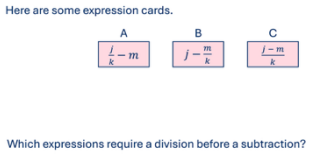
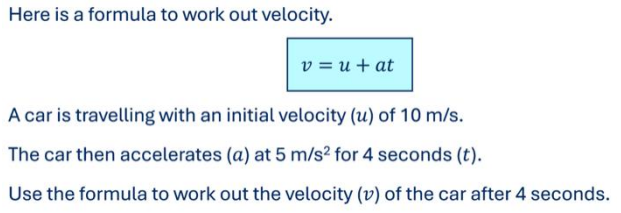
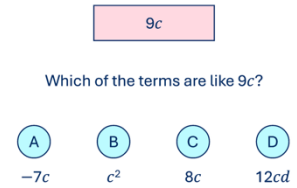
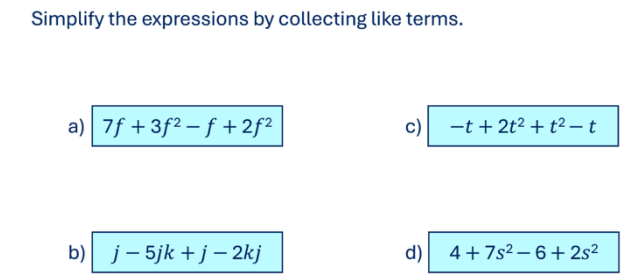
Holy Family Catholic School – Faculty of Mathematics Autumn Half-term 1 Year 10F

Learning Intention	Vocab	Concept	Retrieval	Success Criteria	Hinge Questions	Red Zone
Week 1 (Thurs & Fri) - ORIENTATION & EXPECTATIONS						
Week 2 Lesson 1 To substitute into expressions Step 1	Expression Variable Formula Substitute	ALGEBRA	Direct proportion Probability Solving equations Factors	I will be able to: • Substitute into expressions.	Slide 11 	Slide 23 
Week 2 Lesson 2 To collect like terms. Step 2	Like terms Unlike terms Expression Coefficient	ALGEBRA	Substitute Probability Hypotenuse Product of prime factors	I will be able to: • Identify like terms • collect like terms.	Slide 10 	Slide 20 

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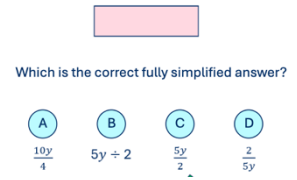
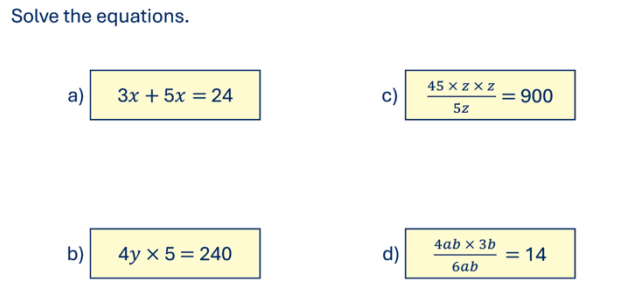
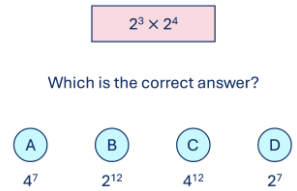
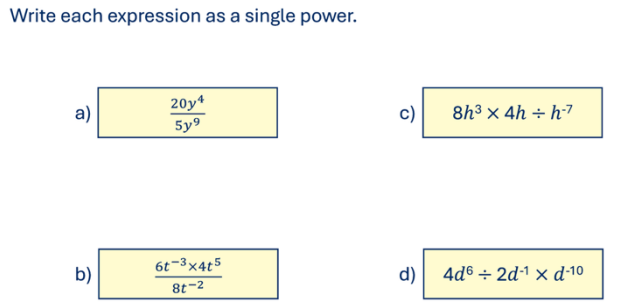
Learning Intention	Vocab	Concept	Retrieval	Success Criteria	Hinge Questions	Red Zone
Week 2 Lesson 3 To simplify expressions Step 3	Like terms Unlike terms Simplify Coefficient	ALGEBRA	Collect like terms Relative frequency Pythagoras HCF	I will be able to: • Simplify expressions • Solve an equation by simplifying first	Slide 14 	Slide 23 
Week 2 Lesson 4 To use laws of indices. Step 4	Power Base Index Indices	NUMBER ALGEBRA	Simplify Expectation Pythagoras Venn interpretation	I will be able to: • Use the addition and subtraction laws of indices	Slide 10 	Slide 20 

