

1.  $j^3 + 3j^2 - 4j - 12$  has a factor  $(j - (-3))$  compute all other factors:

$$(j - 2) (j + 2) (j + 4)$$

$$(j - 3) (j - 2)^2$$

$$(j - 2) (j + 2) (j + 3)$$

$$(j - 4) (j - 2)^2$$

**Solution**

Apply Long Division.

$$(j - 2) (j + 2) (j + 3)$$