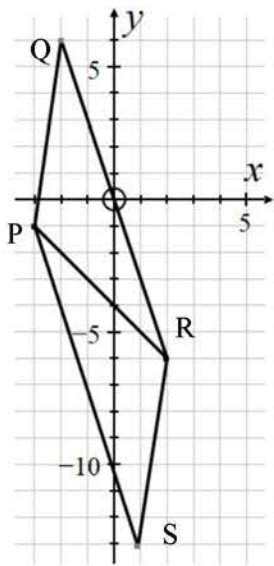
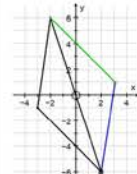


Question		Answer	Marks	AOs	Guidance	
3	(a)	$ \overline{PQ} = \sqrt{1^2 + 7^2} = \sqrt{50}$ $\overline{PR} = (\mathbf{i} + 7\mathbf{j}) + (4\mathbf{i} - 12\mathbf{j}) = 5\mathbf{i} - 5\mathbf{j}$ $ \overline{PR} = \sqrt{5^2 + 5^2} = \sqrt{50}$ So the triangle is isosceles	B1 M1 A1 [3]	1.1a 1.1a 2.2a	Allow for PQ^2 Attempt to add vectors Must deduce the triangle is isosceles from correct working	Allow finding $\overline{RP} = -5\mathbf{i} + 5\mathbf{j}$
3	(b)	PQRS parallelogram so $\overline{PS} = \overline{QR} = 4\mathbf{i} - 12\mathbf{j}$ Position vector $\overline{OS} = \overline{OP} + \overline{PS} = (-3\mathbf{i} - \mathbf{j}) + (4\mathbf{i} - 12\mathbf{j}) = \mathbf{i} - 13\mathbf{j}$ 	M1 A1 [2]	3.1a 1.1	Using the properties of the parallelogram cao	SPECIAL CASES Allow SC1 for correct answer for either PQSR or PSQR If PQSR used, then $\overline{OS} = 3\mathbf{i} + \mathbf{j}$  If PSQR used, then $\overline{OS} = -7\mathbf{i} + 11\mathbf{j}$ 