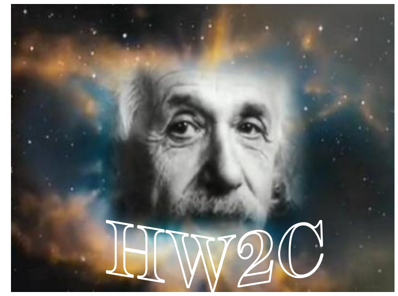


Use sign analysis to ***sketch*** the graph of each equation.

1) $y = (x + 1)(x - 2)(x - 4)$

2) $y = -x(x + 5)(x + 3)$

3) $y = x^2(x + 2)$

4) $y = x(1 - x)(1 + x)(x + 1)$

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

6) $y = x^2(x + 2)(x - 3)(x + 4)^3$

Factor each polynomial function, and then ***sketch*** its graph.

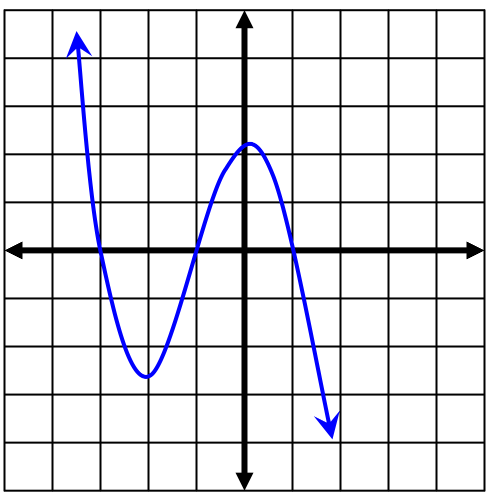
7) $f(x) = x^3 - 4x^2 - 5x$

8) $f(x) = x^5 - 2x^4 + x^3$

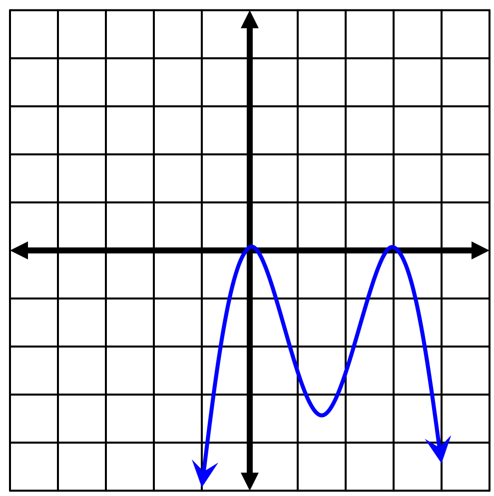
9) $f(x) = 4x^4 - 24x^3 + 35x^2 + 6x - 9$
(***Hint***: $x = 3$ is a double root.)

Give ***an*** equation for each polynomial graph shown. You may assume the *x*-intercepts are whole numbers.

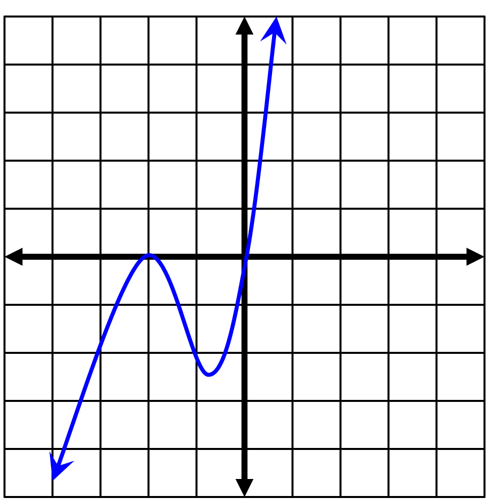
10)



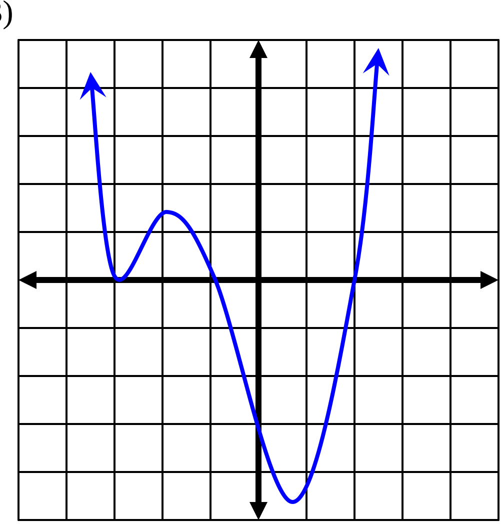
11)



12)

