

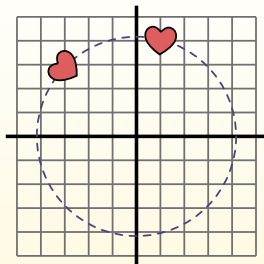
**Rotiere jede Form. Antworte mit dem neuen Koordinatenpunkt.** $\theta = \text{Ângulo de rotação}$ **Fórmula de rotação**

$$x1 = x \times \cos(\theta) - y \times \sin(\theta)$$

$$y1 = x \times \sin(\theta) + y \times \cos(\theta)$$

En el ejemplo de la derecha, la forma está en las coordenadas (1,4).

Vamos encontrar as coordenadas se girarmos a forma em 60°.



$$1. \quad \begin{aligned} x1 &= 1 \times \cos(60) - 4 \times \sin(60) \\ y1 &= 1 \times \sin(60) + 4 \times \cos(60) \end{aligned}$$

$$2. \quad \begin{aligned} x1 &= 1 \times 0.5 - 4 \times 0.87 \\ y1 &= 1 \times 0.87 + 4 \times 0.5 \end{aligned}$$

$$3. \quad \begin{aligned} x1 &= 0.5 - 3.48 \\ y1 &= 0.87 + 2 \end{aligned}$$

$$4. \quad \begin{aligned} x1 &= -2.98 \\ y1 &= 2.87 \end{aligned}$$

5. Al observar la forma, podemos ver que girado 60° está en (-2.98, 2.87).

Antworten

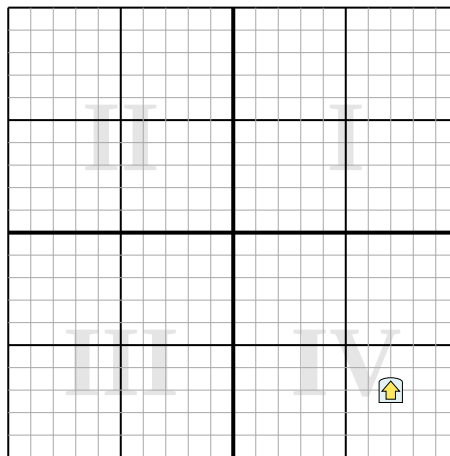
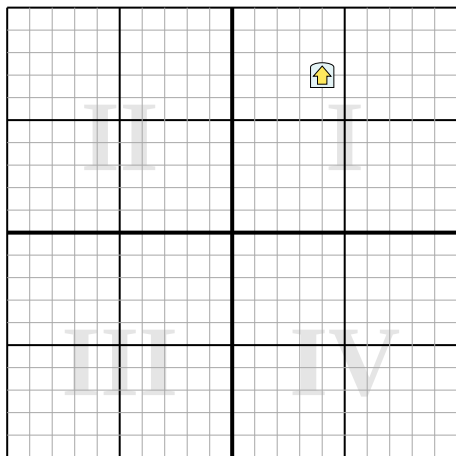
1. _____

