2. $d^3 + 7d^2 + 14d + 8$ has a factor $(d - (-4))$ compute all other factors:

$(d - 4)(d + 2)(d + 3)$

$(d - 1)(d + 2)(d + 4)$

$(d + 1)(d + 2)(d + 4)$

$(d - 2)(d + 2)^2$

Solution
Apply Long Division.
$(d + 1)(d + 2)(d + 4)$