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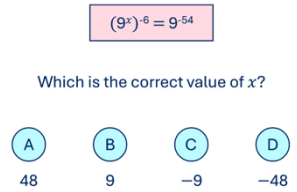
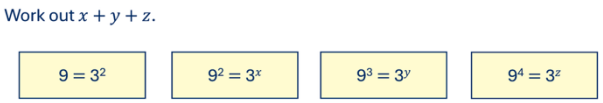
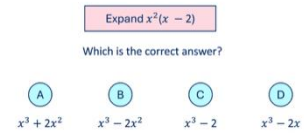
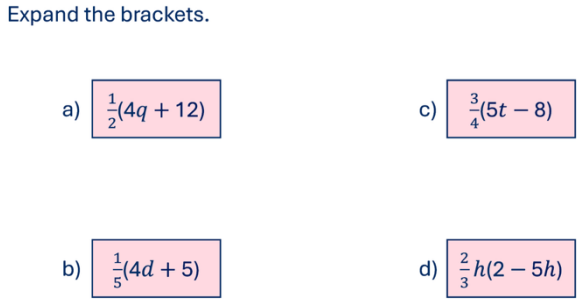
Learning Intention	Vocab	Concept	Retrieval	Success Criteria	Hinge Questions	Red Zone
Week 3 Lesson 1 To use laws of indices Step 5	Power Base Index Indices	NUMBER ALGEBRA	Addition law Probability Pythagoras LCM	I will be able to: • Simplify powers of powers for indices.	Slide 16 	Slide 21 
Week 3 Lesson 2 To expand a single bracket Step 6	Expand Coefficient Expression Index	ALGEBRA	Power of power Substitute Pythagoras Integer	I will be able to: • Expand a single bracket	Slide 22 	Slide 26 

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Learning Intention	Vocab	Concept	Retrieval	Success Criteria	Hinge Questions	Red Zone
Week 3 Lesson 3 To factorise. Into a single bracket Step 7	Factorise Coefficient HCF Index	ALGEBRA	Expand single bracket Simplify Substitute Increase by percentage.	I will be able to: • factorise into a single bracket	Slide 10 $\_\_(x+2) \equiv 3x^2 + 6x$ Which is the correct missing value? A $2x$ B 3 C $3x$ D x^2	Slide 19 Factorise the expressions fully. a) $12x^2y + 15y$ c) $20ab^3 - 12a^2b$ b) $8m^2n - 6mn$ d) $15ef^2g + 9e^2f^2g^2$
Week 3 Lesson 4 Review and assessment task						
Week 4 Lesson 1 To solve equations Step 1	Equation Inverse Expression Unknown Solution	ALGEBRA	Factorise Simplify expression Table of values Percentage increase	I will be able to • use a bar model to solve an equation • solve equations using a balancing method	Slide 8 Which of the calculations are correct? a) $2-7=5$ c) $-1+2=1$ b) $-6-1=-5$ d) $-20\div4=-5$	Slide 25 Which of the calculations are correct? a) $2-7=5$ c) $-1+2=1$ b) $-6-1=-5$ d) $-20\div4=-5$

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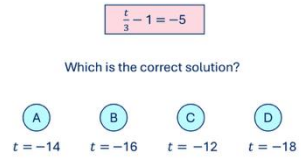
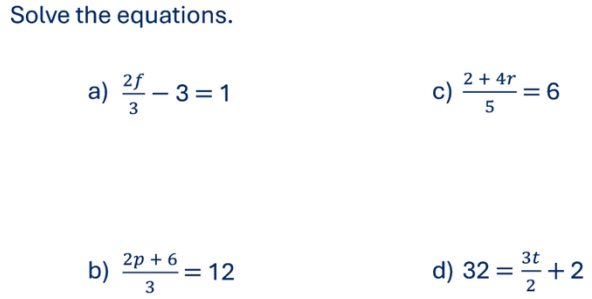
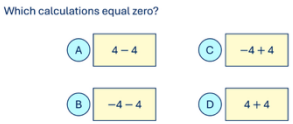
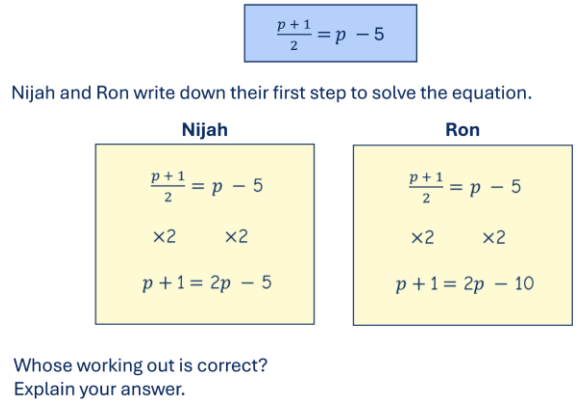
Week 4 Lesson 2 To solve equations with fractions Step 2	Expression Unknown Solution	ALGEBRA	Solve equation Laws of indices Table of values Reverse percentage	I will be able to: • solve equations with fractions	Slide 18 	Slide 22 
Week 4 Lesson 3 To solve equations with unknowns on both sides Step 3	Expression Unknown Solution	ALGEBRA	Equation with fraction Power of power Substitute into quadratic Percentage score	I will be able to: • solve equations with unknowns on both sides	Slide 8 	Slide 28 

