1. (15 points) How many polynomials of degree 5 having zeros $-2$, $-1$, $0$, $1$, $2$ are there? What makes them different? List 3 of them.

2. (15 points) How many polynomials of degree 5 having zeros $-1$, $0$, $1$ are there? What makes them different? List 3 of them.

3. (15 points) Find a polynomial of degree 3 that has zeros $1$, $-6$, and $4$ and in which the coefficient of $x$ is $5$.

4. (15 points) Find a polynomial of degree 4 that has zeros $1$ and $-1$, each with multiplicity $2$, and passes through the point $(2, -18)$.

5. (15 points) Find a formula for the polynomial of degree 3 whose graph is given here. Be sure to show your reasoning.

6. (15 points) Find a formula for the polynomial of degree 4 whose graph is given here. Be sure to show your reasoning.

7. (10 points) The graph of the degree 3 polynomial, $f(x) = (x + 1)(x - 2)^2$, is shown here. Explain why can’t the polynomial $g(x) = -2(x + 1)(x - 2)^2$ have such graph?