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2. The transformation T from the z-plane, where $z = x + iy$, to the w-plane, where $w = u + iv$, is given by

$$w = \frac{z + 2}{z - i} \quad z \neq i$$

The transformation T maps the circle $|z| = 2$ in the z-plane onto a circle C in the w-plane.

Find (i) the centre of C,

(ii) the radius of C.

(8)

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