

LESSON NO. 6: RIGHT-ANGLED TRIANGLES INSIDE CIRCLES

2006

- 3 (b) The vertices of a right-angled triangle are p(1, 1), q(5, 1) and r(1, 4). The circle *K* passes through the points *p*, *q* and *r*.
 - (i) On a coordinate diagram, draw the triangle *pqr*. Mark the point *c*, the centre of *K*, and draw *K*.
 - (ii) Find the equation of *K*.
 - (iii) Find the equation of the image of K under the translation $(5, 1) \rightarrow (1, 4)$.



Сонт....





3. Show *c* is on the circle. Any angle standing on the diameter is a right angle. This is my favourite and by far the quickest.

$$c(3, 2) \in x^2 + y^2 = 13?$$

$$(3)^2 + (2)^2 = 9 + 4$$

$$=13 \Rightarrow x^2 + y^2 = 13$$

 $\therefore \angle acb$ is a right-angle.

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- 3 (c) a(-5, 1), b(3, 7) and c(9, -1) are three points.
 - (i) Show that the triangle *abc* is right-angled.
 - (ii) Hence, find the centre of the circle that passes through *a*, *b* and *c* and write down the equation of the circle.

SOLUTION

3 (c) (i)

Find the slope of all 3 sides and show that two of the sides are perpendicular.





