

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Find a polynomial equation with real coefficients that has the given roots.

1) 2, -7 1) _____

2) 0, -5, 3 2) _____

Find the requested polynomial.

3) Find a polynomial function of degree 3 with 4, 2i, -2i as zeros. 3) _____

4) Find a polynomial function of degree 3 with $1 + 5i$, $1 - 5i$, -1 as zeros. 4) _____

5) Find a polynomial of degree 5 with -3 as a zero of multiplicity 3, 0 as a zero of multiplicity 1, and 4 as a zero of multiplicity 1. 5) _____

Find all of the real and imaginary roots, stating the multiplicity of each.

6) $(x + 3)^2(x - 1) = 0$ 6) _____

7) $(x^2 + 13x + 36)^2 = 0$ 7) _____

8) $x^4 - 25x^2 + 144 = 0$ 8) _____

Find the zeros of the polynomial function and state the multiplicity of each.

9) $f(x) = (x^2 - 1)^2$ 9) _____

Given the polynomial function $f(x)$, find the rational zeros, then the other zeros (that is, solve the equation $f(x) = 0$), and factor $f(x)$ into linear factors.

10) $f(x) = x^3 + 2x^2 + 25x + 50$ 10) _____

11) $f(x) = x^3 - 7x^2 + 8x + 10$ 11) _____