

$$48/48 = 100$$

Math 0097
University of North Georgia
Spring 2015
Exam #2

Name: Key Date: April 3, 2015

Show all work NEATLY on the exam. A valid check is worth "one" additional point. All questions are worth four points.

Solve the following equations.

$$1. \frac{-7}{9}r = \frac{14}{27}$$

$$\text{LCD: } 27 \quad 27\left(-\frac{7}{9}\right)r = 27\left(\frac{14}{27}\right)$$

Check

$$-\frac{7}{9}\left(-\frac{2}{3}\right) = \frac{14}{27}$$

$$\frac{14}{27} = \frac{14}{27} \checkmark$$

$$-21r = 14$$

$$r = -\frac{14}{21}$$

$$r = -\frac{2}{3}$$

$$2. -5 - 6z + 6 = 19$$

$$-6z + 1 = 19$$

$$-6z = 18$$

$$z = -3$$

check

$$-5 - 6(-3) + 6 = 19$$

$$-5 + 18 + 6 = 19$$

$$13 + 6 = 19$$

$$19 = 19 \checkmark$$

$$3. 3(5c - 1) - 2 = 13c + 3$$

$$15c - 3 - 2 = 13c + 3$$

$$15c - 5 = 13c + 3$$

$$2c = 8$$

$$c = 4$$

check

$$3(5(4) - 1) - 2 = 13(4) + 3$$

$$3(20 - 1) - 2 = 52 + 3$$

$$3(19) - 2 = 55$$

$$57 - 2 = 55$$

$$55 = 55$$

Simplify the fraction

$$4. \begin{array}{l} \frac{2}{x^3} \text{ K} \\ \frac{x^3}{4} \text{ C} \\ \text{F} \end{array} \quad \frac{2}{x^3} \cdot \frac{x^3}{4} = \boxed{\frac{1}{2}}$$

Simplify using the rules for exponents

$$5. (5x^4y)(-3x^{-3}y) \quad (5)(-3)(x^4)(x^{-3})(y)(y) \\ -15 \cdot x^{4+(-3)} \cdot y^{1+1} \\ \boxed{-15xy^2}$$

$$6. (7^0)^3 + (-6t^{22})^0 \\ 1 + 1 = \boxed{2}$$

$$7. -10^2 \quad (-1) \cdot 10^2 \\ (-1) \cdot 10 \cdot 10 \\ (-10) \cdot 10 = \boxed{-100}$$

$$8. \begin{array}{l} \frac{m^{-3}}{(p^{-2})^4} \text{ K} \\ \text{C} \\ \text{F} \end{array} \quad \frac{\frac{1}{m^3}}{\frac{1}{p^8}} = \frac{1}{m^3} \cdot \frac{p^8}{1} = \boxed{\frac{p^8}{m^3}}$$

Add

$$9. (3x^2 - 6x - 5) - (2x - 2x^2 - 8) \\ 3x^2 - 6x - 5 - 2x + 2x^2 + 8 \\ \boxed{5x^2 - 8x + 3}$$

Multiply

10. $(2t^3)(4t^5)$ $(2)(4)(t^3)(t^5)$
 $8 \cdot t^{3+5} = \boxed{8t^8}$

11. $(2x^2 - 7)(5x^2 + 10)$
 $(2x^2)(5x^2) + (2x^2)(10) + (-7)(5x^2) + (-7)(10)$
 $10x^4 + 20x^2 - 35x^2 - 70$
 $\boxed{10x^4 - 15x^2 - 70}$

12. $(6y - 11)^2$
 $(6y - 11)(6y - 11)$
 $(6y)(6y) + (6y)(-11) + (-11)(6y) + (-11)(-11)$
 $36y^2 - 66y - 66y + 121$
 $\boxed{36y^2 - 132y + 121}$

BONUS (5 points). Simplify the fraction

$$\frac{1}{2} - \frac{2}{3} + \frac{3}{4} - \frac{4}{5}$$

$$\frac{3-4}{6}$$

$$\frac{35-48}{60}$$

$$-\frac{1}{6} + \frac{3}{4} - \frac{4}{5}$$

$$\frac{-2+9}{12}$$

$$\boxed{-\frac{13}{60}}$$

$$\frac{7}{12} - \frac{4}{5}$$