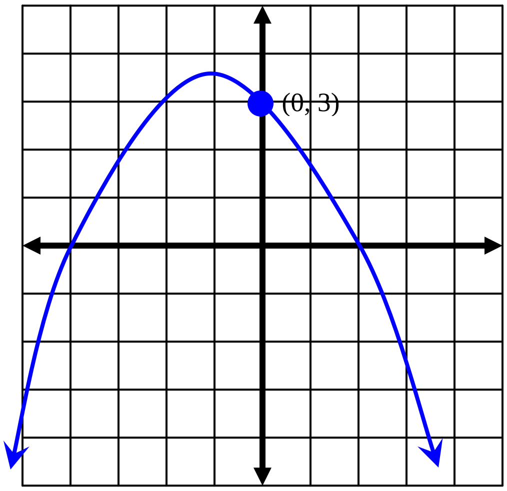


13)

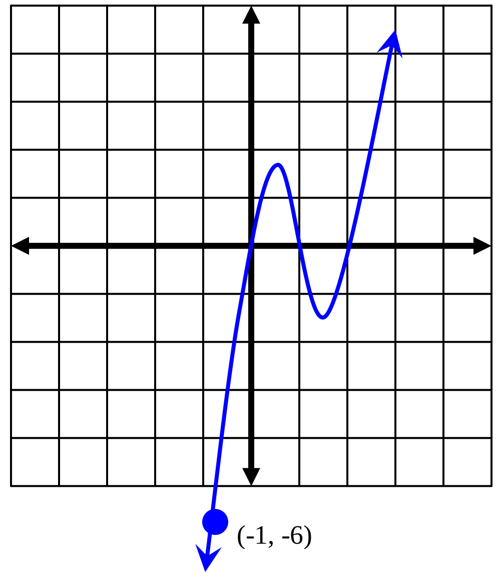


Use the given set of coordinates as well as the *x*-intercepts to find ***the*** equation of the polynomial graph shown.

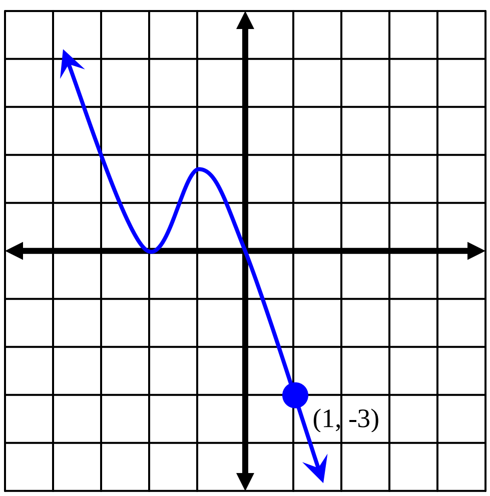
14)



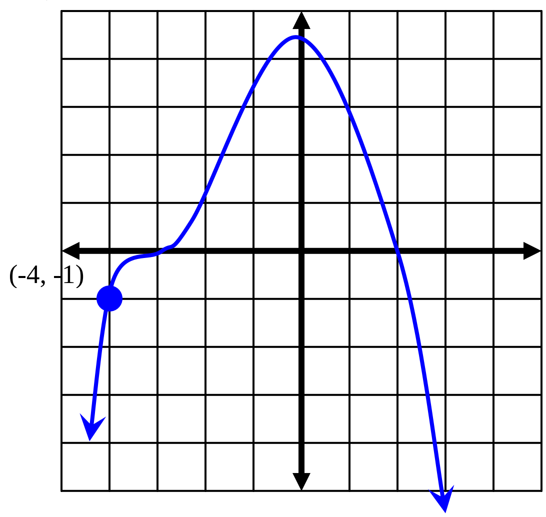
15)



16)



17)



18) Assume that the zeros of a cubic polynomial function described are real. Sketch the graph of each function. If such a function is impossible to draw, say so.

a) 3 zeros b) 2 zeros c) 1 zero d) no zeros

For all graphs, see Mr. Paull	10) $y = -(x + 3)(x + 1)(x - 1)$	14) $y = -3/8(x + 4)(x - 2)$
7) $f(x) = x(x + 1)(x - 5)$	11) $y = -x^2(x - 3)^2$	15) $y = x(x - 1)(x - 2)$
8) $f(x) = x^3(x + 1)^2$	12) $y = x(x + 2)^2$	16) $y = -1/3x(x + 2)^2$
9) $f(x) = (x - 3)^3(2x + 1)(2x - 1)$	13) $y = (x + 3)^2(x + 1)(x - 2)$	17) $y = -1/6(x + 3)^3(x - 2)$