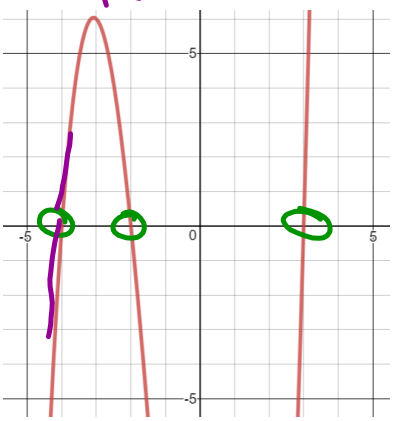
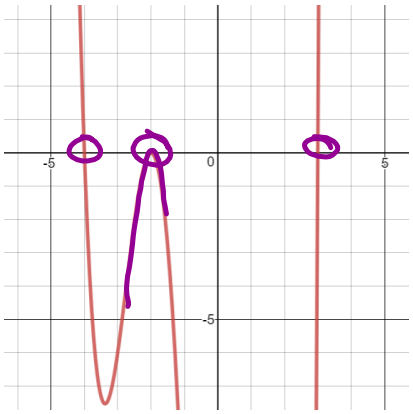
Equations and Graphs

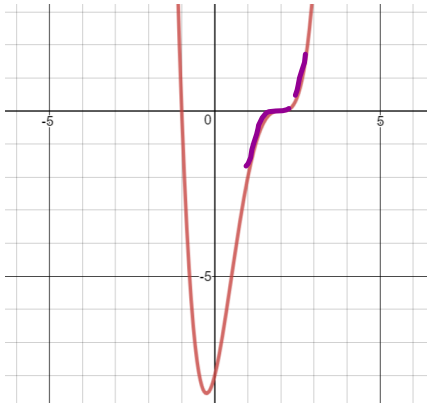
$y = (x-3)(x+2)(x+4)$



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



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



$x - 3 = 0$

$x = 3$

Factors and x-intercepts

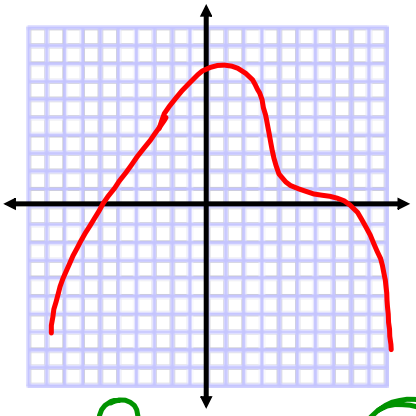
Factors of a function, f(x) correspond with the x-intercepts of the graph of f(x).

