OCR Core 1

Coordinate Geometry

Section 2: Circles

Multiple Choice Test

Do not use a calculator in this test.

1) A circle has the equation $x^2 + y^2 = 16$.
The radius of this circle is

(a) 256
(b) 8
(c) 16
(d) 4
(e) I don't know

2) A circle has the equation $(x + 3)^2 + (y - 1)^2 = 4$.
Which of the following statements is false?

(a) The y coordinate of the centre is -1
(b) The radius of the circle is 2
(c) The x coordinate of the centre is -3
(d) The point $(-3,-1)$ lies on the circle
(e) I don't know

3) The equation of a circle with centre (2, 1) and radius 6 is

(a) $(x + 2)^2 + (y + 1)^2 = 36$
(b) $(x + 2)^2 + (y + 1)^2 = 6$
(c) $(x - 2)^2 + (y - 1)^2 = 6$
(d) $(x - 2)^2 + (y - 1)^2 = 36$
(e) I don't know

4) The equation of a circle with radius 5 and centre (3, -2) can be written as

(a) $x^2 + y^2 - 6x + 4y = 12$
(b) $x^2 + y^2 + 3x - 2y = 25$
(c) $x^2 + y^2 - 3x + 2y = 25$
(d) $x^2 + y^2 + 6x - 4y = 12$
(e) I don't know

Questions 5 and 6 are about the circle $x^2 + y^2 - 2x + 6y = 10$.

5) The centre of the circle is

(a) (-2, 6)
(b) (-1, 3)
(c) (2, -6)
(d) (1, -3)
(e) I don't know

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6) The radius of the circle is

(a) 20
(b) $\sqrt{10}$
(c) $\sqrt{20}$
(d) 10
(e) I don't know

7) O is the centre of a circle. P is a point on the circumference. The gradient of OP is 2.
The gradient of the tangent at P is

(a) 2
(b) 0.5
(c) –2
(d) –0.5
(e) I don't know

8) The equation of a line is $y = x$. The equation of a circle is $x^2 + y^2 = 8$.
Which one of the following statements is true?

(a) The line is a tangent to the circle
(b) The line does not meet the circle
(c) The line cuts the circle at one point
(d) The line cuts the circle at two points
(e) I don't know

9) AB is the diameter of a circle centre O. P is a point on the circumference.
Which one of the following statements is true?

(a) $AP^2 + PB^2 = AB^2$
(b) Triangle APB is acute angled
(c) When P is equidistant from A and B then OP is parallel to AB
(d) Angle APB varies as the position of P varies
(e) I don't know

10) The line $y = 2x + 3$ is a tangent to a circle with centre (2, -3).
The radius of the circle is

(a) $\sqrt{40}$
(b) $\sqrt{20}$
(c) 20
(d) 40
(e) I don't know