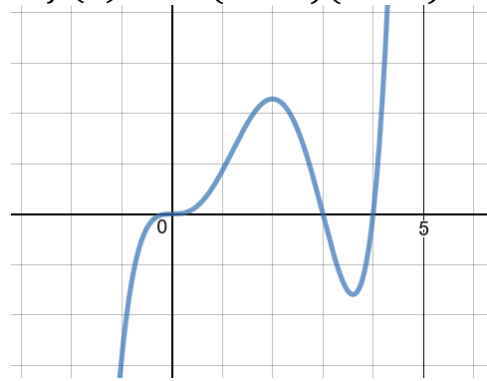


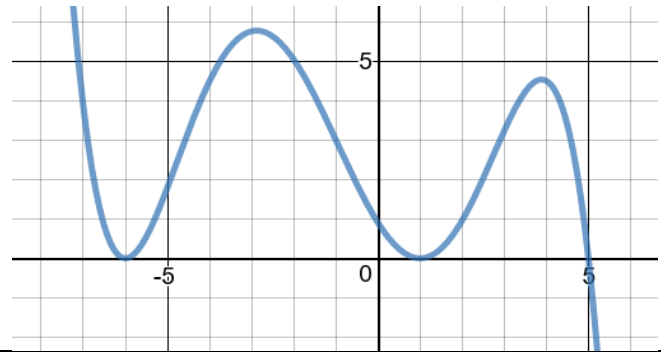
Writing Equations and Graphing Polynomials - Answers

Write an equation of each graph in factored form.

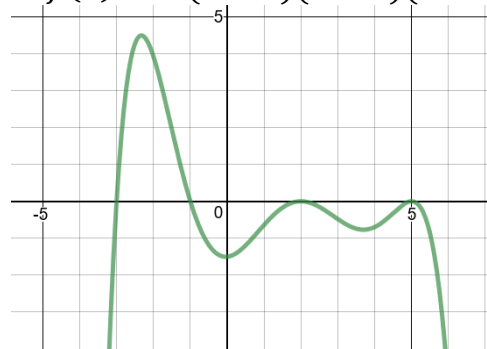
1.  $f(x) = x^3(x - 3)(x - 4)$



2.  $f(x) = -(x + 6)^2(x - 1)^2(x - 5)$



3.  $f(x) = -(x + 3)(x + 1)(x - 2)^2(x - 5)^2$



4.  $f(x) = 2x^4 + 7x^3 - 4x^2 + Cx - 18 \div (x + 1)$

$C = -27$

Find the value of C that will give no remainder.