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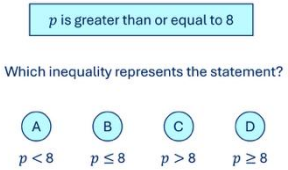
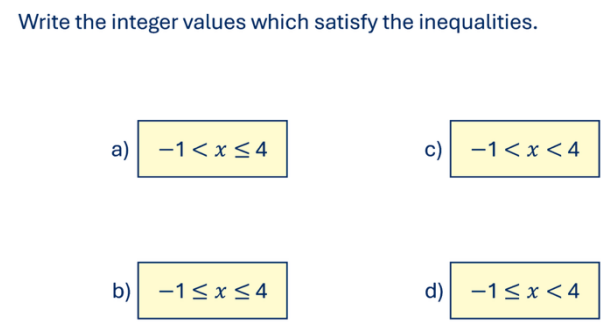
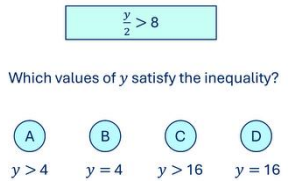
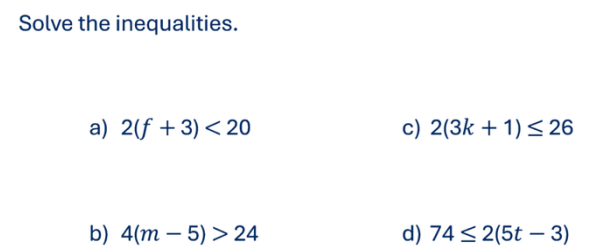
Learning Intention	Vocab	Concept	Retrieval	Success Criteria	Hinge Questions	Red Zone
Week 4 Lesson 4 To understand inequalities Step 4	Integer Inequality Satisfy Compound inequality	ALGEBRA	Solve equation Expand single bracket Reciprocal graph Multiplier for percentage increase.	I will be able to • understand inequalities	Slide 7 	Slide 26 
Week 5 Lesson 1 To solve inequalities Step 5	Integer Inequality Satisfy Solve	ALGEBRA	List integer set Factorise List elements of set Repeated percentage increase	I will be able to • solve inequalities using a balancing method • to understand the solution.	Slide 14 	Slide 24 

