Trinity Bay SHS

PO Box 5071Hoare Street

www.trinitybayshs.eq.edu.auPhone: 40 375 222

Year 7 Maths

Term 1, 2024

Assessment Details	
Type	2 Summative Exams
Conditions	60 Minutes in class, Tech Active.
Date	Week 5, Week 10

Achievement Standard

- apply knowledge of angle relationships and the sum of angles in a triangle to solve problems, giving reasons.
- use formulas for the areas of triangles and parallelograms and the volumes of rectangular and triangular prisms to solve problems.
- describe the relationships between the radius, diameter and circumference of a circle.
- classify polygons according to their features and create an algorithm designed to sort and classify shapes.
- represent objects two-dimensionally in different ways, describing the usefulness of these representations

Week	Curriculum Intent	Learning Advice
1	**Topic 1: Triangles, Quadrilaterals and Angle Relations**	
	☐ Recall that acute angles are smaller than 90°, obtuse angles are between 90° and 180°, a right angle is 90°, a straight angle/line is 180° and there are 360° in a revolution. ☐ Classify triangles as equilateral, isosceles or scalene, and as obtuse, acute or right angled.	Geometry Booklet Ex 1-3
2	☐ Understand that the internal angles in a triangle add up to 180° and thus find missing angles in triangles. ☐ Classify quadrilaterals as squares, rectangles, rhombuses, parallelograms, kites, trapeziums or irregular quadrilaterals ☐ Understand that the internal angles in a quadrilateral add up to 360° and thus find missing angles in quadrilaterals.	Ex 4-8
3	☐ Identify corresponding, alternate and co-interior angles that are formed when two parallel lines are crossed by a transversal ☐ Use angle relations to solve problems	Ex 9-11
4	☐ Solve more complex problems involving angle relationships, triangles and quadrilaterals	Ex 12-13 **Diagnostic Test**
5	**Summative Exam #1 – Geometry** (first or second lesson of the week) (20% of Semester grade)	
	Topic 2: Measurement	
	☐ Find the perimeter of shapes ☐ Use the formula $A = L \times W$ to find the area of a rectangles	Measurement Booklet Ex 1-2
6	☐ Use the formula $A = \frac{b}{2} \times h$ to find the area of a triangle ☐ Use the formula $A = b \times h$ to find the area of a parallelogram ☐ Solve mixed area problems	Ex 3-5
7	☐ Use the formula $V = L \times W \times H$ to find the volume of a rectangular prism ☐ Use the formula $V = (\frac{b \times h1 \times h2}{2})$ to find the volume of a triangular prism ☐ Use the formula $V = Area\ of\ base \times Height\ of\ prism$ to find the volume of prisms generally	Ex 6-9
8	☐ Solve problems involving the area and volume of shapes and objects ☐ Identify the radius and diameter of a circle ☐ Understand that the radius of a circle is half the length of its diameter, and the diameter of a circle is two times the length of its radius ☐ Understand that the number π, which is approximately 3.14, is used to find a circle's circumference given its diameter or radius, such that $Circumference = \pi D$ and $Circumference = 2\pi r$	Ex 10-12 **Diagnostic Test**
9	**Topic 3: Representing 3 dimensional objects 2 dimensionally**	

	☐ Creating nets of cubes, rectangular prisms and triangular prisms ☐ Drawing the top view, front view and side views of objects ☐ Drawing isometric projections of rectangular prisms ☐ Describing the usefulness of each of these representations	Ex 13
	Revision of Topic 2 and Topic 3	
10	☐ Summative Exam on Topics 2 and 3 (20% of Semester Grade)	

Trinity Bay SHS
Hoare Street
Phone: 40 375 222PO Box 5071
www.trinitybayshs.eq.edu.au

Year 8 General Mathematics

Term 1, 2024

Assessment Details	
Type	Two Summative Exams
Conditions	60 Minutes in class, Tech Active.
Date	Week 6, Week 10

Achievement Standard

- Solve problems involving the four operations with integers
- Apply the exponent laws to calculations with numbers involving positive integer exponents
- Apply algebraic properties to rearrange, expand and factorise linear expressions
- Students solve linear equations with rational solutions and one-variable inequalities, graphically and algebraically.

