Looking Ahead: Algebra 2 Unit 1

The questions below are examples of the type of questions you'll see on your **Semester 1 Final**, **Semester 2 Final**, and the **CST**. This is how these tests will ask you to apply your skills from **Unit 1**, as well as your common sense math skills. They are structured in a way that is deliberately complicated, but the skills are the same as what you have learned up to this point.

Semester 1 Final Examples

1.	Add. $6\sqrt{5} + \sqrt{45}$	3.	If x is a real number, which best describes the values of x for which the inequality $x^2 + 4 > 0$ is true? **A.** all $x > 0$ **B.** all $x \geq 0$ **C.** $x \neq 0$ **D.** all values of x
2.	Given the equation $y = xn$, where $y = 0$ and $n > 1$, which statement is valid for the real values of x? **A.** $x \leq 0$ **B.** $x \leq 0$ **C.** $x = 0$ **D.** $x \neq 0$	4.	Simplify the expression $(3)^{-2} (7)^0 (5)^3$.

Semester 2 Final Examples

5.	Solve. $2 + \sqrt{5x + 10} = 7$	7.	$\dfrac{km^6(m^2n^{-4})^2n^5}{k^{-1}m^0n^{-6}}$
6.	$\dfrac{7p^3q^{-2}r^0}{6p^9q^5r^3} \cdot \dfrac{12r^{-5}p^2}{35pq^{-3}}$	8.	Identify the fraction in its simplest form that is equivalent to 0.31818181… **A.** $\dfrac{4}{11}$ **B.** $\dfrac{8}{22}$ **C.** $\dfrac{7}{22}$ **D.** $\dfrac{14}{44}$

CST Examples

9.	Which is a simplified form of the problem below?	12.	Given the equation $y = x^n$, where $x < 0$ and $n < 0$, which statement is valid for real values of y?
	$$\frac{7d^{-5}e^3f^4}{(d^4ef^{-2})^3}$$		**A.** $y < 0$ **B.** $y > 0$ **C.** $y = 0$ **D.** $y \neq 0$
	A. $\dfrac{7f^{10}}{d^7}$		
	B. $\dfrac{7f^{10}}{d^{17}}$		
	C. $\dfrac{7e^2}{d^7f^2}$		
	D. $\dfrac{7}{d^{17}f^2}$		
10.	Henry, Jorge, Sharon, and Laura each worked the same math problem at the whiteboard. Each student's work is shown below. Their teacher said that while two of them had the correct answer, only one of them had arrived at the correct conclusion using correct steps.	13.	If x is a real number, for what values of x is the equation given below true? $$\frac{3x+1}{2} = x + 2$$ **A.** all values of x **B.** some values of x **C.** no values of x **D.** impossible to determine
	Henry's work: $x^{-6}x = \dfrac{1}{x^6x} = \dfrac{1}{x^7}, x \neq 0$ Jorge's work: $x^{-6}x = \dfrac{x}{x^{-6}} = x^7, x \neq 0$ Sharon's work: $x^{-6}x = \dfrac{x}{x^6} = \dfrac{1}{x^5}, x \neq 0$ Laura's work: $x^{-6}x = \dfrac{x}{x^{-6}} = x^{-5}, x \neq 0$ Which is a completely correct solution? **A.** Henry's work **B.** Jorge's work **C.** Sharon's work **D.** Laura's work		
11.	Which of the following conclusions is true about the statement below? $$x = \sqrt{x}$$ **A.** The statement is always true. **B.** The statement is true when x is positive. **C.** The statement is true when $x = \{0, 1\}$. **D.** The statement is never true.	14.	If x is a real number, which *best* describes the values for x for which the inequality $x^2 < 0$ is true? **A.** $x < 0$ **B.** $x \leq 0$ **C.** all values of x **D.** no values of x