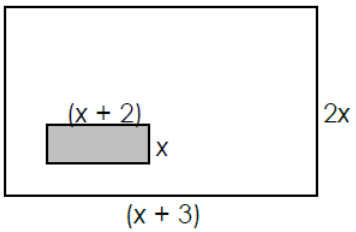
GSE Algebra I Unit 1 Final Exam Study Guide

Name: _____ Date: _____

Use the following to review for you test. Work the Practice Problems on a separate sheet of paper.

What you need to know & be able to do	**Things to remember**		
Unit Conversions		1. Convert 1500g to kg.	2. A bowl of cereal weighs 60 oz. How heavy is it in lb?
	• There are 5280 feet in one mile • There are 0.034 ounces in one milliliter • There are 0.454 kg in one pound • There are 1.6 kilometers in one mile • There are 73 gallons in 2 barrels • There are 1.05 quarts in one liter • There are 4 quarts in one gallon • There are 16 ounces in a pound.	3. Convert 12 kilometers to inches.	4. You are in a car that is traveling at 65 mph. How fast is it traveling in feet per second?
		5. Convert 60 liters to milliliters.	6. Today is Katie's 21st birthday, how old would she be in minutes?
Identify Vocabulary	• # of terms • Coefficients • Factors • Constants	7. How many terms are in the expression $12x^3 + 7x^2 - 4x - 19$?	8. What are the terms, coefficients, and constants in the expression $20x^4 - 11x + 3$?
Radicals	Pull out the pairs! Paris on outside leftovers on inside Adding and Subtracting: Simplify, Can only add or subtract like terms (Same radicand) Multiplying: Outside times Outside, Inside times Inside, Simplify	9. $4\sqrt{98p^2}$	10. $3\sqrt{2} \bullet 5\sqrt{7}$
		11. $x\sqrt{72} - x\sqrt{18} + 5x\sqrt{2}$	12. $\sqrt{30} \bullet \sqrt{12}$

<table>
<tr><td rowspan="3">Polynomials</td><td rowspan="3">Adding: Combine Like Terms (Only add the coefficients)
Subtracting: Distribute the negative then combine like terms
Multiplying: Box Method or FOIL (Multiply the coefficients and add the exponents</td><td>13. $(10x^2 – 4x + 2) + (3x^2 + x)$</td><td>14. $(3x^2 – 6x + 2) – (4x^2 – 2x + 9)$</td></tr>
<tr><td>15. $(x^2 + 2x - 3)–(6x^2 + 7x – 8)$</td><td>16. $(x + 4)(x – 3)$</td></tr>
<tr><td>17. $2x^2(4x^2 – 5x + 3)$</td><td>18. $(2m – 3)^2$</td></tr>
<tr><td rowspan="3">Rational vs. Irrational</td><td rowspan="3">Rational #: Anything that can be written as a fraction
Irrational #: Non-perfect square roots, non-repeating & non-terminating decimals, anything with π</td><td>Decide whether the following is Rational or Irrational.</td><td>19. $4\sqrt{50}$</td></tr>
<tr><td>20. $\frac{2}{3}$</td><td>21. $0.\overline{66}$</td></tr>
<tr><td>22. $5\pi - 3$</td><td>23. 2.35497…</td></tr>
<tr><td>Sum of Rational and Irrationals</td><td>Determine if the following are always true, sometimes true, never true.</td><td>24. The sum of two rational numbers is irrational</td><td>25. The product of two irrational numbers is rational.</td></tr>
<tr><td rowspan="2">Radicals and Polynomials Applied</td><td rowspan="2"></td><td>26. Rachel is building a rectangular garden that is (3x – 8) units long and (2x+3) units wide. What algebraic expression would represent the AREA of the garden?</td><td>27. Using the same information from #24. What expression would represent the PERIMETER of the garden?</td></tr>
<tr><td colspan="2">28. Find the area of the unshaded region.
 
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