



Mathematics Grade 9 Patterns (P)				
Outcome	1 – Little Evidence With help, I understand parts of the simpler ideas and do a few of the simpler skills.	2 – Partial Evidence I understand the simpler ideas and can do the simpler skills. I am working on the more complex ideas and skills.	3 – Sufficient Evidence I understand the more complex ideas and can master the complex skills that are taught in class. I achieve the outcome.	4- Extensive Evidence I have a deep understanding of the complex ideas, and I can use the skills I have learned in situations that were not taught in class.
P9.1 I can demonstrate understanding of linear relations including: <ul style="list-style-type: none"> graphing analyzing interpolating and extrapolating solving situational questions. [C, CN, PS, R, T, V]	<ul style="list-style-type: none"> I can identify graphs which represent linear relations. 	<ul style="list-style-type: none"> I can sketch graphs for given linear relations, without the use of technology. 	<ul style="list-style-type: none"> I can sketch graphs for given linear relations, including horizontal AND vertical lines, without the use of technology. 	<ul style="list-style-type: none"> I can formulate a problem based on a given graph.
	<ul style="list-style-type: none"> With help, I can interpolate OR extrapolate a value for either variable in a linear relation in a graph. 	<ul style="list-style-type: none"> I can interpolate OR extrapolate a value for either variable in a linear relation in a graph. 	<ul style="list-style-type: none"> I can interpolate AND extrapolate a value for either variable in a linear relation in a graph. 	<ul style="list-style-type: none"> I can formulate situational questions that would result in the need for interpolation and/or extrapolation.
	<ul style="list-style-type: none"> With help, I can verify an interpolated OR extrapolated value from a graph by using substitution in the related linear relation. 	<ul style="list-style-type: none"> I can verify an interpolated OR extrapolated value from a graph by using substitution in the related linear relation. 	<ul style="list-style-type: none"> I can verify an interpolated AND extrapolated value from a graph by using substitution in the related linear relation. 	<ul style="list-style-type: none"> I can verify an interpolated AND extrapolated value from a graph by using substitution in a linear relation that I created.
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P9.2 I can model and solve situational questions using linear equations of the form: <ul style="list-style-type: none"> $ax = b$ $x/a = b, a \neq 0$ $ax + b = c$ $x/a + b = c, a \neq 0$ $ax = b + cx$ $a(x + b) = c$ $ax + b = cx + d$ $a(bx + c) = d(ex + f)$ $a/x = b, x \neq 0$ where a, b, c, d, e, and f are rational numbers. [C, CN, PS, V]	<ul style="list-style-type: none"> I can model and solve problems using linear equations of the form: <ul style="list-style-type: none"> $ax = b$ $\frac{x}{a} = b$ $ax + b = c$ $\frac{x}{a} + b = c$ $a(x + b) = c$ 	<ul style="list-style-type: none"> I can model and solve problems using linear equations of the form: <ul style="list-style-type: none"> $ax = b$ $x/a = b, a \neq 0$ $ax + b = c$ $x/a + b = c, a \neq 0$ $ax = b + cx$ $a(x + b) = c$ $ax + b = cx + d$ $a(bx + c) = d(ex + f)$ $a/x = b, x \neq 0$ 	<ul style="list-style-type: none"> I can model and solve situational questions using linear equations of the form: <ul style="list-style-type: none"> $ax = b$ $x/a = b, a \neq 0$ $ax + b = c$ $x/a + b = c, a \neq 0$ $ax = b + cx$ $a(x + b) = c$ $ax + b = cx + d$ $a(bx + c) = d(ex + f)$ $a/x = b, x \neq 0$ 	<ul style="list-style-type: none"> I can create a model and solve a complex word problem using linear equations.
	<ul style="list-style-type: none"> With help, I can write a linear equation representing the pattern in a given table of values and verify the equation by substituting values from the table. 	<ul style="list-style-type: none"> I can write a linear equation representing the pattern in a given table of values AND verify the equation by substituting values from the table. 	<ul style="list-style-type: none"> I can write a linear equation to represent a particular situation. 	<ul style="list-style-type: none"> I can use an equation to model and solve a complex problem.
	<ul style="list-style-type: none"> With help, I can verify, by substituting, whether or not a given rational number is a solution to a given linear equation. 	<ul style="list-style-type: none"> I can verify, by substituting, whether or not a given rational number is a solution to a given linear equation. 	<ul style="list-style-type: none"> I can identify and explain the errors of an incorrect solution to a linear equation. 	<ul style="list-style-type: none"> I can identify and explain the errors of an incorrect solution to a complex linear equation.



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P9.3 I can demonstrate understanding of single variable linear inequalities with rational coefficients including: <ul style="list-style-type: none"> ○ solving inequalities ○ verifying ○ comparing ○ graphing. [C, CN, PS, R, V]	<ul style="list-style-type: none"> • I can solve one-step single-variable linear inequalities and graph the solution. 	<ul style="list-style-type: none"> • I can solve multi-step single-variable linear inequalities and graph the solution. 	<ul style="list-style-type: none"> • I can solve a situational question involving a single variable linear inequality and graph the solution. 	<ul style="list-style-type: none"> • I can create a situational question involving a multi-step single variable linear inequality and graph the solution.
	<ul style="list-style-type: none"> • I recognize the following symbols and know what they mean $>, <, \geq, \leq$ 	<ul style="list-style-type: none"> • I can verify whether or not a given rational number is part of the solution set for a linear inequality. 	<ul style="list-style-type: none"> • I can explain why there is more than one solution to a linear inequality. 	<ul style="list-style-type: none"> • I can analyze a given solution and explain any error.
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P9.4 I can demonstrate understanding of polynomials (limited to polynomials of degree less than or equal to 2) including: <ul style="list-style-type: none"> ○ modeling ○ generalizing strategies for addition, subtraction, multiplication, and division analyzing ○ relating to context ○ comparing for equivalency. 	Modelling	<ul style="list-style-type: none"> • I can represent polynomials concretely OR pictorially. • With help, I can identify the variables, degree, number of terms and coefficients, including the constant term, of a given simplified polynomial expression and explain the role or significance of each. 	<ul style="list-style-type: none"> • I can represent polynomials concretely OR pictorially AND describe how the concrete or pictorial model reflects the symbolic form. • I can identify the variables, degree, number of terms and coefficients, including the constant term, of a given simplified polynomial expression and explain the role or significance of each. 	<ul style="list-style-type: none"> • I can create a model (concretely OR pictorially) for a polynomial AND describe the relationship between x and x^2. • I can write a polynomial for a given concrete or pictorial representation. 	<ul style="list-style-type: none"> • I can create a model (concretely or pictorially) for a polynomial that includes a cubed variable. • I can write a polynomial for a given situation.
	Generalizing and Comparing	<ul style="list-style-type: none"> • I can recognize equivalent forms of a polynomial expression. 	<ul style="list-style-type: none"> • I can write equivalent forms of a polynomial expression. 	<ul style="list-style-type: none"> • I can write equivalent forms of a polynomial expression and justify the equivalence. 	<ul style="list-style-type: none"> • I can write equivalent forms of a complex polynomial expression and justify the equivalence.
	Operations	<ul style="list-style-type: none"> • I can identify like terms and I can explain why terms with different variable exponents cannot be added or subtracted. 	<ul style="list-style-type: none"> • I can simplify polynomial expressions. 	<ul style="list-style-type: none"> • I can verify whether or not the simplification of the addition or subtraction or multiplication or division of two 	<ul style="list-style-type: none"> • I can create and solve a problem with one or more operations involving polynomials.



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				polynomials is correct and explain my reasoning.	
Comments					