2. _____

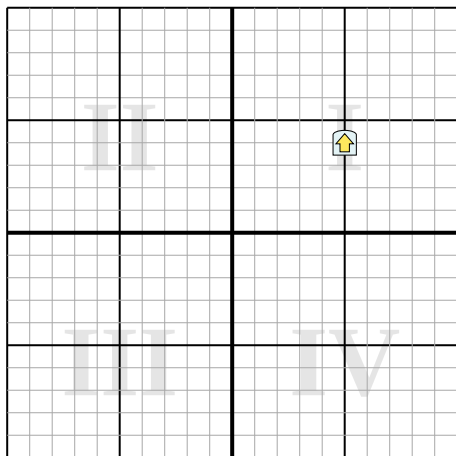
3. _____

4. _____

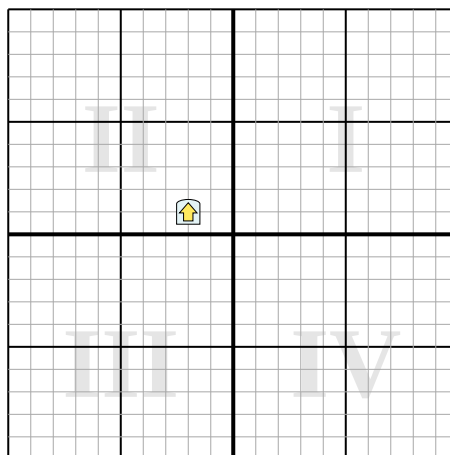
- 1) Rotiere die Figur 99° um den Punkt (0,0). 2) Rotiere die Figur -40° um den Punkt (0,0).



- 3) Rotiere die Figur -292° um den Punkt (0,0).



- 4) Rotiere die Figur 45° um den Punkt (0,0).





Rotiere jede Form. Antworte mit dem neuen Koordinatenpunkt.

$\theta = \text{Ângulo de rotação}$

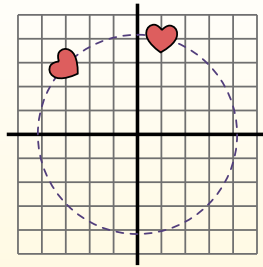
Fórmula de rotación

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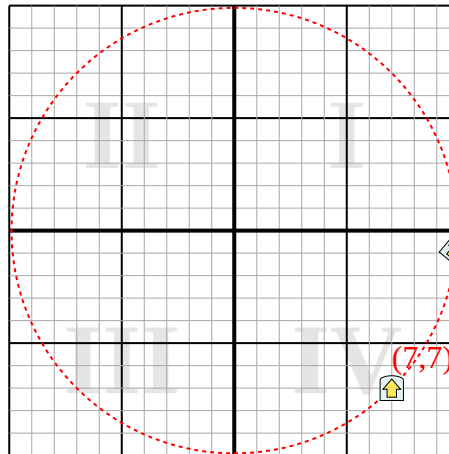
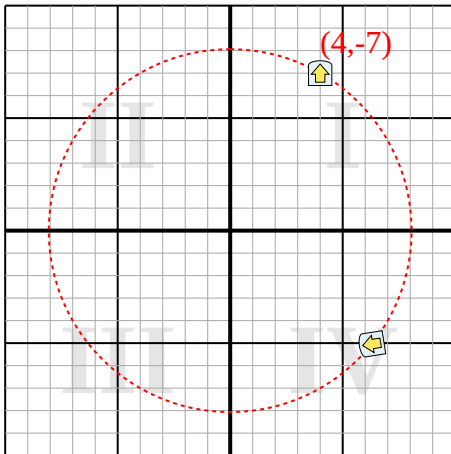
1. **(6,3,-5)**

2. **(9,9,-0,9)**

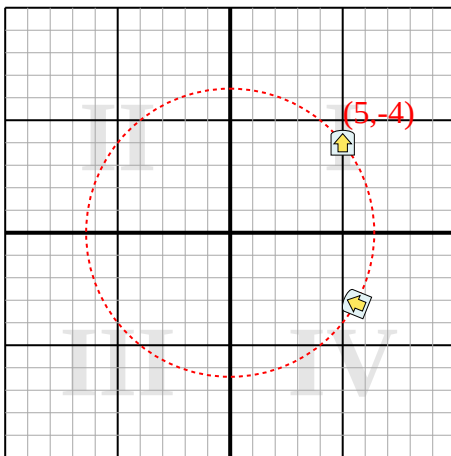
3. **(5,6,-3,1)**

4. **(-0,7,2,1)**

1) Rotiere die Figur 99° um den Punkt (0,0). 2) Rotiere die Figur -40° um den Punkt (0,0).



3) Rotiere die Figur -292° um den Punkt (0,0).



4) Rotiere die Figur 45° um den Punkt (0,0).

