Multiple choice questions - Indices, surds and quadratic functions

Year: Year 12 · 10

Question 1 $9^{3/2} =$

- ◯ **A.** 27
- ◯ **B.** 81
- ◯ **C.** $\frac{27}{2}$
- ◯ **D.** 12

Question 2 x^{-2} equals

- ◯ **A.** $-x^2$
- ◯ **B.** $\frac{1}{x^2}$
- ◯ **C.** $\frac{-1}{x}$
- ◯ **D.** $2x$

Question 3 $\sqrt{50} =$

- ◯ **A.** $25\sqrt{2}$
- ◯ **B.** $5\sqrt{2}$
- ◯ **C.** $2\sqrt{5}$
- ◯ **D.** $10\sqrt{5}$

Question 4 $\frac{1}{\sqrt{2}}$ rationalised is

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

Question 5 $(3+\sqrt{2})(3-\sqrt{2}) =$

- ◯ **A.** 7
- ◯ **B.** 11

- ◯ **C.** $9-\sqrt{2}$
- ◯ **D.** $7+6\sqrt{2}$

Question 6 $x^2-10x+3=$

- ◯ **A.** $(x-5)^2-22$
- ◯ **B.** $(x-5)^2+3$
- ◯ **C.** $(x+5)^2-22$
- ◯ **D.** $(x-10)^2-97$

Question 7 The vertex of $y=(x-2)^2+7$ is

- ◯ **A.** $(2,7)$
- ◯ **B.** $(-2,7)$
- ◯ **C.** $(2,-7)$
- ◯ **D.** $(7,2)$

Question 8 A quadratic with discriminant -4 has

- ◯ **A.** two roots
- ◯ **B.** one repeated root
- ◯ **C.** no real roots
- ◯ **D.** three roots

Question 9 The discriminant of $3x^2-2x+1$ is

- ◯ **A.** -8
- ◯ **B.** 8
- ◯ **C.** -2
- ◯ **D.** 16

Question 10 $2^x=\frac{1}{8}$ gives $x=$

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

Answer grid - Indices, surds and quadratic functions

Year: Year 12

Question	Answer	Explanation
1	**A**	$\sqrt{9} = 3$, $3^3 = 27$.
2	**B**	A negative power is a reciprocal.
3	**B**	$\sqrt{25 \times 2} = 5\sqrt{2}$.
4	**B**	Multiply top and bottom by $\sqrt{2}$.
5	**A**	$9 - 2 = 7$.
6	**A**	$(x-5)^2 - 25 + 3$.
7	**A**	Vertex is $(2, 7)$.
8	**C**	Negative discriminant: no real roots.
9	**A**	$4 - 12 = -8$.
10	**B**	$\frac{1}{8} = 2^{-3}$.