Finding All Roots A.APR.6

I can find all roots of polynomial functions.

Use the given factor(s) to divide. Find the remaining roots WITHOUT using a graphing calculator.

1. $f(x) = x^3 - 4x^2 - 15x + 18; (x - 6)$

2. $f(x) = x^3 - 8x^2 + 5x + 14; (x + 1)$

3. $f(x) = 3x^3 + 4x^2 - 35x - 12; (x + 4)$

4. $f(x) = -8x^3 - 56x^2 - 70x + 50; (x + 5)$

5. $f(x) = 3x^4 + 2x^3 - 23x^2 + 2x + 24; (x - 2)$ & $(x + 3)$

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I can find all roots of polynomial functions.

Use your calculator to find real zero(s). Then use synthetic division with the real zero(s) to get a quadratic. Then, find the remaining roots without using a graphing calculator.

6. $f(x) = x^3 + 6x^2 + 21x + 26$

7. $f(x) = x^3 - 7x^2 + 25x - 175$

8. $f(x) = x^4 - 65x^2 + 170x + 234$

9. $f(x) = x^4 - 6x^3 + 12x^2 + 6x - 13$

10. $f(x) = x^6 - 2x^5 - 10x^4 + 10x^3 + 25x^2 + 12x + 36$