

3. Let  $p = \left(\frac{1}{4}, \frac{\sqrt{15}}{4}\right)$  and  $q = \left(-\frac{1}{4}, -\frac{\sqrt{15}}{4}\right)$ . Find a point  $r$  so that  $p \star r = q$ . State the geometric or visual meaning of this answer.

4. Rotate the point  $(3, 1)$  around the point  $(1, 1)$  by the angle  $a = \left(\frac{1}{3}, \frac{\sqrt{8}}{3}\right)$ .