5.  $f(x) = x^4 - 2x^3 + Cx^2 - 18x + 9 \div (x - 1)$

$C = 10$

6.  $f(x) = x^4 - x^3 + Cx^2 - 3x - 6 \div (x - 2)$

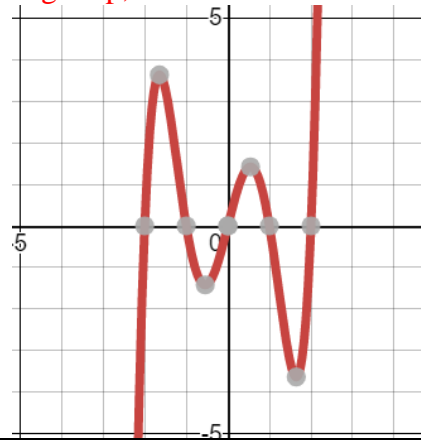
$C = 1$

7.  $f(x) = x^5 - 5x^3 + 4x$

**Degree 5**

**+ LCE**

**Right up, left down**



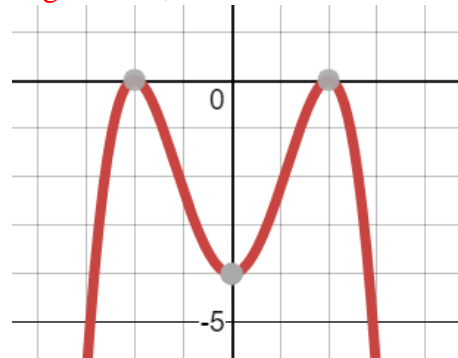
$x = 0, 1, -1, 2, 1 - 2$

8.  $f(x) = -\frac{1}{4}(x - 2)^2(x + 2)^2$

**Degree 4**

**- LCE**

**Right down, left down**



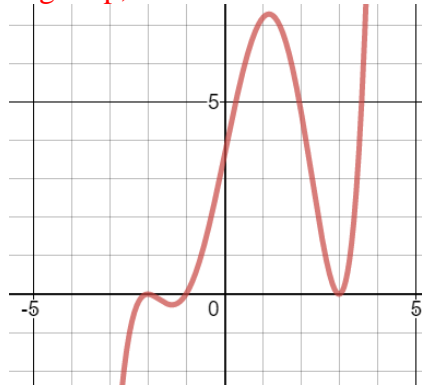
$x = 2, 2, -2, -2$

9.  $f(x) = x^5 - x^4 - 13x^3 + x^2 + 48x + 36$   
 $(x - 3)$  and  $(x + 2)$  are factors

**Degree 5**

**+ LCE**

**Right up, left down**



$x = 3, 3, -2, -2, -1$

10. State the degree and write the equation of the polynomial in factored form, then sketch the graph.

Leading Coefficient –

$x = -4$ , of multiplicity 3

$x = -1$ , of multiplicity 1

$x = 0$ , of multiplicity 1

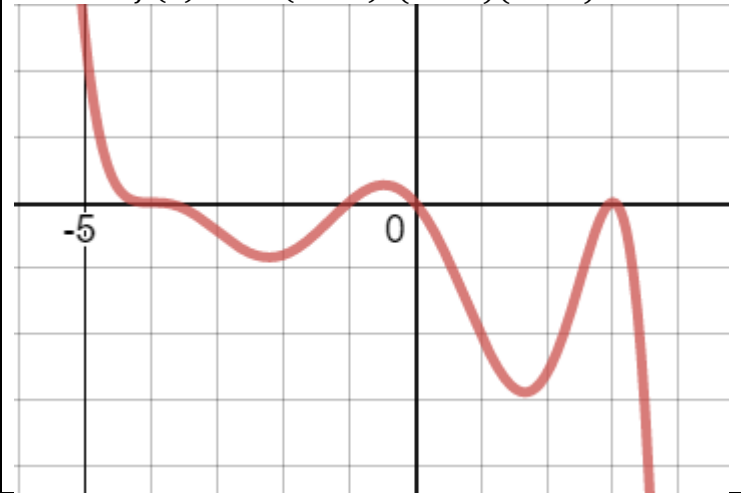
$x = 3$ , of multiplicity 2

**Degree 7**

**– LCE**

**Right down, left up**

$$f(x) = -x(x + 4)^3(x + 1)(x - 3)^2$$

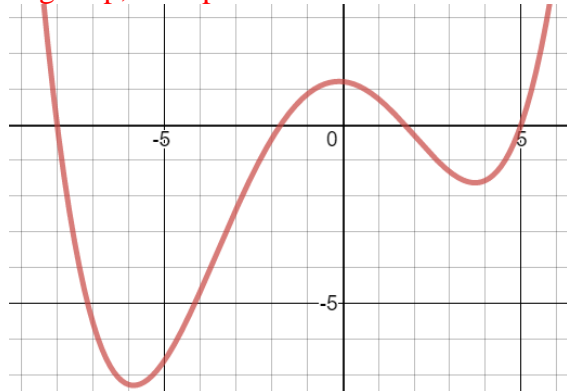


11.  $f(x) = x^4 + 3x^3 - 43x^2 - 9x + 120$   
 $(x - \sqrt{3})$  is a factor

**Degree 4**

**+ LCE**

**Right up, left up**



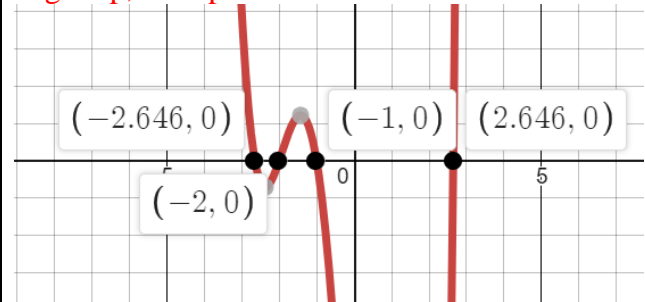
$x = 5, -8, \sqrt{3}, -\sqrt{3}$

12.  $f(x) = x^4 + 3x^3 - 5x^2 - 21x - 14$   
 $(x - \sqrt{7})$  is a factor

**Degree 4**

**+ LCE**

**Right up, left up**



$x = -1, -2, \sqrt{7}, -\sqrt{7}$