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**2.** The complex numbers $z_1$ and $z_2$ are given by

$$z_1 = 3 + 5\text{i} \quad \text{and} \quad z_2 = -2 + 6\text{i}$$

(a) Show $z_1$ and $z_2$ on a single Argand diagram.

**(2)**

(b) **Without using your calculator and showing all stages of your working,**

(i) determine the value of $|z_1|$

**(1)**

(ii) express $\frac{z_1}{z_2}$ in the form $a + b\text{i}$, where $a$ and $b$ are fully simplified fractions.

**(3)**

(c) Hence determine the value of $\arg \frac{z_1}{z_2}$

Give your answer in radians to 2 decimal places.

**(2)**

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**Question 2 continued**

**Q2**

**(Total 8 marks)**