(v + 2) (v + 3) (v + 4)(v-3) (v+1) (v+3)(v (v + 2) (v + 3))

1. $v^3 + 5v^2 + 6v$ has a factor (v - (-3)) compute all other factors:

(v-3)(v-1)(v+3)

Solution

Apply Long Division. v (v + 2) (v + 3)