

SUVA SANGAM COLLEGE

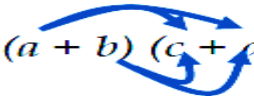
YEAR 12

MATHEMATICS

WORKSHEET 6

Strand 1	Social Mathematics
Sub-Strand	12.1.3 Indices and Surds
Content Learning Outcome	<ul style="list-style-type: none">• Identify Surds and its conjugates• Simplify surds• Express the denominator of a fractional surd without any root signs
Reference from Text	Pg. 33 to 38

Questions

No.	CONCEPT IN BRIEF: To simplify surds, <ul style="list-style-type: none">➤ first find highest factor of the number where one is a square number.➤ Let's begin with the smallest number and get the square of it.➤ The idea here is that we use the square number on the right side. a) $\sqrt{ab} = \sqrt{a} \times \sqrt{b}$ b) $a\sqrt{x} \pm b\sqrt{x} = (a \pm b)\sqrt{x}$
1.	Simplify each of the following a) $\sqrt{32}$ b) $\sqrt{\frac{98}{y^2}}$ c) $\sqrt{27} - \sqrt{3} + \sqrt{48}$
	CONCEPT IN BRIEF: Distributive law: to expand the brackets, use arrows to multiply the tail value with the head arrow value. FOIL: Expand two binomials [two terms] using the guideline: F irst O uter I nner L ast.  $(a + b)(c + d) = ac + ad + bc + bd$
2.	Expand and simplify the following. a) $\sqrt{5}(2 + \sqrt{3})$ b) $(\sqrt{5} - 1)^2$
	CONCEPT IN BRIEF: <ul style="list-style-type: none">➤ Identify the conjugate of the denominator➤ Multiply the conjugate of the denominator to both the numerator and denominator➤ Simplify (expand) the two brackets in numerator➤ you may use 'difference of two squares' for the denominator.
3.	Simplify by rationalizing the denominator. a) $\frac{7}{2-\sqrt{5}}$ b) $\frac{7+\sqrt{5}}{\sqrt{5}-1}$