Week	**Curriculum Intent**	**Learning Advice**
1	**Topic 1 – Integer Operations**	
	☐ Add and Subtract Integers (review from year 7) $eg. -3 - -2\,; -6 + -4$ ☐ Multiplication with negative numbers ☐ Division with negative numbers	**Yr 8 Booklet #1** Exercises 1-3
2	**Topic 2 – Index Laws**	
	☐ Recall the vocabulary of index notation: 'base' and 'index' / 'exponent' / 'power' ☐ Recall that $5^3 = 5 \times 5 \times 5$ and convert expressions between index notation and expanded notation ☐ Use a calculator to find the value of expressions in index notation ☐ Apply the rules of integer multiplication to deduce that a negative number raised to an odd power will be negative, but when raised to an even power will be positive. ☐ Apply the first index law to numeric expressions: $a^m \times a^n = a^{m+n}$. "The bases are the same, we are multiplying the terms, so we add the indices." $5^6 \times 5^4 = 5_{10}$	Exercises 4-6
3	☐ Apply the second index law to numeric expressions: $a^m \div a^n = a^{m-n}$. "The bases are the same, we are dividing the terms, so we subtract the indices." $5^6 \div 5^4 = 5^2$ ☐ Apply the third index law to numeric expressions: $(a^m)^n = a^{m \times n}$. "Raising a power to a power, we multiply the indices" $(5^6)^2 = 5^{12}$ ☐ Apply the fourth index law to numeric expressions: $a^0 = 1$. "Anything to the power of zero is one" $5^0 = 1$ ☐ Simplify expressions combining index laws ☐ Extend the index laws to algebraic expressions*** [Extension]	Exercises 7-9 ***Exercise 10 Diagnostic Test
4	**Topic 3 – Algebra**	

	Simplify algebraic expressions involving the four operations ☐ Collect like terms to simplify expressions involving addition and subtraction. *eg.* $3a + 4b - a + c + 5b + 3$ ☐ Recall that x, x^2 *and* x^3 are not like terms and cannot be collected ☐ Simplify expressions involving multiplication and division of algebraic terms	Exercises 11-13
5	**Expand and factorise linear expressions** ☐ Expand brackets *eg.* $5(2x + 3) = 10x + 15, 5(2x - 3) = 10x - 15$ ☐ Expand brackets involving negatives *eg.* $-5(2x + 3), -5(2x - 3), -5(-2x + 3)$ *etc.* ☐ Factorise linear expressions *eg.* $10x + 15 = 5(2x + 3)$	Exercises 14-17
6	**Revise Topics 1-3** ☐ Summative Exam	Exercises 18-19 **Summative Exam**
7	**Topic 4 – Linear Equations and Inequalities** **Solve linear equations** ☐ Solve one step linear equations, using inverse operations : ☐ Solve two step linear equations using inverse operations.	**Yr 8 Booklet #2** Exercises 1-3
8	☐ Solve linear equations involving brackets. **For example:** Solve linear equatios with non-integer solutions. **For example:**	Exercises 4-5 Diagnostic Test
9	**Solve and graph linear inequations** ☐ Understand the inequality symbols $<$ Smaller than $\leq$ Smaller than or equal to $>$ Greater than $\geq$ Greater than or equal to ☐ Use inverse operations to solve linear equalities algebraically. [Note: only use positive coefficients of x]. Graph the solution on a simple number line. ☐ Solve more complex equations*** **Revise Topic 4**	Exercises 6-7***
10	☐ Summative Exam	**Summative Exam**

Year 8 Advanced Mathematics
Term 1, 2024

Trinity Bay SHS
Hoare Street
PO Box 5071
Phone: 40 375 222
www.trinitybayshs.eq.edu.au

Assessment Details	
Type	Summative Exam in two parts
Conditions	50 minutes for each paper. Paper 1- Tech Free, Paper 2 -Tech active.
Date	Week 10

Achievement Standard

- Solve problems involving the four operations with integers
- Apply the exponent laws to calculations with numbers involving positive integer exponents
- Apply algebraic properties to rearrange, expand and factorise linear expressions
- Students solve linear equations with rational solutions and one-variable inequalities, graphically and algebraically.

