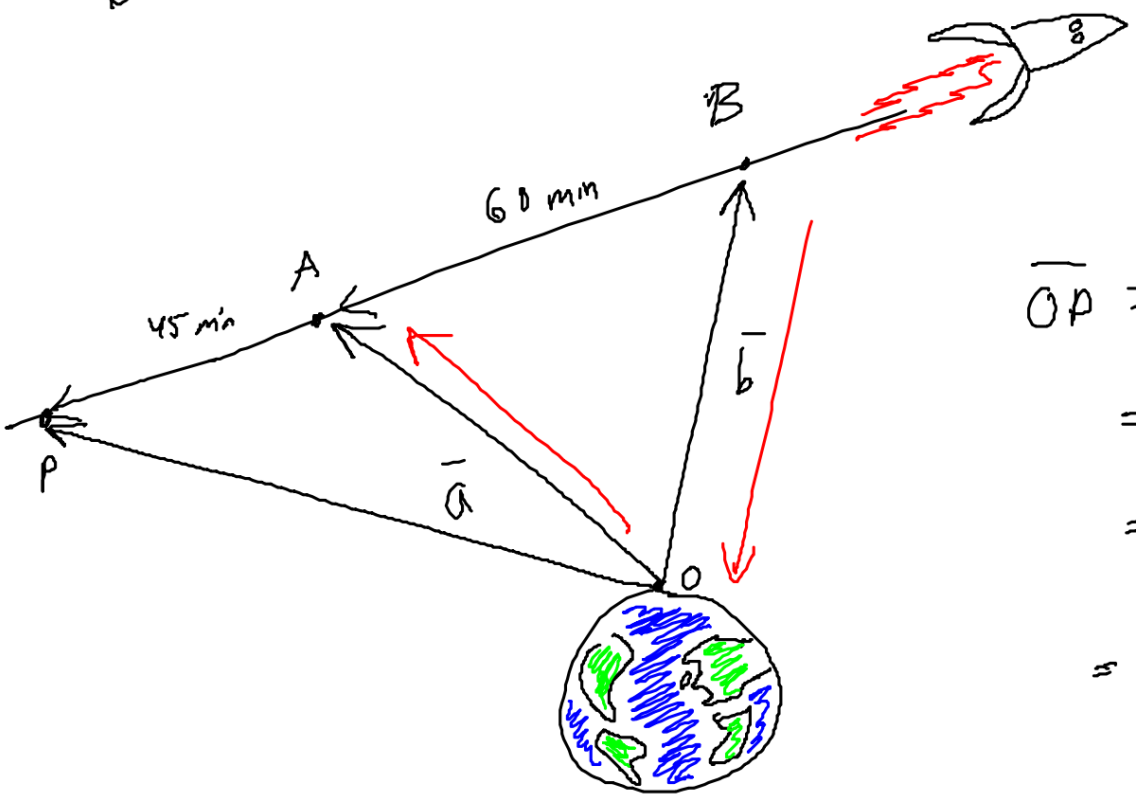
63.



$$\overline{OP} = \overline{OA} + \overline{AP}$$

$$= \bar{a} + \frac{45}{60}\overline{BA}$$

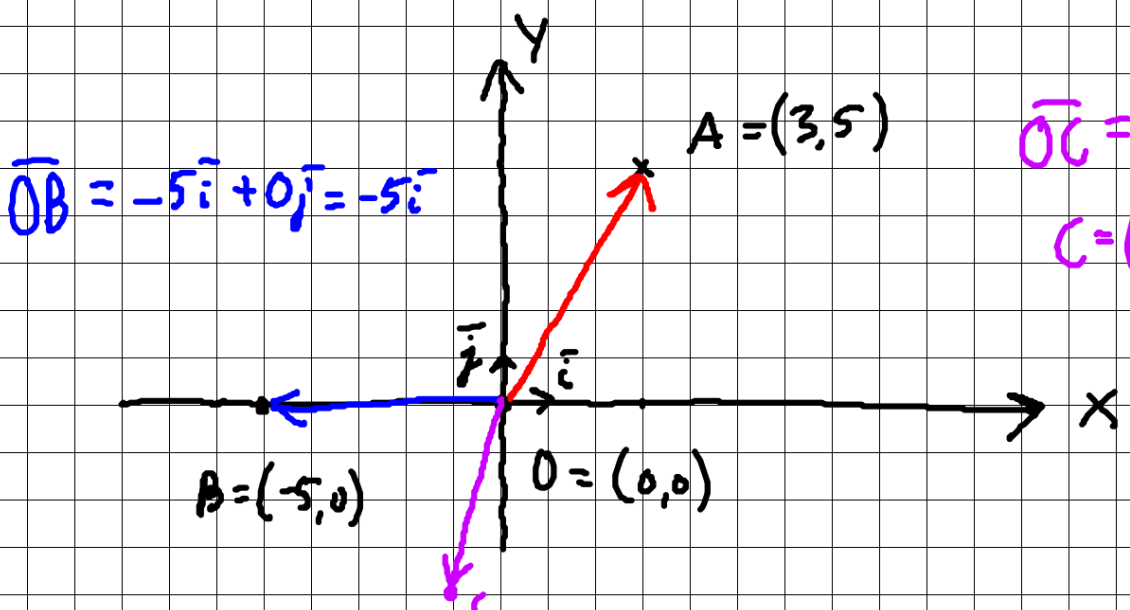
$$= \bar{a} + \frac{45}{60}\left(-\bar{b} + \bar{a}\right)$$

