1. Define (a) an algebraic expression; (b) a literal equation; (c) the coefficient of a term; (d) the degree of a term. Give an example of each.

2. Translate into algebraic language, the square of the difference of two numbers subtracted from the square of their sum equals four times their product.

3. Write within minus parentheses, without change of value or order, \(a^2 - ab - ac + b^2 - bc + c^2\), regarded (a) as three binomials; (b) as two trinomials.

4. Given \(6x^2 + 37x + 35\) and \(3x^2 + 17x + 10\); find, by the method of division, (a) the highest common factor; (b) the lowest common multiple.

5. Simplify \(\frac{5m^6n - 5n^7}{m^2n + 2mn^2 + n^3} \div \frac{m^2 - mn + n^2}{m + n}\).

6. Solve (1) \((x - a - b)^2 - (x - a)(x - b) + ab = 0\)

\(\frac{3}{x} + \frac{1}{y} = \frac{5}{4}\) and \(\frac{2}{x} - \frac{3}{y} = -1\)

7. A man has two kinds of money, dimes and half dimes. If he is offered $1.35 for 20 coins, how many of each kind must he give?

8. Expand \((3a^2 - b^3)^5\). State how the signs of the terms are determined.

9. Find the cube root of \(45x^2 - 30x^4 - 27 + 12x^5 + 27x + 8x^6 - 35x^3\).

10. A rows a miles down stream in b minutes and returns in c minutes. Find A's rate of rowing in still water; also the rate of the current.

11. Solve \(\frac{x + 4}{x - 4} - \frac{x - 4}{x + 4} = 4\frac{1}{2}\).

12. Form an equation whose roots are 2 and \(-\frac{3}{2}\).

13. A merchant received $12 for a number of yards of linen, and an equal sum, at 50 cents a yard less, for a number of yards of cotton. The cotton exceeded the linen by 32 yards. How many yards of each did he sell?

14. Simplify (a) \(8\sqrt{12} \times 3\sqrt{24}\); (b) \(5\sqrt{27} + 3\sqrt{24}\).