Week	**Curriculum Intent**	**Learning Advice**
1	**Topic 1 – Integer Operations**	
	☐ Review adding and subtracting integers *eg.* $-3--2\,;\,-6+\,-4$ ☐ Understand $a-b=-b+a$ and $-a-b=-1(a+b)$ ☐ Multiply integers *eg.* $-3\times 2\,,-3\times\,-2,\;2\times -3$ ☐ Divide integers *eg.* $\frac{-8}{2},\frac{8}{-2},\frac{-2}{-8},-8\div 2.$ ☐ Apply the rules of integer multiplication to deduce that a negative number raised to an odd power will be negative, but positive when raised to an even power	1E 1F 1G 1H
2	**Topic 2 – Algebra**	
	☐ Collect like terms to simplify expressions involving addition and subtraction. *eg.* $3a+4b-a+c+5b+3$ ☐ Recall that $x, x^2\ and\ x^3$ are not like terms and cannot be collected ☐ Simplify expressions involving multiplication/division of terms and distinguish this process from addition *eg.* $3a\times 5,\;3a\times 5a,\;3\times -5a,\;3a\times 5b,\;-3a\times 2ab\,,\;\frac{9a}{3a},\;\frac{9a}{3},\;\frac{9ab}{-3b}$	5C 5D
3	☐ Expand brackets *eg.* $5(2x+3)=10x+15,\;5(2x-3)=10x-15$ ☐ Expand brackets involving negatives *eg.* $-5(2x+3),-5(2x-3),\;-5(-2x+3)$ ☐ Expand brackets and simplify expressions *eg.* $5(3x-2)+7x-2(4x-3)+8$ ☐ Expanding simple binomial expressions using FOIL ☐ Factorise linear expressions *eg.* $10x+15=5(2x+3)$	5G 5H
4	**Topic 3 – Index Laws**	
	☐ Recall the vocabulary of index notation: 'base' and 'index' / 'exponent' / 'power' ☐ Recall the first 15 square numbers, the powers of 2 up to 2^8 and the powers of 3, 4 and 5 up to $3^4, 4^4$ and 5^4. ☐ Apply the first index law to numeric expressions: $a^m\times a^n=a^{m+n}$. "The bases are the same, we are multiplying the terms, so we add the indices." ☐ Extend the first index law to algebraic expressions and use it to expand and simplify non-linear expressions ☐ Select the correct method to use to simplify a range of algebraic expressions, involving addition, subtraction, multiplication and indices.	5J

5	☐ Apply the second index law to numeric and algebraic expressions: $a^m \div a^n = a^{m-n}$. "The bases are the same, we are dividing the terms, so we subtract the indices." $5^6 \div 5^4 = 5^2$ ☐ Apply the third index law to numeric and algebraic expressions: $(a^m)^n = a^{m \times n}$. "Raising a power to a power, we multiply the indices" $(5^6)^2 = 5^{12}$ ☐ Apply the fourth index law to numeric and algebraic expressions: $a^0 = 1$. "Anything to the power of zero is one" $5^0 = 1$ ☐ Simplify expressions combining index laws	5J 5K 5K
6	☐ Use the third index law to change the base of numeric expressions. **For example** $125^4 = (5^3)^4 = 5^{12},\ 8^2 = (2^3)^2 = 2^6$ ☐ Use the third index law to solve problems involving powers of 2,3 or 5. **For example:** Express $\left(\frac{64^3}{128^2} \times 256^7\right)^{10}$ as a power of 2. ☐ Solve indicial equations. **For example:** $25^x \times 125^3 = 625^5$	Worksheet
7	**Topic 4 – Linear Equations and Inequalities**	
	Solve linear equations ☐ Solve two step linear equations using inverse operations. ☐ Solve linear equations involving brackets or sets of brackets. ☐ Solve linear equations with pronumerals on both sides. **For example** $5x - 2 = 3(10x + 11)$ ☐ Solve complex linear equations. **For example:**	7B, 7C 7E7D
8	☐ Solve a range of complex, multi-step equations with rational solutions, clearly showing mathematical reasoning through visible, logical setting out. **Solve and graph linear inequations** ☐ Understand the inequality symbols $<$ Smaller than $\quad \leq$ Smaller than or equal to $\quad >$ Greater than $\quad \geq$ Greater than or equal to ☐ Use inverse operations to solve linear equalities algebraically. [Note: only use positive coefficients of x]. Graph the solution on a simple number line.	 7I 7J
9	**Revise Topics 1-4**	
10	☐ Summative Exam	**Summative Exam**

Year 9 Mathematics
Term 1, 2024

Trinity Bay SHS
Hoare Street
PO Box 5071
Phone: 40 375 222
www.trinitybayshs.eq.edu.au

Assessment Details	
Type	**Summative Exam**
Conditions	60 minutes in class
Date	Week 10

Achievement Standard

- Students calculate areas of shapes and the volume and surface area of right prisms and cylinders
- Students apply the index laws to numbers and express numbers in scientific notation.
- They expand binomial expressions.

