

Name: _____

Date: _____

Find all of the linear factors given one factor(s):

1. $f(x) = x^3 + 9x^2 + 23x + 15; (x + 5)$

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

3. $f(x) = 3x^4 - 10x^3 - 24x^2 - 6x + 5;$
 $(x + 1)$ and $(x - 5)$

4. $f(x) = x^4 - 4x^3 - 20x^2 + 48x;$
 $(x + 4)$ and $(x - 2)$

Find all of the zeros given one or more zeros:

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

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

Find all of the roots by factoring:

7. $f(x) = x^4 - 2x^3 - 3x^2 + 6x$

8. $f(x) = x^3 + 5x^2 + x + 5$

9. $f(x) = 2x^4 - x^3 - 18x^2 + 9x$

10. $f(x) = x^4 - 6x^2 + 8$

11. $f(x) = x^3 - x^2 + x - 1$

12. $f(x) = x^3 + 8$
