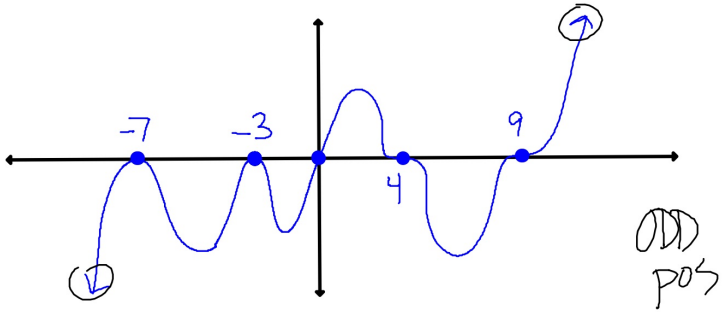
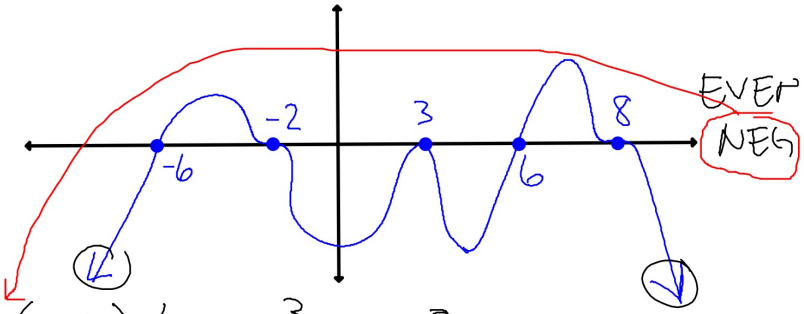
1. Write a possible equation for this graph.



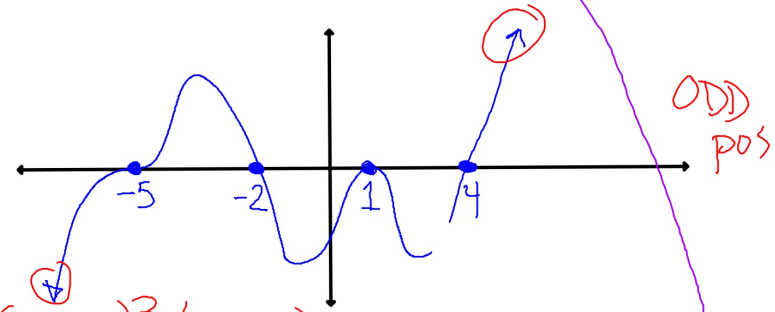
$(x+7)^2(x+3)^2(x)(x-4)^3(x-9)^3$

2. Write a possible equation for this graph.



$-(x+6)(x+2)^3(x-3)^2(x-6)(x-8)^3$

3. Write a possible equation for this graph. (-4,600) is on the graph



$a(x+5)^3(x+2)(x-1)^2(x-4)$

$600 = a(1)(-2)(25)(-5)$

This extra point helps find the value of a which = 1.5 for this function.

Find the minimum value of this function and when it occurs:

$y = 3x^2 - 12x + 5$

$y = -7$ when $x = 2$

Min Value = -7 (y-coord of the vertex)
this value occurs when x=2 (x-coord of the vertex)

$x = -\frac{b}{2a} = \frac{12}{6} = 2$ $\quad 3(2)^2 - 12(2) + 5 = -7$

This is called the Absolute Minimum.

Does this function have a maximum value?

No max value since the graph increases for ever on both ends.

Find minimum value of this function and when it occurs

$$y = x^4 + x^3 - 6x^2 - 4x + 5$$