



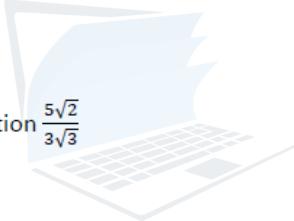
**NALANDA COLLEGE - COLOMBO 10**  
**Grade 11**  
**Mathematics**  
**Unit Test**

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**1) Real Numbers**

**Part I**

1. Simplify.  $4\sqrt{3} + 2\sqrt{3}$
2. Simplify.  $5\sqrt{3} + 2\sqrt{2} + 3\sqrt{3} - \sqrt{2}$
3. Simplify.  $\sqrt{3} + 2\sqrt{2} + 5\sqrt{3} - \sqrt{2}$
4. Express  $\sqrt{405}$  as a surd.
5. Convert the surd  $5\sqrt{2}$  to an entire surd.
6. Simplify.  $6\sqrt{11} + 2\sqrt{99} - 3\sqrt{44}$
7. Multiply.  $5\sqrt{3} \times 2\sqrt{2}$
8. If  $\sqrt{2} = 1.44$  find the value of  $\frac{3}{\sqrt{2}}$
9. Simplify.  $2\sqrt{14} \div 4\sqrt{7}$
10. Rationalize the denominator of the fraction  $\frac{5\sqrt{2}}{3\sqrt{3}}$



**Part II**

- 1) i. If  $\sqrt{3} = 1.732$  and  $\sqrt{5} = 2.236$  find the value of the following fractions.

a)  $\frac{4}{\sqrt{3}}$       b)  $\frac{2}{\sqrt{5}}$

ii. Simplify.

a)  $2\sqrt{12} + \sqrt{32} - 4\sqrt{3}$   
b)  $3\sqrt{28} - 4\sqrt{7} + 3\sqrt{3} + 2\sqrt{27}$

iii. Write the following entire surds as surds.

a)  $\sqrt{75}$       b)  $\sqrt{147}$

- 2) a) Simplify.

i.  $\frac{4}{\sqrt{3}} + 2\sqrt{3} - 5\sqrt{3}$   
ii.  $\frac{5}{\sqrt{3}} + 2\sqrt{27} - \frac{4\sqrt{3}}{3}$   
iii.  $\sqrt{176} - 3\sqrt{44} + 5\sqrt{11}$

b) Simplify.

i.  $5\sqrt{3} \times \sqrt{2} \times 2\sqrt{2}$   
ii.  $6\sqrt{27} \div 3\sqrt{3}$

- 3) a) Choose rational numbers from the real numbers given below.

$\frac{1}{2}, -9, 1.51 \dots, \sqrt{35}, \sqrt{16}, \bar{n}$



b) Write the following entire surds as surds.

i.  $\sqrt{80}$

ii.  $\sqrt{175}$

c) Simplify.

i.  $\sqrt{32} + \sqrt{75} - \sqrt{2} + \sqrt{32}$

ii.  $2\sqrt{45} + \sqrt{3} - 2\sqrt{20} - \sqrt{12}$

d) Rationalize the denominator, of the given fractions with irrational denominators.

i.  $\frac{3\sqrt{5}}{2\sqrt{7}}$

ii.  $\frac{4\sqrt{2}}{3\sqrt{3}}$



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