

• translation rule: rule written in the form $t_{(a, b)}: (x, y) \mapsto (x + a, y + b)$

• rotation rule: the main rules for rotations centred at the origin are

cw $\longrightarrow r_{(0, -90^\circ)}: (x, y) \mapsto (y, -x)$ clockwise

ccw $\longrightarrow r_{(0, 90^\circ)}: (x, y) \mapsto (-y, x)$ counter-clockwise

$r_{(0, 180^\circ)}: (x, y) \mapsto (-x, -y)$

• reflection rule: the main rules for reflections are:

$s_x: (x, y) \mapsto (x, -y)$

$s_y: (x, y) \mapsto (-x, y)$

$s_\square: (x, y) \mapsto (y, x)$

$s_\diamond: (x, y) \mapsto (-y, -x)$

• similarity

transformation rule: rule written in the form $h_{(0, a)}: (x, y) \mapsto (ax, ay); a \neq 0$