Name: _____

Algebra 2
Unit 1-8 Review

1.	Solve. $3 + \sqrt{4x - 2} = 9$	2.	$\dfrac{g^2h^{-5}(h^3k^0)^5k^4}{g^4hk^{-6}}$
3.	$\dfrac{9a^5b^{-4}c^0}{8a^7b^8c^2} \cdot \dfrac{34c^{-3}a^9}{27a^0b^{-5}}$	4.	Identify the fraction in its simplest form that is equivalent to 0.3103448... **A.** $\frac{20}{58}$ **B.** $\frac{18}{58}$ **C.** $\frac{10}{29}$ **D.** $\frac{9}{29}$
5.	Solve the system of equations. $\begin{cases} 2x + 8y = -14 \\ -3x + 2y = -21 \end{cases}$	6.	Factor. $7x^2 - 3x - 4$
7.	Provide a counterexample that disproves the inequality. Assume that x represents a real number. $x + 1 > \dfrac{5}{x + 1}$	8.	Find the zeros. $f(x) = x^2 + 15x + 2$
9.	Graph. $y \leq -3x^2 + 9x + 5$	10.	Determine the roots of the function. $f(x) = x^2 + 8x + 6$
11.	Use the parent function $f(x) = x^2$ to describe the transformations to $g(x) = -(3x - 2)^2 + 5$.	12.	How many solutions will the equation have? Will they be real or imaginary? $x^2 = -5x + 10$
13.	Find the *x*-intercepts of the function. $f(x) = x^2 + 6x - 16$	14.	Determine the sum of two positive consecutive integers, given that one integer multiplied by a five times the other will equal 60.
15.	Solve the inequality. $8 \geq x^2 + 4x - 13$	16.	Simplify. i^{795}

17.	Graph. $f(x) = 3x^2 + 12x + 9$	18.	Use the binomial theorem to expand. $(2a - b)^5$
19.	Determine the product. $(6d - 7)(2d^3 + 5d^2 - 3)$	20.	Solve. $\frac{x}{x^2 + 8x + 12} = \frac{3x}{x^2 + 3x - 18}$
21.	Subtract. For what values of *x* is the expression undefined? $\frac{9x^2 - 7x + 11}{7x - 10} - \frac{-5x^2 - 2x}{7x - 10}$	22.	Simplify. Assume all expressions are defined. $\frac{\frac{8}{x-3} + \frac{x+1}{2}}{\frac{x+1}{x-3}}$
23.	Simplify and identify any values of *x* for which the expression is undefined. $\frac{x^2 - 7x + 10}{x^2 + 12x - 28}$	24.	Simplify. Assume that the answer is a real number. $\sqrt[5]{243x^{85}y^{60}}$
25.	Simplify. $256^{\frac{3}{4}}$	26.	The number of hats and shoes varies inversely. If there can be 12 hats and 4 shoes, how many hats would there need to be to have 16 shoes?
27.	Graph the function, and identify the holes in the graph. $f(x) = \frac{x^2 + 9x - 36}{x + 12}$	28.	Divide. $\frac{x^2 + 8x + 15}{5x^2 + 35x + 30} \div \frac{x^2 + 12x + 35}{5x^2 + 40x + 60}$
29.	Add. $\frac{x + 7}{x - 2} + \frac{5x + 3}{x^2 + 6x - 16}$		