Directions: Show your work on all of these problems. You may find Word's equation editor helpful in creating mathematical expressions in Word. There is a tutorial on using this equation editor in Module 1 Lecture Notes. You also have the option of hand writing your work and scanning it.

Complete the following problems in Chapter R.

- Section R-1 (pages 9-10) #2, 8, 22, 26
- Section R-2 (pages 20-21) #28, 34, 40, 44, 56, 62, 66, 82
- Section R-3 (pages 29-30) #1-4, 16-20 even, 24, 28, 44, 50, 56
- Section R-4 (pages 37-38) #8, 10, 24, 34

Section R-1 (Page: 9-10)
In Problems #2, #8 perform the indicated operations, if defined. If the result is not an integer, express it in the form a/b, where a and b are integers.

2. $1/2 + 1/7$

8. $2/9 + 7/5$

In problem #22, #26 each statement illustrates the use of one of the following properties or definitions. Indicate which one.

Commutative (+) Commutative (.) Associative (+) Associative (+) Distributive Identity (+) Identity (.) Inverse (+) Inverse (.) Subtraction Division Negatives (Theorem 1) Zero (Theorem 2)

22. $8 - 12 = 8 + (-12)$

26. $ab(c + d) = abc + abd$

Section R-2 (Pages 20-21)
In problem #28 change to radical form. Do not simplify.

28. $625^{3/4}$

In problem #34 change to radical exponent form. Do not simplify.

34. $-\sqrt[3]{172}$

In problem #40, #44 evaluate each expression that represents a real number.

40. $169^{1/2}$

44. $27^{2/3}$

In problem #56, #62 simplify and express answering using positive exponents only.

56. $(2c^4\ d^{-2})^{-3}$

62. $\dfrac{(6mm^{-2})^{-3}}{(3m^{-1}n^2)}$

In problem #66 write in simplified radical form.

66. $-\sqrt{125}$

82. $2a\sqrt[3]{8a\ 8b^{13}}$

Section R-3 (Pages 29-30)
Problems 1–8 refer to the polynomials (a) x2 1 and (b)x4 2x 1.

1. What is the degree of (a)?
2. What is the degree of (b)?
3. What is the degree of the sum of (a) and (b)?
4. What is the degree of the product of (a) and (b)

In Problems 16–20, perform the indicated operations and simplify

16. 2y 3y[4 2(y 1)]

17. (m n)(m n)

18. (5y 1)(3 2y

19. (3x 2y)(x 3y)

20. $(4x\ y)^2$

In Problems #24, #28 factor out, relative to the integers, all factors common to all terms.

24. $3x^5\ 6x^3\ 9$

28. $8u^3\ v\ 6u^2\ v^2\ 4uv^3$

In Problems #44, #50, #56 factor completely, relative to the integers. If a polynomial is prime relative to the integers, say so.

44. $3y^2 - 8y - 3$

50. $9x^2 - 4$

56. $16x^2 y - 8xy + y$

Section R-4 (Pages 37-38)
In Problems #8 , reduce each rational expression to lowest terms.

8. $\dfrac{x^2 + 9x\ 20}{x^2 - 16}$

10. $\dfrac{2a^2 b^4 c^6}{6a^5 b^3 c}$

In Problems #24, #34 perform the indicated operations and reduce answers to lowest terms. Represent any compound fractions as simple fractions reduced to lowest terms.

24. $\dfrac{x^2 - 9}{X^2 - 1} \quad \dfrac{x - 3}{x - 1}$

34. $\dfrac{4x}{X^2 y^2} + \dfrac{3}{x + y} + \dfrac{2}{x - y}$