

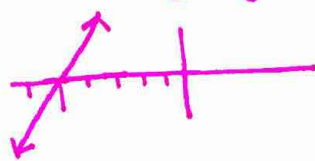
# Graphing Polynomials

A2

\* multiplicity: the exponent attached that tells you what type of zero it is

→ options ①  $(x+5)$

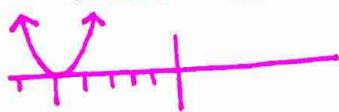
this has a "hidden" exponent of 1 meaning there is a single root at  $x=-5$



passes from one side to the other side of the x-axis.

②  $(x+5)^2$

this factor has an exponent of 2 meaning there's a double root at  $x=-5$



the root bounces on the axis

③  $(x+5)^3$

this has an exponent of 3 meaning there's a switchback root at  $x=-5$



passes through the x-axis with a switchback

\* also look at the leading term degree & coefficient for end behavior.

## examples

sketch:

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

LD: 6 up-up

C: +

