

LINEAR FACTORIZATION

LINEAR FACTORIZATION THEOREM:

If c is a **complex zero** of a polynomial function, then _____

This means that all polynomial functions can be completely factored.

USING ZEROS to Write Polynomial Functions

Directions: Write an equation that could represent the function with the given zeros.

1. 1, 2, 5

2. -7, -1, 3

3. $-2, -\frac{4}{3}, 2$

4. $\pm\sqrt{2}, 1$

5. $2\sqrt{3}, 1$

6. $-6, 2+\sqrt{5}$

Examples with MULTIPLICITY

7. 3 (mult. 2), 5

8. 0, 1, $\frac{5}{2}$ (mult. 2)

9. -1 (mult. 3), $\frac{5}{4}$

10. $-\frac{1}{2}$ (mult. 2), 4 (mult. 2)

COMPLEX ZEROS

CONJUGATE ROOT THEOREM:

If a polynomial function has a complex zero at $a + bi$, _____

11. $3i, -1 + 3i$

12. $2i, 2 - i$

13. $-i, 5 + i$

14. $3 + i, 4i$