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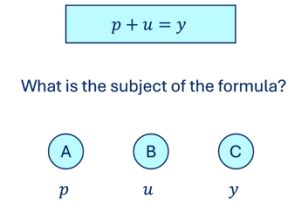
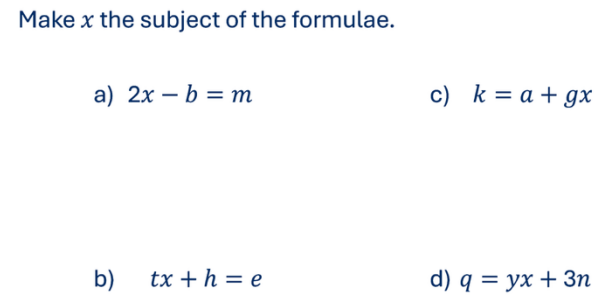
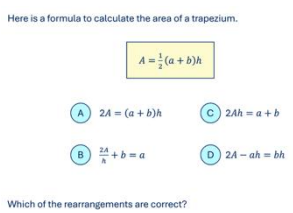
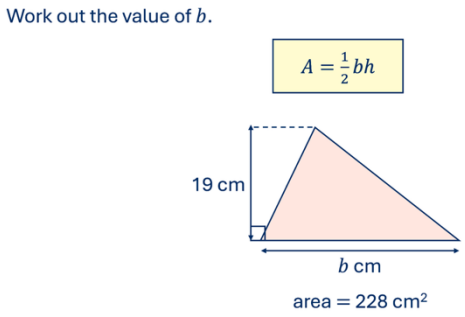
Learning Intention	Vocab	Concept	Retrieval	Success Criteria	Hinge Questions	Red Zone
Week 5 Lesson 2 To change the subject of a formula Step 6	Formula Subject Rearrange	ALGEBRA	Solve inequality Solve equation with brackets. Interpret a venn diagram. Calculate interest.	I will be able to: • change the subject of a formula by using related facts in a bar model. • change the subject by using inverse operations.	Slide 11 	Slide 20 
Week 5 Lesson 3 To change the subject of known formulae Step 7	Formula Subject Rearrange Variable	SHAPE, SPACE & MEASURES ALGEBRA	Change the subject. Solve equation with fraction. Interpret a venn diagram. Simple interest.	I will be able to • change the subject of formulae for area. • change the subject for area & circumferenc e of circles.	Slide 19 	Slide 18 

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Week 5 Lesson 4 To change the subject of a complex formula Step 8 Extension	Formula Subject Rearrange Coefficient	ALGEBRA	Change the subject Solve equation Probability Compound interest	I will be able to • change the subject of a complex formula.	Slide 20 Make t the subject of the formula. $p = \sqrt{t+1}$ Which is the correct answer? A $(p-1)^2 = t$ C $\sqrt{p-1} = t$ B $p^2 - 1 = t$ D $\sqrt{p} - 1 = t$	Slide 23 The circle has an area of 80 cm². $A = \pi r^2$ r cm Work out the radius of the circle. Give your answer to 3 significant places.
Week 6 Lesson 1 Review and assessment task						
Week 6 Lesson 2 To expand double brackets. Step 1	Quadratic Expand Term	ALGEBRA	Change the subject. Inequality on a number line. Sample space. Solve an equation.	I will be able to: • expand double brackets using a grid method. • simplify the quadratic expression	Slide 17 Is the statement true or false? $(x+3)(x+4) \equiv x^2 + 12$	Slide 26 Expand and simplify the expressions. a) $(2x+3)(x+1)$ a) $(p-4)(5p+2)$ a) $(3u+5)(2u+4)$

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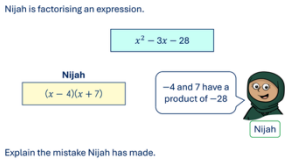
Week 6 Lesson 3 To factorise quadratic expressions. Step 2	Sum Product Factorise	ALGEBRA	Expand double brackets. Solve inequality. Probability. Circumference of a circle.	I will be able to: • factorise quadratic expressions with only positive terms.	Slide 9 Is the statement true or false? The product of 5 and 6 is 11	Slide 18 Factorise the expressions. a) $p^2 + 10p + 24$ b) $m^2 + 14m + 45$ c) $y^2 + 15y + 36$ d) $k^2 + 9k + 8$
Week 6 Lesson 4 To factorise quadratic expressions. Step 3	Variable Expression Quadratic Factorise	ALGEBRA	Factorise quadratic (positive terms) Change the subject. Expectation. Surface area of a cube.	I will be able to • factorise any quadratic expression (positive and negative terms)	Slide 18  	Slide 19 Match the equivalent expressions. $x^2 + 5x + 6$ $x^2 - 5x + 6$ $x^2 - 5x - 6$ $x^2 + 5x - 6$ $(x + 1)(x - 6)$ $(x + 2)(x + 3)$ $(x - 2)(x - 3)$ $(x - 1)(x + 6)$

