

Chapter 3 / **Example 13****Operations with complex numbers**

If $z_1 = 4 - 3i$ and $z_2 = -2 + 5i$, calculate the following and check your answers with a calculator.

a $z_1 - z_2$ **b** $\frac{1}{3}z_1 + \frac{2}{5}z_2$

Type $(4 - 3i) - (-2 + 5i)$

To enter i press **2nd** **[i]**.

Press **enter**.

$$z_1 - z_2 = 6 - 8i$$

$(4-3i)-(-2+5i)$ $6-8i$

Type $\frac{1}{3}(4 - 3i) + \frac{2}{5}(-2 + 5i)$

To enter i press **2nd** **[i]** and use the fraction template,
[ALPHA] **[f1]** 1:n/d to enter the fractions.

Press **enter**.

$$\frac{1}{3}z_1 + \frac{2}{5}z_2 = 0.533 + i$$

$(4-3i)-(-2+5i)$ $6-8i$
 $\frac{1}{3}(4-3i)+\frac{2}{5}(-2+5i)$ $.533333333+i$

To check that $0.533 = \frac{8}{15}$ press **[MATH]** **[>]** **[>]** CMPLX 2:real(

Then press **2nd** **[ANS]** and **[ALPHA]** **[f1]** 4:►F◀►D

This converts the decimal to an equivalent fraction.

$(4-3i)-(-2+5i)$ $6-8i$
 $\frac{1}{3}(4-3i)+\frac{2}{5}(-2+5i)$ $.533333333+i$
real(Ans)►F◀►D $\frac{8}{15}$