Multiple choice questions - Straight lines and circles

Year: Year 12 · 10

Question 1 The gradient of the line through $(1, 2)$ and $(3, 8)$ is

- ◯ **A.** 2
- ◯ **B.** 3
- ◯ **C.** $\frac{1}{3}$
- ◯ **D.** 6

Question 2 A line perpendicular to $y = 4x + 1$ has gradient

- ◯ **A.** 4
- ◯ **B.** -4
- ◯ **C.** $\frac{1}{4}$
- ◯ **D.** $-\frac{1}{4}$

Question 3 The midpoint of $(2, 6)$ and $(8, -2)$ is

- ◯ **A.** $(5, 2)$
- ◯ **B.** $(6, 4)$
- ◯ **C.** $(10, 4)$
- ◯ **D.** $(3, 4)$

Question 4 The centre of $(x + 2)^2 + (y - 5)^2 = 9$ is

- ◯ **A.** $(2, 5)$
- ◯ **B.** $(-2, 5)$
- ◯ **C.** $(2, -5)$
- ◯ **D.** $(-2, -5)$

Question 5 The radius of $(x - 1)^2 + y^2 = 49$ is

- ◯ **A.** 49
- ◯ **B.** 7
- ◯ **C.** $\sqrt{7}$
- ◯ **D.** 24.5

Question 6 A tangent to a circle is perpendicular to the

- ◯ **A.** chord
- ◯ **B.** radius at the point of contact

- ◯ **C.** diameter always
- ◯ **D.** another tangent

Question 7 The distance from $(0, 0)$ to $(5, 12)$ is

- ◯ **A.** 13
- ◯ **B.** 17
- ◯ **C.** 7
- ◯ **D.** $\sqrt{17}$

Question 8 The point $(2, 3)$ and the circle $x^2 + y^2 = 13$: the point is

- ◯ **A.** inside
- ◯ **B.** on the circle
- ◯ **C.** outside
- ◯ **D.** the centre

Question 9 After substituting a line into a circle the discriminant is 0. The line is

- ◯ **A.** a tangent
- ◯ **B.** a chord
- ◯ **C.** outside the circle
- ◯ **D.** a diameter

Question 10 The angle in a semicircle is

- ◯ **A.** 45°
- ◯ **B.** 60°
- ◯ **C.** 90°
- ◯ **D.** 180°

Answer grid - Straight lines and circles

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Question	Answer	Explanation
1	**B**	$6/2 = 3$.
2	**D**	Negative reciprocal.
3	**A**	Average each coordinate.
4	**B**	Opposite signs.
5	**B**	$\sqrt{49}$.
6	**B**	Circle theorem.
7	**A**	$\sqrt{25 + 144}$.
8	**B**	$4 + 9 = 13$.
9	**A**	Repeated root.
10	**C**	Right angle.