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Week 7 Lesson 1 To find the difference of two squares Step 4 Extension	Variable Expression Quadratic Factorise	ALGEBRA	Factorise quadratic. Change the subject. Probability Surface area of prism.	I will be able to: • find a difference of two squares.	Slide 17 Factorise $k^2 - 100$ Which is the correct answer? A $(k+10)(k+10)$ C $(k-10)(k+10)$ B $(k-10)(k-10)$ D $(k-10)^2$	Slide 24 Which expressions are a difference of two squares? $49 - x^2$ $p^2 - 8$ $u^2 - 1$ $n^2 - 10n + 25$ $36y - 6$ $m^2 + 16$ $2x^2 - 32$ $81d^2 - 9$
Week 7 Lesson 2 To solve quadratic equations. Step 5	Solve Solution Product	ALGEBRA	Factorise quadratic. Change the subject. Interpret a venn diagram. Increase by a percentage.	I will be able to: • solve quadratic equations equal to zero, when given in factorised form.	Slide 17 $(x+3)(x-4) = 0$ Which are the correct solutions? A $x = 3$ C $x = -4$ B $x = -3$ D $x = 4$	Slide 23 Solve the equations. a) $(2y-4)(y+1) = 0$ c) $(2t-1)(3t+4) = 0$ b) $(p-6)(2p+8) = 0$ d) $(5k+5)(7k-6) = 0$

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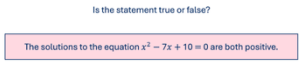
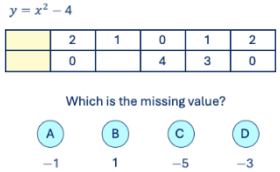
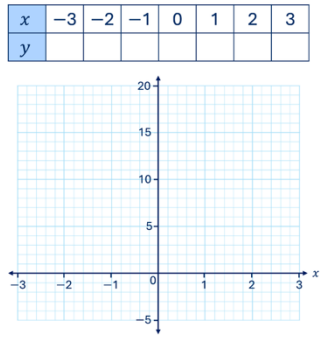
Week 7 Lesson 3 To solve quadratic equations by factorising first. Step 6	Factorise Solution Roots	ALGEBRA	Solve quadratic in factorised form. Expand double brackets Interpret a venn diagram. Volume of a cylinder.	I will be able to: • To solve quadratic equations by factorising first.	Slide 16 	Slide 15 Solve the equations. a) $n^2 - 5n + 6 = 0$ c) $b^2 - 3b - 10 = 0$ b) $p^2 + 6p - 16 = 0$ d) $f^2 - 6f + 9 = 0$
Week 7 Lesson 4 To plot and draw quadratic graphs of the form $y = x^2 + a$	Quadratic Parabola Table of values.	ALGEBRA	Solve a quadratic. Factorise a quadratic. Interpret a venn diagram. Calculate the volume of a cone.	I will be able to: • Create a table of values for a given quadratic • Plot a quadratic of the form $y = x^2 + a$	Slide 14 	Slide 19 Plot the graph of $y = 2x^2 + 1$ for values of x from −3 to 3 

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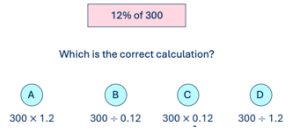
Week 8 Lesson 1 Review and assessment task.						
Week 8 Lesson 2 To find a percentage of an amount. Step 1	Percentage Decimal number Whole Multiplier	NUMBER	Table of values. Factorise quadratic Substitution Solve inequality	I will be able to: • Find a percentage of an amount using a non-calculator method. • Use a multiplier to find a percentage of an amount.	Slide 25 	Slide 29 A garden is in the shape of a rectangle. Flowers grow in 36% of the garden. The rest of the garden is grass. Work out the area of the garden that is grass. 

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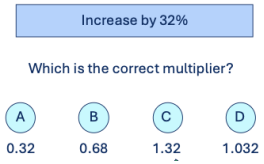
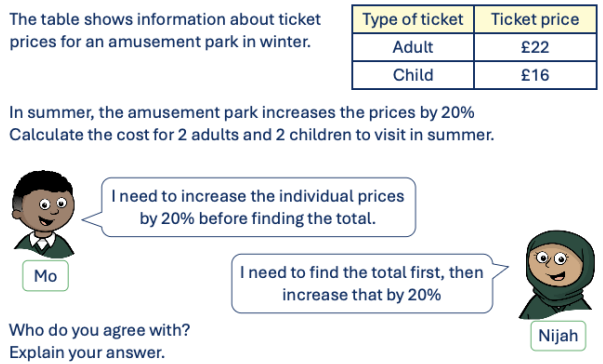
Week 8 Lesson 3 To find percentage increase and decrease. Step 2	Percentage Multiplier Increase Decrease	NUMBER	Percentage of an amount. Difference of two squares. Collect like terms. Solve equation with brackets.	I will be able to: • Use a multiplier to find a percentage increase or decrease.	Slide 16 	Slide 23 
Week 8 Lesson 4 Review and recap.						