1. $z_1 = 3 + 3\mathrm{i} \qquad z_2 = p + q\mathrm{i} \qquad p, q \in \mathbb{R}$

Given that $|z_1 z_2| = 15\sqrt{2}$

(a) determine $|z_2|$

(2)

Given also that $p = -4$

(b) determine the possible values of q

(2)

(c) Show z_1 and the possible positions for z_2 on the same Argand diagram.

(2)

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Question 1 continued

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Question 1 continued

(Total for Question 1 is 6 marks)