Week	Curriculum Intent	Learning Advice
1	**Topic 1: Area, volume and surface area**	
	☐ Preliminary skill: Rounding decimals to 2 decimal places	Exercises 1-3
	☐ Identify the following shapes: rectangle, triangle, parallelogram, trapezium, circle	5D
	☐ Recall that area is the number of squares of space inside a 2D shape	5E
	☐ Use formulas to find the areas of the above shapes	
2	☐ Finding the area of composite shapes**	Exercises 4-6
	☐ Identify the following 3D objects: cylinder, rectangular prism, triangular prism	5H
	☐ Recall that volume is the number of cubes of space inside an object	5I
	☐ Find the volume of cylinders, rectangular prisms and triangular prisms	
3	☐ Establish that surface area is the total area of all faces of a 3D shape	Exercises 7-9
	☐ Find the surface area of rectangular prisms and cylinders	5F
	☐ Extra practice finding the area, volume and/or surface area of 2D shapes and 3D objects	5G
4	☐ Diagnostic Test	
	Topic 2: Applying index laws to numbers	
	☐ Recall the vocabulary of index notation: 'base' and 'index' / 'exponent' / 'power'	Exercises 10-11
	☐ Recall that $5^3 = 5 \times 5 \times 5$ and convert expressions between index notation and expanded notation	6A 6B
	☐ Use a calculator to find the value of expressions in index notation	
	☐ Apply the first index law to numeric expressions: $a^m \times a^n = a^{m+n}$. "The bases are the same, we are multiplying the terms, so we add the indices." $5^6 \times 5^4 = 5^{10}$	
5	☐ Apply the second index law to numeric expressions: $a^m \div a^n = a^{m-n}$. "The bases are the same, we are dividing the terms, so we subtract the indices." $5^6 \div 5^4 = 5^2$	Exercises 12-14 6C
	☐ Apply the third index law to numeric expressions: $(a^m)^n = a^{m \times n}$. "Raising a power to a power, we multiply the indices" $(5^6)^2 = 5^{12}$	6D 6E
	☐ Apply the fourth index law to numeric expressions: $a^{-m} = \frac{1}{a^m}$. "Negative powers say 'flip'" $5^{-6} = \frac{1}{5^6}$	
6	☐ Convert values to and from scientific notation using a calculator	Exercises 15-16
	☐ Diagnostic Test	6F
	☐ Revise measurement	
7	**Topic 3: Expanding binomial expressions**	
	☐ Recall collecting like terms: $5a^2 + 3a + 7a + 3 = 5a^2 + 10a + 3$	Exercises 17-21
	☐ Recall multiplying algebraic terms: $5a \times a = 5a^2$, $5a \times 3 = 15a$, $5a \times 3a = 15a^2$	2A
	☐ Use FOIL (first, outside, inside, last) to expand binomial expressions: $(3x + 2)(5x + 4)$ $= 15x^2 + 12x + 10x + 8$ $= 15x^2 + 22x + 8$	2B 2C
8-9	☐ Expanding binomial expressions with negative numbers**	Exercises 22-24
	☐ Revision of all term 1 topics	
10	☐ Summative exam and celebration of achievement	

Year 9 Advanced Mathematics
Term 1, 2024

Trinity Bay SHS
Hoare Street
PO Box 5071
Phone: 40 375 222
www.trinitybayshs.eq.edu.au

Assessment Details	
Type	**Diagnostic Quiz**
Conditions	In class, Tech Active … Calculator required … Casio fx-82AU recommended
Date	Week 6
Type	**Summative Exam**
Conditions	70 Minutes in class, Tech Active … Calculator required … Casio fx-82AU recommended
Date	Week 10

Achievement Standard

9AS7 - Apply the index laws to numbers and express numbers in scientific notation.

9AS11 - Calculate areas of shapes and the volume and surface area of right prisms and cylinders.

