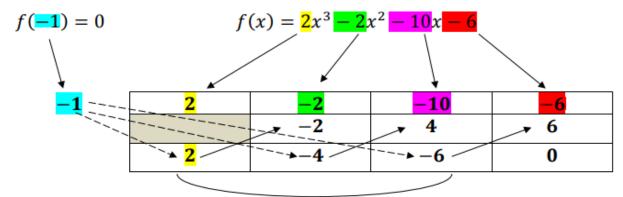
SYNTHETIC DIVISION

$$f(-1) = 0$$
, so $(x + 1)$ is a factor



This method is called SYNTHETIC division, because we don't really divide.

We actually multiply and add.

Note the following:

- The x-value of -1 that gave us the factor (x+1) is written on the LHS
- The coefficients of the cubic polynomial are written in the top row
- The first coefficient, 2, is carried down to the last row
- Now starting from the left:

 MULTIPLY along the dotted arrow

 and write the ANSWER in the block one row up and one column right

repeat steps

- Now ADD DOWN in the column (the two values underneath each other)
- You MUST get 0 in the last block
- The 3 values in the bottom row are the coefficients of the quadratic factor.

So,
$$f(x) = (x+1)(2x^2 - 4x - 6)$$

You can now complete the factorising:

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