rotation matrix; rotatation about the origin of the Cartesian coordinate system.
  θ: anticlockwise rotation.

$$Rot(\theta) := \begin{bmatrix} \cos(\theta) & \sin(\theta) \\ -\sin(\theta) & \cos(\theta) \end{bmatrix}$$

rounded rectangle.
 h: external height;
 b: external width;
 r: corner radius;
 θ: anticlockwise rotation.

$$roundedRect(h, b, r, \theta) := \begin{vmatrix} \#out := \text{if } r > 0 \\ \quad \begin{vmatrix} \#tmp := [0 \ 0] \\ pts := 15 \\ \text{for } k \in [0..pts] \\ \quad \begin{vmatrix} \#tmp_{k+1\,1} := \text{eval}\left(r \cdot \cos\left(\frac{\pi}{2} \cdot \frac{k}{pts}\right) + \frac{b}{2} - r\right) \\ \#tmp_{k+1\,2} := \text{eval}\left(r \cdot \sin\left(\frac{\pi}{2} \cdot \frac{k}{pts}\right) + \frac{h}{2} - r\right) \end{vmatrix} \\ \#tmp \end{vmatrix} \\ \text{else} \\ \quad \left[\frac{b}{2} \ \frac{h}{2}\right] \\ \#out := \text{stack}\left(\#out, \text{reverse}\left(\#out \cdot \begin{bmatrix} -1 & 0 \\ 0 & 1 \end{bmatrix}\right)\right) \\ \#out := \text{stack}\left(\#out, \text{reverse}\left(\#out \cdot \begin{bmatrix} 1 & 0 \\ 0 & -1 \end{bmatrix}\right), \text{row}(\#out, 1)\right) \\ \#out \cdot Rot(\theta) \end{vmatrix}$$

$$p := roundedRect(152, 102, 0, 0 \text{ deg}) \text{ mm} \qquad \text{appVersion}(4) = \text{"0.99.7921.69"}$$

numeric optimiz

$$p = \begin{bmatrix} \begin{bmatrix} \begin{bmatrix} 0.051 \text{ m} & 0.076 \text{ m} \\ -0.051 \text{ m} & 0.076 \text{ m} \\ 0 & \begin{bmatrix} -0.051 \text{ m} & -0.076 \text{ m} \\ 0.051 \text{ m} & -0.076 \text{ m} \end{bmatrix} \\ \begin{bmatrix} 0.051 \text{ m} & 0.076 \text{ m} \\ -0.051 \text{ m} & 0.076 \text{ m} \end{bmatrix} & 0 \\ 0.051 \text{ m} & 0.076 \text{ m} \end{bmatrix} & 0 \\ 0 & \begin{bmatrix} 0.051 \text{ m} & 0.076 \text{ m} \\ -0.051 \text{ m} & 0.076 \text{ m} \\ 0 & \begin{bmatrix} -0.051 \text{ m} & -0.076 \text{ m} \\ 0.051 \text{ m} & -0.076 \text{ m} \end{bmatrix} \\ \begin{bmatrix} 0.051 \text{ m} & 0.076 \text{ m} \\ -0.051 \text{ m} & 0.076 \text{ m} \end{bmatrix} & 0 \\ 0.051 \text{ m} & 0.076 \text{ m} \end{bmatrix} \end{bmatrix}$$

rounded rectangle.
 h: external height;
 b: external width;
 r: corner radius;
 θ: anticlockwise rotation.

$$roundedRect(h, b, r, \theta) := \begin{vmatrix} \#out := \text{if } r > 0 \end{vmatrix}$$

$$\#tmp := \begin{bmatrix} 0 & 0 \end{bmatrix}$$

$$pts := 15$$

$$\text{for } k \in [0 .. pts]$$

$$\#tmp_{k+1\,1} := \text{eval}\left(r \cdot \cos\left(\frac{\pi}{2} \cdot \frac{k}{pts}\right) + \frac{b}{2} - r\right)$$

$$\#tmp_{k+1\,2} := \text{eval}\left(r \cdot \sin\left(\frac{\pi}{2} \cdot \frac{k}{pts}\right) + \frac{h}{2} - r\right)$$

$$\#tmp$$

$$\text{else}$$

$$\begin{bmatrix} \dfrac{b}{2} & \dfrac{h}{2} \end{bmatrix}$$

$$\#out := \text{eval}\left(\text{stack}\left(\#out, \text{reverse}\left(\#out \cdot \begin{bmatrix} -1 & 0 \\ 0 & 1 \end{bmatrix}\right)\right)\right)$$

$$\#out := \text{eval}\left(\text{stack}\left(\#out, \text{reverse}\left(\#out \cdot \begin{bmatrix} 1 & 0 \\ 0 & -1 \end{bmatrix}\right), \text{row}(\#out, 1)\right)\right)$$

$$\#out . Rot(\theta)$$

$$\text{appVersion}(4) = \texttt{"0.99.7921.69"}$$

$$p := roundedRect(152, 102, 0, 0 \text{ deg}) \text{ mm}$$

$$p = \begin{bmatrix} 51 & 76 \\ -51 & 76 \\ -51 & -76 \\ 51 & -76 \\ 51 & 76 \end{bmatrix} \text{mm}$$

$$p := roundedRect(152 \text{ mm}, 102 \text{ mm}, 0, 0 \text{ deg})$$

$$p = \begin{bmatrix} 51 & 76 \\ -51 & 76 \\ -51 & -76 \\ 51 & -76 \\ 51 & 76 \end{bmatrix} \text{mm}$$