5.3 Practice Problems

1. Given information about a polynomial function $f(x)$ whose coefficients are real numbers. Find the remaining zeros of f. Then form a polynomial function having the given degree and zeros. Answers may vary depending on the choice of the leading coefficient.

a. Degree: 3; zeros: $5, 3i$

b. Degree: 3; zeros: $-1, 2+i$

c. Degree: 4; zeros 3 of multiplicity $2, 2+i$

2. Use the zero to find the remaining zeros of the function.

a. $f(x)=x^3+2x^2+25x+50$ zero: $5i$

b. $h(x)=x^4-9x^3+21x^2+21x-130$ zero: $3-2i$

3. Find the complex zeros of each polynomial function. Write the function in factored form.

a. $f(x)=x^3-8$

b. $f(x)=x^4-16$

c. $f(x)=x^4+3x^3-19x^2+27x-252$