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### Opgave 437

$$x = l \cdot \cos(v)$$

$$y = l \cdot \sin(v)$$

$$\vec{V} = \begin{pmatrix} x \\ y \end{pmatrix}$$

$$x_a = 4 \cdot \cos(40) \approx 3,064178$$

$$y_a = 4 \cdot \sin(40) \approx 2,57115$$

$$\vec{V}_a = \begin{pmatrix} 3.064 \\ 2.571 \end{pmatrix}$$

$$x_b = 5 \cdot \cos(110) \approx -1,710101$$

$$y_b = 5 \cdot \sin(110) \approx 4,698463$$

$$\vec{V}_b = \begin{pmatrix} -1.170 \\ 4.698 \end{pmatrix}$$

$$x_c = 6 \cdot \cos(140) \approx -4,596267$$

$$y_c = 6 \cdot \sin(140) \approx 3,856726$$

$$\vec{V}_c = \begin{pmatrix} -4.596 \\ 3.857 \end{pmatrix}$$

$$x_d = 7 \cdot \cos(190) \approx -6,893654$$

$$y_d = 7 \cdot \sin(190) \approx -1,215537$$

$$\vec{V}_d = \begin{pmatrix} -6.893 \\ -1.216 \end{pmatrix}$$

$$\vec{V}_{sum} = \vec{V}_a + \vec{V}_b + \vec{V}_c + \vec{V}_d$$

$$\vec{V}_{sum} = \begin{pmatrix} 3.064 \\ 2.571 \end{pmatrix} + \begin{pmatrix} -1.170 \\ 4.698 \end{pmatrix} + \begin{pmatrix} -4.596 \\ 3.857 \end{pmatrix} + \begin{pmatrix} -6.893 \\ -1.216 \end{pmatrix} \approx \begin{pmatrix} -10.14 \\ 9.91 \end{pmatrix}$$

$$|\vec{V}_{sum}| = \sqrt{V_{sum_x}^2 + V_{sum_y}^2}$$

$$|\vec{V}_{sum}| = \sqrt{(-10.14)^2 + 9.91^2} \approx 14,17842$$

$$\angle \vec{V}_{sum} = \tan^{-1}\left(\frac{9.91}{-10.14}\right) + 180 = 135,6572$$

