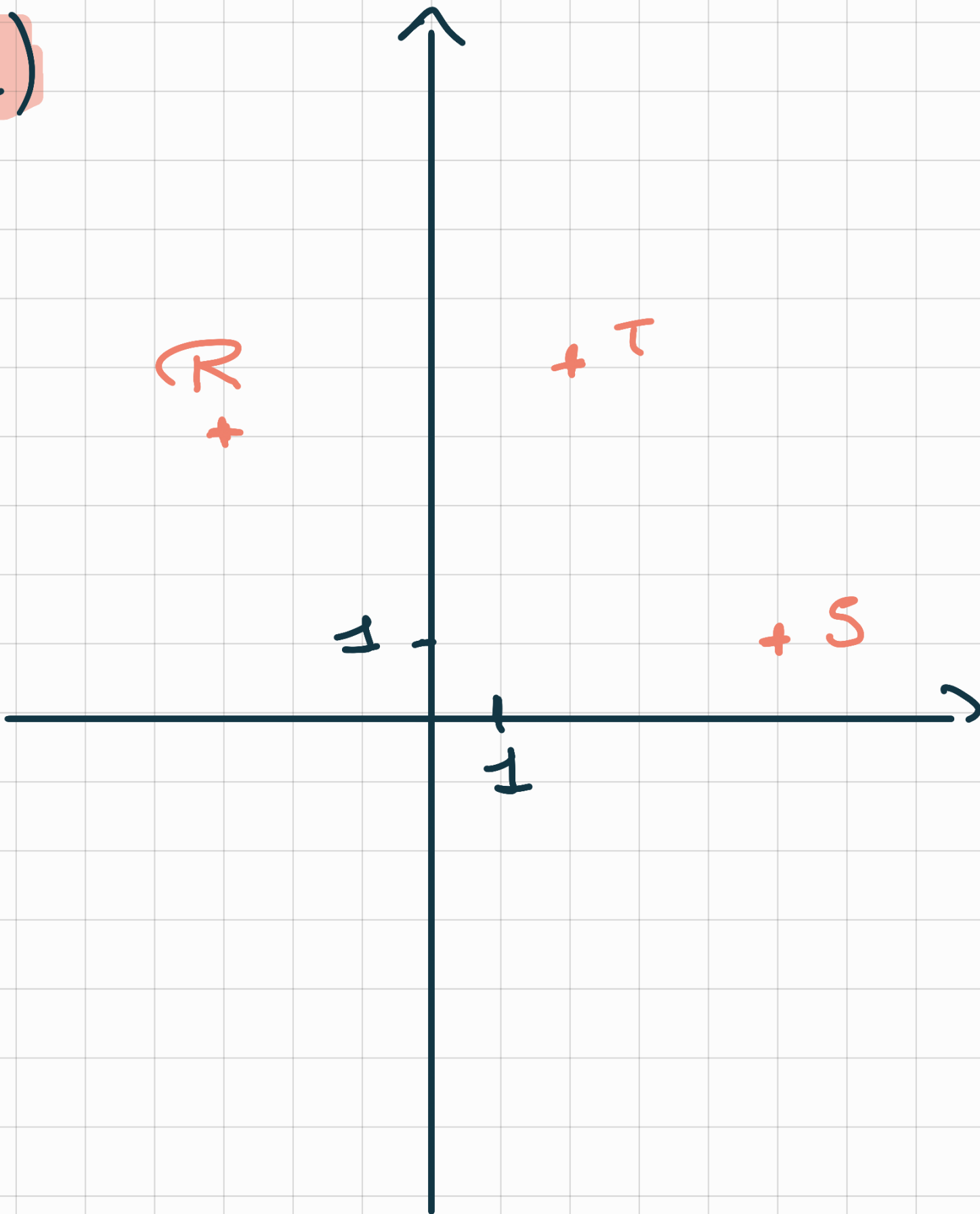
2) Montrer que les vecteurs $\vec{AA'}$ et $\vec{AM}$ sont colinéaires.

$$\begin{aligned}\vec{AM} &= 2\vec{AB} + \vec{BC} \\ &= 2\vec{AB} + 2\vec{BA'} \\ &= 2(\vec{AB} + \vec{BA'}) \\ &= 2\vec{AA'}\end{aligned}$$

donc $\vec{AA'}$ et $\vec{AM}$ sont colinéaires
et donc les points A, A' et M
sont alignés.

exercice 100 :

1)



$$3) \vec{ST}(-3; 4)$$

$$\vec{RS}(8; -3)$$

$$\vec{TR}(-5; -1).$$

$$2) \cdot \vec{RM} = 3 \vec{RS}$$

$$(x_M - (-3); y_M - 4) = 3(8; -3)$$

$$(x_M + 3; y_M - 4) = (24; -9)$$

$$\begin{cases} x_M + 3 = 24 \\ y_M - 4 = -9 \end{cases}$$

$$\Rightarrow \begin{cases} x_M = 24 - 3 \\ y_M = -9 + 4 \end{cases}$$

$$\Rightarrow \begin{cases} x_n = \cancel{24}5 \text{ } 21 \\ y_n = -\cancel{8}9 - 5 \end{cases}$$

done $\cap (\cancel{24}5; -\cancel{8}9)$.
 $\quad \quad \quad 21 \quad \quad -5$

• $\vec{TN} = \cancel{32} \vec{TR}$.

$$(x_n - 2; y_n - 5) = \cancel{32} (-5; -1)$$

$$(x_n - 2; y_n - 5) = (-\cancel{160}; -\cancel{32})$$

$$\begin{cases} x_n - 2 = -\cancel{160} \\ y_n - 5 = -\cancel{32} \end{cases} \Rightarrow \begin{cases} x_n = -\cancel{160} + 2 \\ y_n = -\cancel{32} + 5 \end{cases}$$

$$\Rightarrow \begin{cases} x_n = -\cancel{158} \\ y_n = -\cancel{27}2 \end{cases}$$

done $\cap (-\cancel{158}; -\cancel{27}2)$.

$$3) \vec{ST}(-3; 4)$$

$$\vec{MN}(x_v - x_n; y_v - y_n)$$

$$\vec{MN}(-34; 7)$$

$$\vec{MN}\left(-1; \frac{4}{3}\right)$$

exercice 102 :

1). $\vec{MA} (0-x ; 4-y)$

donc $\vec{MA} (-x ; 4-y)$

• $\vec{MB} (-2-x ; 0-y)$

donc $\vec{MB} (-2-x ; -y)$

• $\vec{MC} (6-x ; -2-y)$

2) $\vec{MA} + \vec{MB} + 2\vec{MC} = \vec{0}$

$$(-x ; 4-y) + (-2-x ; -y) + 2(6-x ; -2-y) = (0,0)$$

$$(-x - 2 - x + 12 - 2x ; 4-y-y-4-2y) = (0,0)$$

$$(-4x + 10; -4y) = (0; 0)$$

$$\begin{cases} -4x + 10 = 0 \\ -4y = 0 \end{cases} \Leftrightarrow \begin{cases} -4x = -10 \\ -4y = 0 \end{cases}$$

$$\Leftrightarrow \begin{cases} x = \frac{-10}{-4} = \frac{5}{2} \\ y = \frac{0}{-4} = 0 \end{cases}$$

done $M\left(\frac{5}{2}; 0\right)$.