ATENSIDEN

FISIKA

VEKTOR

OPERASI VEKTOR

NO. 35

ATENSIDEN

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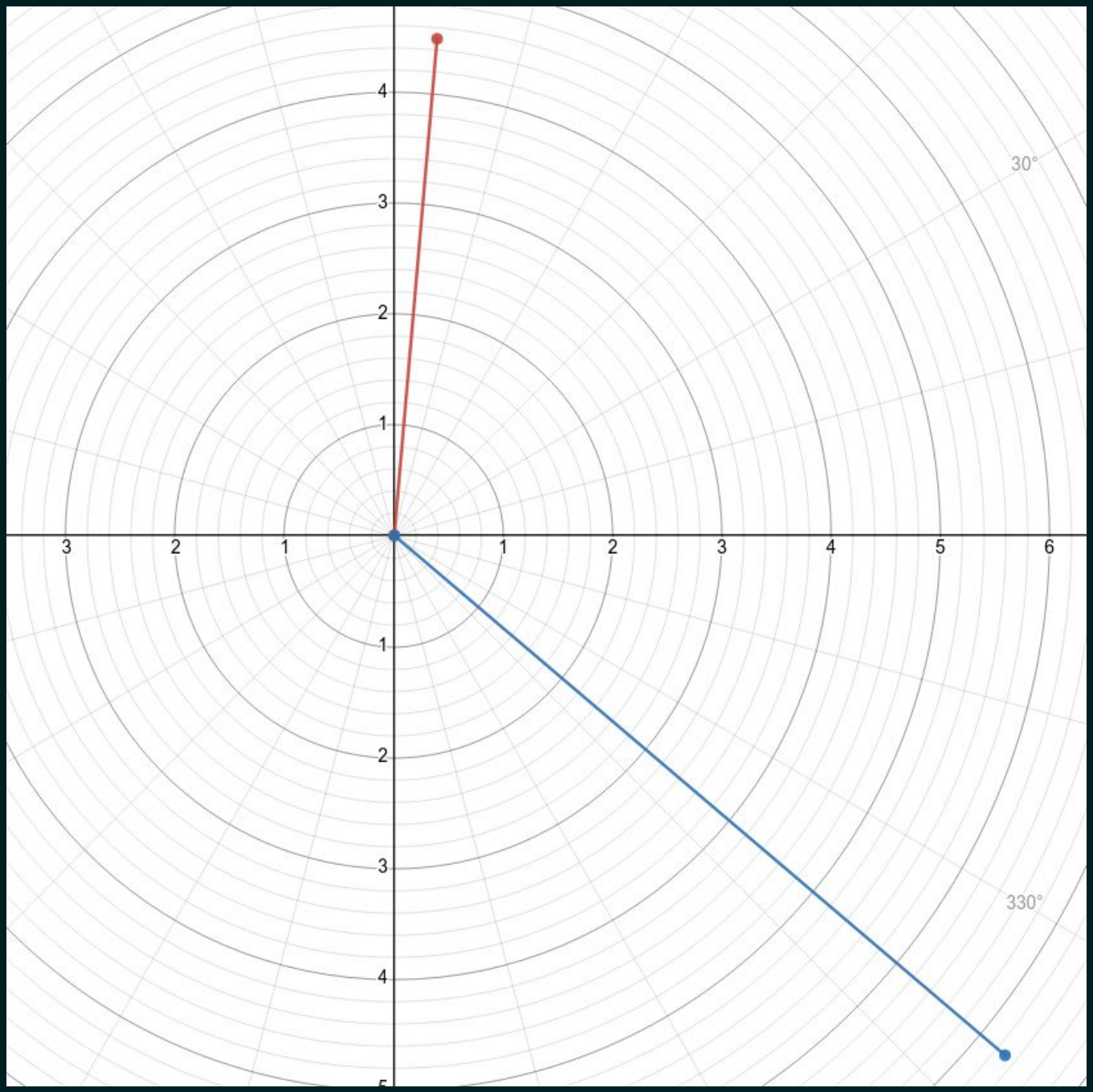
•35 Two vectors, $\vec{r}$ and $\vec{s}$, lie in the xy plane. Their magnitudes are 4.50 and 7.30 units, respectively, and their directions are 320° and 85.0°, respectively, as measured counterclockwise from the positive x axis. What are the values of (a) $\vec{r} \cdot \vec{s}$ and (b) $\vec{r} \times \vec{s}$?

- **Diketahui**
  - **2 buah vektor r dan s**
  - **Masing-masing memiliki besar vektor 4.5 dan 7.3 secara berurutan**
  - **Sudut masing-masing vektor diukur berlawanan arah jarum jam adalah 320 dan 85 dalam derajat**
- **Ditanya**
  - **Hasil perkalian titik kedua vektor?**
  - **Hasil perkalian silang kedua vektor?**

- Solusi



- Solusi

$$\overrightarrow{r} = 4.5 * \langle \cos 85,\ \sin 85 \rangle = \langle 0.39,\ 4.48 \rangle$$

$$\overrightarrow{s} = 7.3 * \langle \cos 320,\ \sin 329 \rangle = \langle 5.59,\ -4.69 \rangle$$

$$\overrightarrow{r} \cdot \overrightarrow{s} = (r_x * s_x) + (r_y * s_y)$$

$$\overrightarrow{r} \cdot \overrightarrow{s} = (0.39 * 5.59) - (4.48 * 4.69)$$

$$\overrightarrow{r} \cdot \overrightarrow{s} = -18.84$$

$$\overrightarrow{r} \times \overrightarrow{s} = (r_x * s_y - r_y * s_x)\hat{k}$$

$$\overrightarrow{r} \times \overrightarrow{s} = (-0.39 * 4.69 - 4.48 * 5.59)\,\hat{k}$$

$$\overrightarrow{r} \times \overrightarrow{s} = -26.91\,\hat{k}$$

SUMBER:
Halliday, D., Resnick, R., & Walker, J. (2013). *Fundamentals of physics*. John Wiley & Sons.