

REVIEW SET 14E

1 $AB = AC = \sqrt{53}$ units and $BC = \sqrt{46}$ units $\therefore \Delta$ is isosceles

2 $r = 3, s = -\frac{5}{2}, t = \frac{1}{4}$ **3** $(0, 0, 1)$ and $(0, 0, 9)$

4 a $\mathbf{x} = \begin{pmatrix} -11 \\ 5 \\ -10 \end{pmatrix}$ **b** $\mathbf{x} = \begin{pmatrix} 2 \\ 1 \\ 1 \end{pmatrix}$ **5** $a = -2, b = 0$ **6 a** 10 **b** $\approx 61.6^\circ$

7 a $r = -2, s = \frac{15}{2}$ **b** $\pm \frac{4}{\sqrt{14}}(3\mathbf{i} - 2\mathbf{j} + \mathbf{k})$

8 a $k = \pm \frac{1}{2}$ **b** $-\frac{5}{\sqrt{14}} \begin{pmatrix} 3 \\ 2 \\ -1 \end{pmatrix}$ **9 a** 8 **b** $\approx 62.2^\circ$

10 $\approx 16.1^\circ$ **11 a** $\sqrt{2} \begin{pmatrix} 5 \\ 4 \\ 3 \end{pmatrix}$ **b** $\frac{5}{2}\sqrt{2}$ units² **c** $k = 0$

12 a $t = -4$ **b** $\overrightarrow{LM} = \begin{pmatrix} 5 \\ -3 \\ -4 \end{pmatrix}, \overrightarrow{KM} = \begin{pmatrix} -2 \\ -2 \\ -1 \end{pmatrix}$

So, $\overrightarrow{LM} \cdot \overrightarrow{KM} = 0 \therefore \hat{M} = 90^\circ$