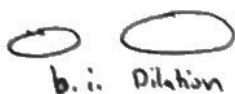


14.1.4



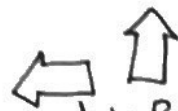
b. ii. Dilation



c. ii. Translation



a. iii. Reflection

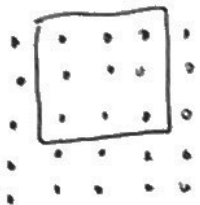


d. iv. Rotation

14.1.6) a) Translation or Reflection b) Translation c) Rotation

14.1.8) a) No. Figure is rotated. b) No. Figure is scaled up. c) No. Figure is rotated.
 d) Yes.

14.1.10) **9** The top vertex can be translated to any of the 9 vertices in the mid-top 3x3 grid



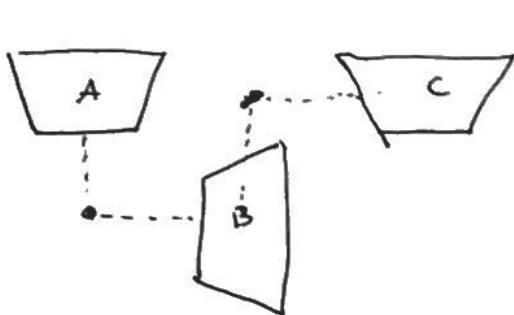
14.1.12) a) Yes. Rotation by $\sim 60^\circ$ cw
 b) No. This is a translation.
 c) No. This is a reflection. d) Yes. Rotate 90° cw.

14.1.18) a) Yes. Rotate 180° . b) Yes. Rotate $90^\circ, 180^\circ$ cw or ccw.

14.1.20) a) 180° cw, ccw b) $45^\circ, 90^\circ, 135^\circ, 180^\circ$ cw, ccw

14.1.22) a) Does not have rotational symmetry: the four arms are all different.
 b) Has rotational symmetry: 180° cw or ccw rotates figure exactly onto itself!

14.1.24)



a) True. b) True.
 c) False. d) False.
 For a/b see diagram.
 For c/d rotation required.

14.1.35) Any ~~2n~~ regular 2n-gon (even #) has 180° rotational symmetry.
 Any regular (2n+1)-gon (odd #) does not have rotational symmetry.