

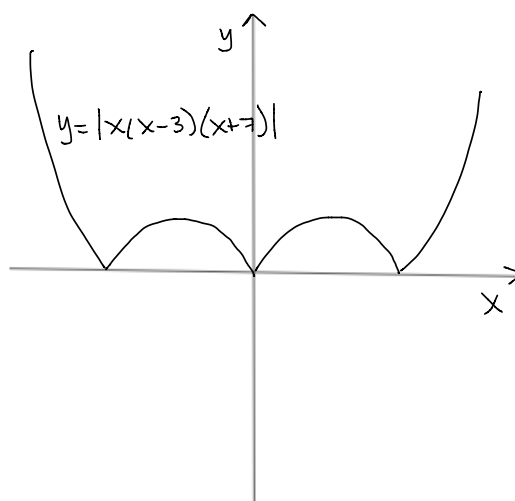
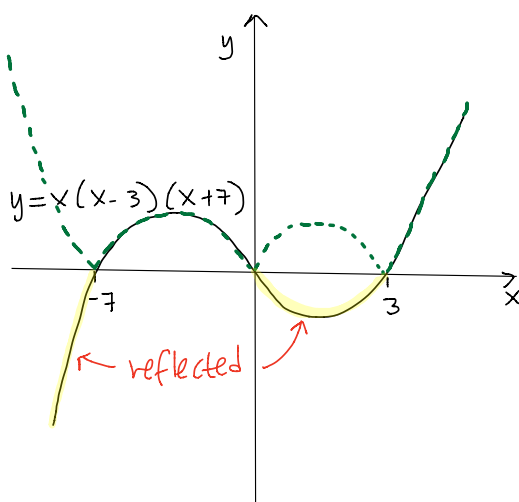
## C3 - Chapter 5 - Transformations of graphs - Summary

- \* The modulus, or magnitude, of a number  $a$  is written as  $|a|$  and is the positive value of  $a$ .

ie.  $|201| = 201$        $|-28.4| = 28.4$

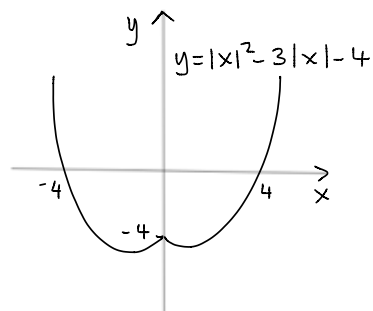
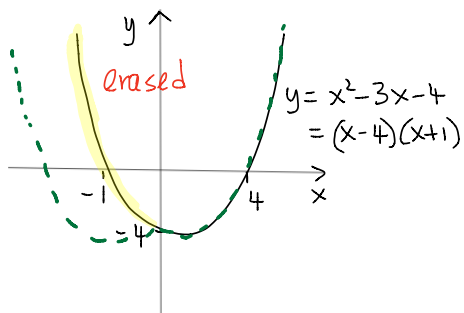
- \* To sketch the graph of  $|f(x)|$ , start by sketching  $f(x)$  and then any parts of the curve that lie below the x-axis are reflected along the x-axis.

e.g.  $f(x) = |x(x-3)(x+7)|$



- \* To sketch the graph of  $f(|x|)$ , sketch  $f(x)$  for all positive values of  $x$  and then reflect the graph along the y-axis so that it also appears in the negative x-axis.

e.g.  $f(x) = |x|^2 - 3|x| - 4$



\* Transformations of graphs

$f(x+a)$  Translation  $a$  units to the left

$f(ax)$  Stretch along the horizontal by a scale factor of  $1/a$ .

$f(x)+a$  Translation  $a$  units up

$af(x)$  Stretch along the vertical by a scale factor of  $a$

$f(-x)$  Reflection along the y-axis

$-f(x)$  Reflection along the x-axis