

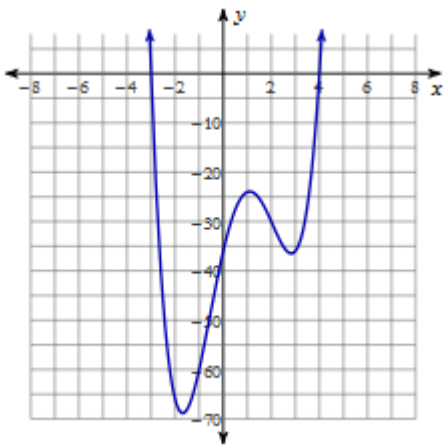
**State the possible rational zeros of each function.**

1)  $f(x) = 3x^3 + 14x^2 - 20x + 5$

2)  $f(x) = 2x^3 + 8x^2 + x - 14$

**Given the graph of the  $f(x)$ , find all zeros and factors of the function.**

3)  $f(x) = x^4 - 3x^3 - 7x^2 + 21x - 36$



**Factors:**

**Zeros:**

**Given the following functions, how many zeros will they have? Do not solve.**

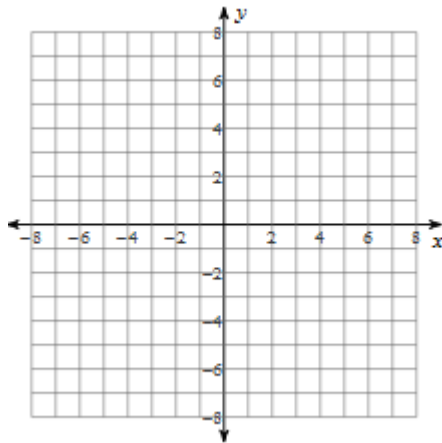
4)  $f(x) = x^4 - 2x^3 + 9$

5)  $f(x) = x^2 + x - 9$

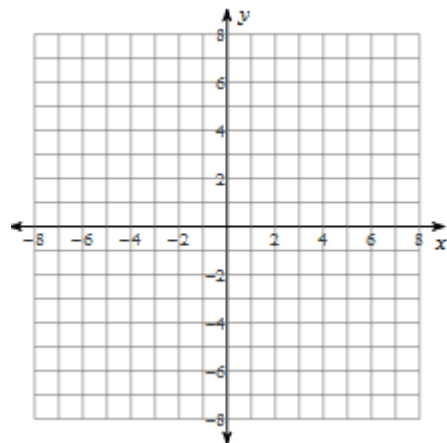
6)  $f(x) = 7x^3 + x - 6$

Draw a sketch of the graph using your knowledge of zeros, multiplicity, and end behavior.

7)  $f(x) = -(x + 2)^2(x - 3)$

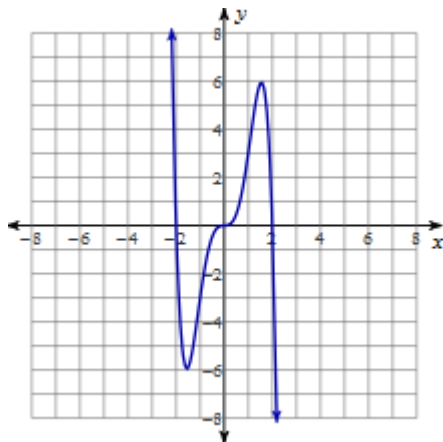


8)  $f(x) = (x - 1)^3(x + 4)^2$

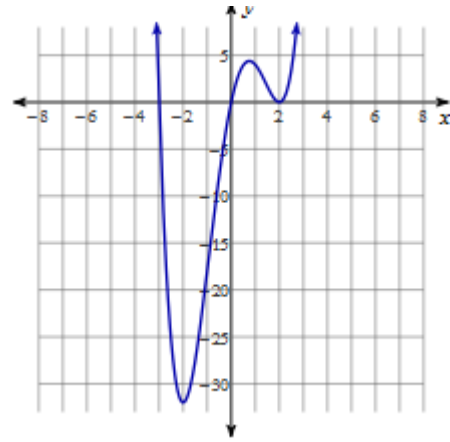


Write a polynomial function for the graph show. Leave in factored form.

9)



10)



Factor Completely to find the zeros. Then graph.

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

Factors:

Zeros:

**Write a polynomial of least degree with the given zeros.**

12)  $-3, 4, 2$  – multiplicity 2

13)  $0, -2, 5$

**Find all factors and zeros of the following polynomials. Then graph.**

14)  $f(x) = x^3 - 4x^2 - 50x - 25$

Factors:

Zeros:

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

Factors:

Zeros:

