College Algebra
Chapter R **REVIEW**
To receive full credit you must show work.

$$\text{Let } A = \{ -13, -\frac{12}{4}, 0, \frac{\pi}{4}, \frac{3}{5}, 5.9, \sqrt{49} \}$$

1. List all the elements of A that belong to the given set.

    a. Integers: _____

    b. Rational numbers: _____

    c. Real numbers: _____

2. Evaluate the expression if x = -2, y = -4, and z = 5. $\left| \frac{x^2 + 2yz}{3(x+z)} \right|$

Perform the indicated operations

3. $(x^2 - 3x + 2) - (x - 4x^2) + 3x(2x + 1)$ 4. $(6r - 5)^2$ 5. $(t + 2)(3t^2 - t + 4)$

Factor _completely._

6. $6x^2 - 17x + 7$ 7. $8a^3 - 64b^3$

8. $24m^3 - 14m^2 - 24m$ 9. $x^3y^2 - 9x^3 - 8y^2 + 72$

Perform the indicated operations.

10. $\dfrac{5x^2 - 9x - 2}{30x^3 + 6x^2} \cdot \dfrac{x^2 + x - 2}{x^4 - 3x^2 - 4}$ 11. $\dfrac{x}{3x+2} + \dfrac{x}{x-3}$

12 $\dfrac{a+b}{2a-3} - \dfrac{a-b}{3-2a}$

14. Simplify so there are no negative exponents. Assume all variables are positive real numbers. $\left(\dfrac{x^{-2}y^{-\frac{1}{3}}}{x^{-\frac{5}{3}}y^{-\frac{2}{3}}} \right)^3$

15. Evaluate $\left(\dfrac{-8}{27} \right)^{-\frac{4}{3}}$

Simplify. Assume all variables represent positive real numbers.

16. $\sqrt{18x^5 y^8}$ 17. $\sqrt{32x} + \sqrt{2x} - \sqrt{18x}$

18. $\left(\sqrt{x} - \sqrt{y} \right)\left(\sqrt{x} + \sqrt{y} \right)$

19. Rationalize and simplify $\dfrac{14}{\sqrt{17} - \sqrt{3}}$