

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

$$(q - 1) (q + 1) (q + 3)$$

$$(q - 3) (q - 1) (q + 2)$$

$$(q - 1) (q + 2)^2$$

$$(q - 4) (q - 1) q$$

**Solution**

Apply Long Division.

$$(q - 1) (q + 2)^2$$