C1 review 2 (circles)

1. Write down the equation of the circle with centre (3, – 2) and radius of $\sqrt{5}$ units.

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2. Find the distance between the points where the line $y = x$ crosses the circle $x^2 + y^2 + 6x - 4y - 12 = 0$

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3. Two circles have equations $x^2 + y^2 - 5x - 2y - 3 = 0$ and $x^2 + y^2 + 6x - 2y = 0$. Find the distance between the two centres and hence show the two circles overlap.

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4. The line $y = 3x - 4$ is a tangent to the circle whose centre is the point (5, 2). Find the radius of the circle.

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5(a) Two tangents from a point to a circle of radius 12 units are each 20cm in length. Find the angle between the tangents.

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(b) The centre of a circle is at the point (4, 8) and its radius is 3cm. Find the length of the tangents from the origin to the circle.

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6. A triangle has vertices at points A (1, 3), B(5, 1) and C(7, 5). Prove that this triangle is right angled and hence find the coordinates of the centre of the circumcircle of ΔABC.

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Answers

1. $(x - 3)^2 + (y + 2)^2 = 5$
2. $5\sqrt{2}$
3. 5.5 cm
4. 2.85 units
5. a) 61.9° b) 8.43 units
6. (4, 4)