

Surds Test 1A

Name Answers

7 8 9 10 **11** 12



Navigator



Assessment



Student



25 min

Question: 1

Which one **or more** of the following numbers are irrational?

a) π

b) $\frac{1}{3}$

c) $\frac{1}{7}$

d) $\sqrt{12}$

e) $\sqrt{289}$

Question: 2

Determine the value of a given: $3\sqrt{7} + a\sqrt{7} = 12\sqrt{7}$ then:

$a = 9$ **Note:** The 'solve' feature on the TI-Nsire CAS may have been used by students.

Question: 3

Determine the value of b given: $3\sqrt{12} + b\sqrt{48} = 26\sqrt{3}$ then:

$b = 5$ **Note:** The 'solve' feature on the TI-Nsire CAS may have been used by students.

Question: 4

If $\sqrt{44} \times \sqrt{7} \times \sqrt{a}$ is rational and a is a natural number such that $1 < a < 100$ then the value of a must be:

$a = 77$

Question: 5

Given $a > 0$ and $b > 0$ then $5\sqrt{32a^4b^9}$ in simplest form is equal to:

a) $9a^2b^4\sqrt{2b}$

b) $20a^2b^4\sqrt{2b}$

c) $9a^2b^3\sqrt{2}$

d) $20a^2b^3\sqrt{2}$

e) $80a^2b^3\sqrt{2}$

Question: 6

If $2\sqrt{18} + a\sqrt{10a} = 31\sqrt{2}$ then a is equal to:

a) 5

b) 8

c) 18

d) 29

e) None of these

Question: 7

Given $(\sqrt{2} + \sqrt{5})(\sqrt{a} - \sqrt{b})$ is rational then which one of the following is possible?

a) $a = 5$ and $b = 2$

b) $a = 25$ and $b = 4$

c) $a = 4$ and $b = 25$

d) $a = \sqrt{2}$ and $b = \sqrt{5}$

e) $a = \sqrt{5}$ and $b = \sqrt{2}$

Question: 8

If $x = 4 - \sqrt{3}$ which one of the following will produce a rational result?

a) x^2

b) $x^2 - 4$

c) $x^2 - 4x + 3$

d) $x^2 - 8x + 14$

e) None of these

Question: 9

$\frac{2\sqrt{7}-7}{2\sqrt{7}+7} - \frac{2\sqrt{7}+7}{2\sqrt{7}-7}$ simplifies to:

a) $\frac{8\sqrt{7}}{3}$

b) $-\frac{8\sqrt{7}}{3}$

c) 1

d) -2

e) 0

Question: 10

Given $3\sqrt{a}(\sqrt{b} + 4\sqrt{3c})$ is rational, the values of a , b and c respectively could be:

a) $a = 2$, $b = 3$ and $c = 3$

b) $a = 3$, $b = 2$ and $c = 3$

c) $a = 3$, $b = 3$ and $c = 2$

d) $a = 2$, $b = 12$ and $c = 4$

e) $a = 2$, $b = 2$ and $c = 2$