

Algebra 3 Assignment # 4

Find all factors and roots:

(1) $x^3 + x^2 - 21x - 45 = 0$

(2) $3x^3 + 2x^2 - 75x - 50 = 0$

(3) $x^4 + 3x^3 + 3x^2 + x = 0$

(4) $2x^3 - 5x - 3 = 0$

(4) $3x^3 - 5x^2 + 2x - 8 = 0$

(5) $x^5 - 9x^4 + 31x^3 - 49x^2 + 36x - 10 = 0$

Answers:

1. $(x+3)^2(x-5)$; 5, -3 (*doubleroot*)

2. $(3x+2)(x+5)(x-5)$; 5, -5, 2/3

3. $(x+1)^3$; -1 is a triple root

4. $(x+1)(x^2 - 2x - 3)$; -1, $\frac{1 \pm \sqrt{7}}{2}$

5. $(x-1)^3(x^2 - 6x + 10)$; 1 is a triple root, $3 \pm i$