$$= \bar{a} - \frac{45}{60}\bar{b} + \frac{45}{60}\bar{a}$$

$$= \frac{105}{60}\bar{a} - \frac{45}{60}\bar{b}$$

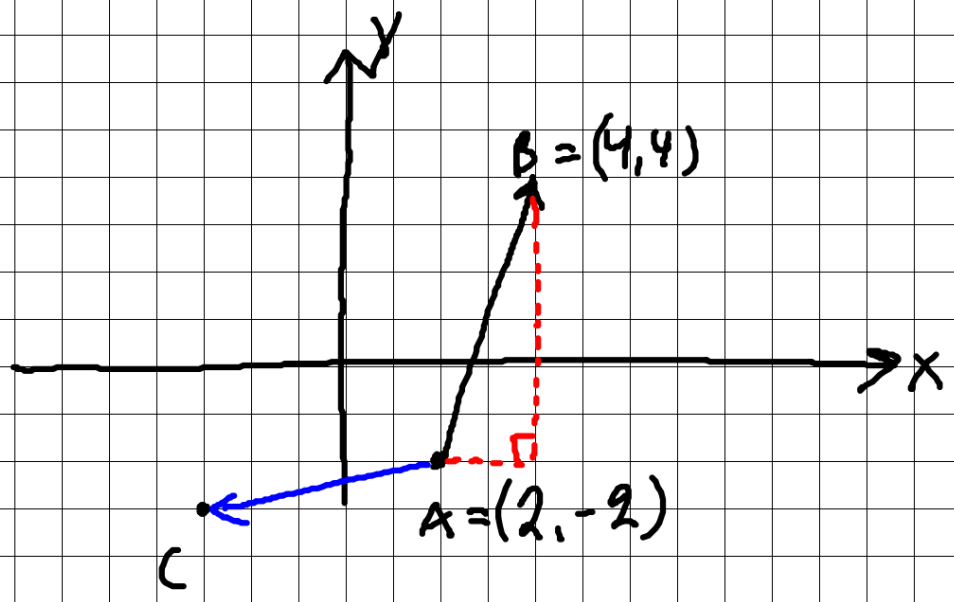
$$= \frac{7}{4}\bar{a} - \frac{3}{4}\bar{b}$$

XY-tason vektorit



- XY-tason kantavektorit: $\bar{i}$ = yksi ruutu oikealle
  $\bar{j}$ = — " — ylös
- Pisteen A paikkavektori = vektori O:sta A:n
  $= \overline{OA} = 3\bar{i} + 5\bar{j}$

Esim.



$\vec{AB} = 2\vec{i} + 6\vec{j}$

$|\vec{AB}| = \sqrt{2^2 + 6^2}$

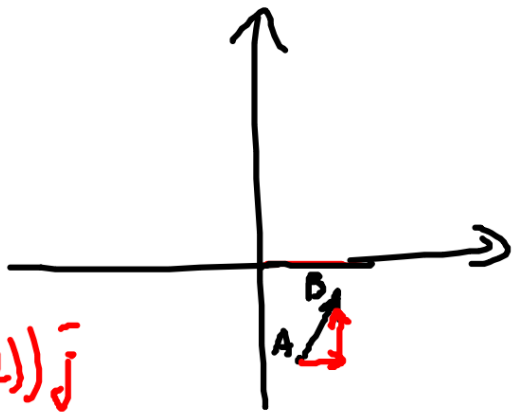
(pythag.)

$\vec{AC} = -5\vec{i} - \vec{j}$

$\vec{CA} = 5\vec{i} + \vec{j} = -\vec{AC}$

Esim. $A = \left(\frac{1}{2}, -2\right)$

$B = \left(1, -\frac{3}{4}\right)$



$\overline{AB} = \left(1 - \frac{1}{2}\right)\bar{i} + \left(-\frac{3}{4} - (-2)\right)\bar{j}$

$= \frac{1}{2}\bar{i} + \frac{5}{4}\bar{j}$

$|\overline{AB}| = \sqrt{\left(\frac{1}{2}\right)^2 + \left(\frac{5}{4}\right)^2}$

Miinusta B:stä A!

Pisteen koordinaatit = paikkavektorin $\bar{i}$:n ja $\bar{j}$:n kertoimet