9AS8 - Expand binomial expressions.

Week	**Curriculum Intent**	**Learning Advice**
	Topic 1: Measurement & Geometry – Using Units of Measurement	Tech Active Topic
1-2 9AS11	☐ Recall units of measurement ☐ Convert units of measurement for length, area, volume and capacity ☐ Understand the connection between the first index law and square units used for area calculations and cubic units used for volume calculations ☐ Calculate area of simple shapes ☐ Calculate area of circles and semi-circles ☐ Understand that partitioning composite shapes into simple shapes is a strategy for solving problems involving area ☐ Calculate area of composite shapes ☐ Calculate the area of sectors	Chapter 9 p 471 **(JAC)** **Ex 9.2** p 481 Q 1,2 **Ex 9.3** p 483 Q 1-3 **Ex 9.7** p 517 Q 1-3 **Ex 9.8** p 526 Q 1, 9 **Ex 9.1** p 473 Q 1-15 **Ex 9.4** p 495 Q 1-12, 13 - 15
3-4 9AS11	☐ Analyse nets of right prisms and cylinders to establish formulas for surface area, SA (total surface area, TSA) ☐ Solve problems using formulas for surface area of right prisms and cylinders ☐ Calculate volume of right prisms and cylinders ☐ Connect volume of right prisms and cylinders to capacity to solve problems ☐ Solve problems involving surface area, volume and capacity for compound shapes (3D)	Chapter 9 471 **(JAC)** **Ex 9.5** p501 Q 1-8, 10 – 13 **Ex 9.6** p508 Q 1-12, 20

	☐ **Diagnostic Quiz**	**Ex 9.7** p 512 Q 1 – 10, 16. 20 - 21
5-6 9AS7	**Topic 1c: Number & Algebra – Patterns & Algebra** ☐ Consolidate Simple Interest ☐ Recall the index laws to simplify expressions, • $a^m \times a^n = a^{m+n}$ • $a^m \div a^n = a^{m-n}$, $\frac{a^m}{a^n} = a^{m-n}$ • $(a^m)^n = a^{m \times n}$ • $a^0 = 1$ ☐ Simplify expressions using the negative index law, • $a^{-\mathrm{m}} = \frac{1}{a^m}$, $\frac{1}{a^{-\mathrm{m}}} = a^m$ ☐ Express numbers in scientific notation	Tech Free / Active Chapter 1 p 15 **(JAC)** **Ex 1.4** p 19 Q 1-17 **Ex 1.5** p 24 Q 1-13, 15, 22, 23a,b **Ex 1.6** p 30 Q 2-16 **Ex 1.7** p 35 Q 1-5, 8-11 13-18, 23-25
7	☐ Simplify expressions using square and cubed roots, ☐ $\sqrt{x} = x^{\frac{1}{2}}$, $\sqrt[3]{x} = x^{\frac{1}{3}}$ ☐ Consolidate Index Laws ☐ Recall collecting like terms ☐ Recall rearranging and simplifying algebraic expressions	Chapter 1 p 15 **(JAC)** **Ex 1.8** p 39 Q 1-6, 10 **Ex 1.10** p 57 Q 7 - 20 Chapter 2 p 84 **(JAC)** **Ex 2.2** p 75 Q 10a,b, 11, 14-16
8 9AS8	☐ Explore the area model to explain the Distributive Law (expanding brackets) ☐ Expand and simplify expressions with single brackets using the Distributive Law ☐ Expand and simplify expressions with multiple bracket using the Distributive Law, including FOIL (First, Outside, Inside, Last) ☐ Expand expressions using the identities (patterns), • Difference of Two Squares (DOTS), $(a+b)(a-b) = a^2 - b^2$ • Perfect Squares (PS+, PS-), $(a+b)^2 = a^2 + 2ab + b^2$, $(a-b)^2 = a^2 - 2ab + b^2$	Chapter 2 p 84 **(JAC)** **Ex 2.4** p 87 Q 1-18, 23, 29 **Ex 2.5** p 96 Q 3-17 **Ex 2.5** p 96 Q 18-27,29 **Ex 2.6** p 102 Q 1-13
9	☐ **Catch-up** ☐ Revision all topics for exam	Chapter Reviews **(JAC)** 1,2,9
10	☐ **EXAM** ☐ Exam feedback and reflection ☐ Goal setting for term 2	