1. $u^3 - 12u - 16$ has a factor $(u - (-2))$ compute all other factors:

$u\ (u + 1)\ (u + 2)$

$(u - 3)\ (u + 2)\ (u + 3)$

$(u - 4)\ (u + 2)^2$

$(u - 2)\ (u + 1)\ (u + 2)$

Solution
Apply Long Division.
$(u - 4)\ (u + 2)^2$