2.3.2 Graph, Solve, and Analyzing Polynomials

Markerboard Questions

- On your markerboard, create a sketch of a polynomial with…

1. An odd degree and negative leading coefficient

2. An even degree and positive leading coefficient

3. A degree of 5 and three real zeros

4. A degree of 4, three real zeros, and a negative leading coefficient

5. End behavior: $\lim_{x\to\infty} f(x) = \infty$ and $\lim_{x\to-\infty} f(x) = \infty$

6. One real zero with end behavior: $\lim_{x\to\infty} f(x) = -\infty$ & $\lim_{x\to-\infty} f(x) = \infty$

7. Multiplicity of zero $x = 4$ is 2, and multiplicity of zero $x = -2$ is 1

8. Multiplicity of zero $x = -5$ is 3, multiplicity of zero $x = 3$ is 2, and has a negative leading coefficient

9. Sketch $f(x) = x(x-3)^2(x-7)^3$

10. Find all zeroes of the following polynomial:

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

11. Write an equation for the linear function *f* satisfying the given conditions: $f(-2) = 5$ and $f(1) = 4$

12. Write the quadratic function in vertex form.

$$y = x^2 + 8x + 22$$

13. Write an equation for the quadratic function whose graph contains the given vertex and point.

Vertex, (2, -1), point (3, 5)