If $(x-a)$ is a factor of $f(x)$, then "a" is an x-int of $f(x)$

Order of an x-intercept

when a factor is repeated n times, the x-intercept is said to have order n

Odd Order Zeros

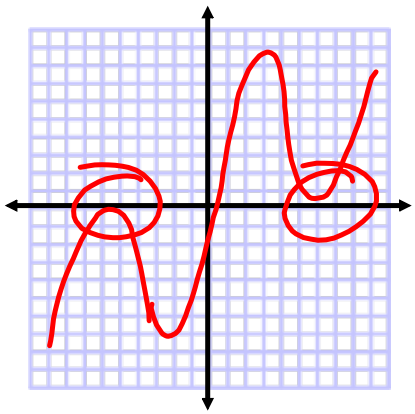


$(x-2)^1$ $(x+4)^3$

odd number

- goes through the x-axis

Even Order Zeros



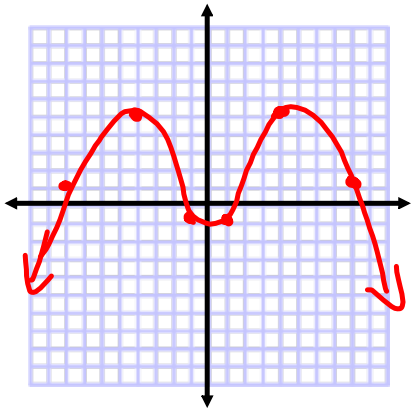
$(x+1)^2$ $(x-4)^4$

Even numbers

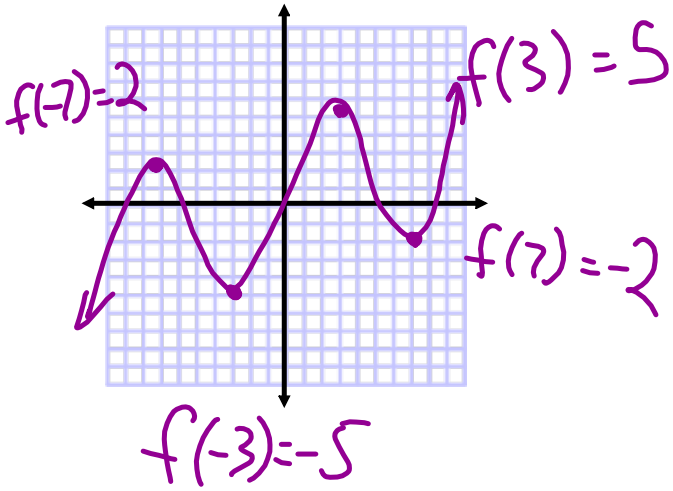
- touch but DO NOT cross the x-axis.

Odd and Even Functions

An even functions satisfies the property f(x) = f(-x) for all x values and has line symmetry in the y-axis. A function is an even function if the exponent of each term is an even number.



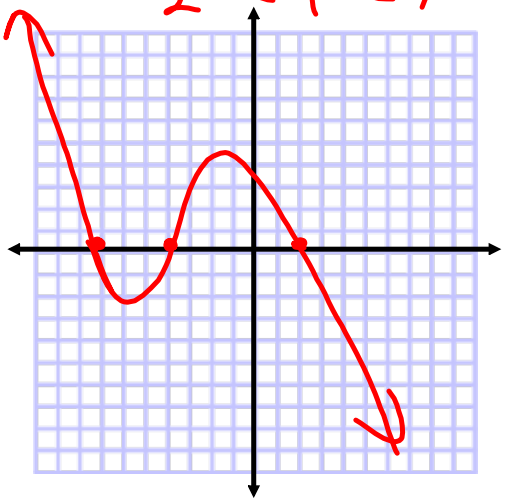
An odd functions satisfies the property f(x) = -f(-x) for all x values and has point symmetry at the origin. A function is an odd function if the exponent of each term is an odd number.



Sketch the graph of the following:

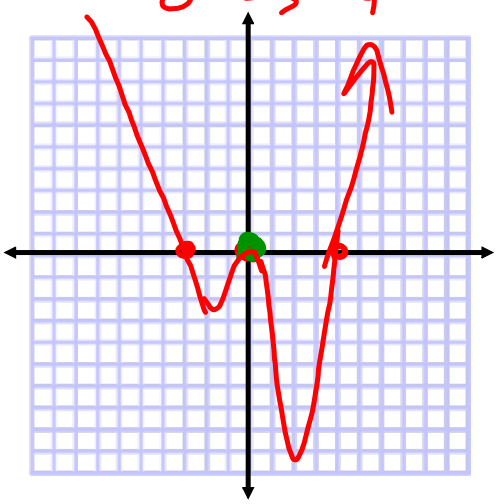
$y = -(x-2)(x+4)(x+7)$

2 -4 -7

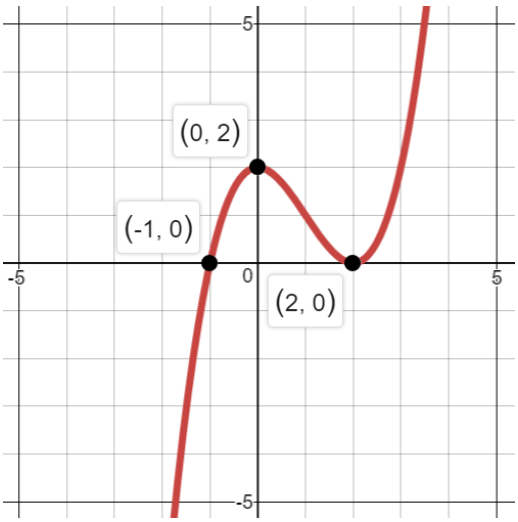


$f(x) = x^2(x+3)(x-4)$

0 -3 4



Determine an equation for the graph



Homework

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