

# Surds

## Question Paper

|             |                |
|-------------|----------------|
| Level       | GCSE           |
| Subject     | Maths          |
| Exam Board  | Edexcel GCSE   |
| Topic       | Surds          |
| Grade Level | Grade 7        |
| Booklet     | Question Paper |

**Time Allowed:** 35 minutes

**Score:** /29

**Percentage:** /100

**Grade Boundaries:**

1. Express  $\frac{6}{\sqrt{2}}$  in the form  $a\sqrt{b}$ , where  $a$  and  $b$  are positive integers.

.....  
**(Total 2 marks)**

2. Rationalise

$$\frac{1}{\sqrt{7}}$$

.....  
**(Total 2 marks)**

3. Expand and simplify

$$(\sqrt{3} + \sqrt{15})^2$$

Give your answer in the form  $n + m\sqrt{5}$ , where  $n$  and  $m$  are integers.

.....

**(Total 4 marks)**

4. Expand and simplify  $(\sqrt{3} - \sqrt{2})(\sqrt{3} + \sqrt{2})$

.....

**(Total 2 marks)**

5. Rationalise the denominator of  $\frac{1}{\sqrt{3}}$

.....

**(Total 2 marks)**

6. Expand  $(2 + \sqrt{3})(1 + \sqrt{3})$

Give your answer in the form  $a + b\sqrt{3}$  where  $a$  and  $b$  are integers.

.....

**(Total 3 marks)**

7. Write  $\frac{\sqrt{18} + 10}{\sqrt{2}}$  in the form  $p + q\sqrt{2}$ , where  $p$  and  $q$  are integers.

$p = \dots\dots\dots$

$q = \dots\dots\dots$

**(Total 4 marks)**

8. Expand and simplify

$$(2 + \sqrt{3})(7 - \sqrt{3})$$

Give your answer in the form  $a + b\sqrt{3}$ , where  $a$  and  $b$  are integers.

.....

**(Total 3 marks)**

9. Work out

$$\frac{(5 + \sqrt{3})(5 - \sqrt{3})}{\sqrt{22}}$$

Give your answer in its simplest form.

.....  
**(Total 3 marks)**

10. (a) Rationalise the denominator of  $\frac{5}{\sqrt{2}}$

.....  
**(2)**

(b) Expand and simplify  $(2 + \sqrt{3})^2 - (2 - \sqrt{3})^2$

.....  
**(2)**

**(Total 4 marks)**