Exercise 2K

Question 18:
Given, $x + y + 4 = 0$
We have $(x^3 + y^3 - 12xy + 64)$
$= (x)^3 + (y)^3 + (4)^3 - 3\,(x)\,(y)\,(4)$
$= 0.$
Since, we know $a + b + c = 0 \Rightarrow (a^3 + b^3 + c^3) = 3abc$

Question 19:
Given $x = 2y + 6$
Or, $x - 2y - 6 = 0$
We have, $(x^3 - 8y^3 - 36xy - 216)$
$= (x^3 - 8y^3 - 216 - 36xy)$
$= (x)^3 + (-2y)^3 + (-6)^3 - 3\,(x)\,(-2y)\,(-6)$
$= (x - 2y - 6)\,[(x)^2 + (-2y)^2 + (-6)^2 - (x)\,(-2y) - (-2y)\,(-6) - (-6)\,(x)]$
$= (x - 2y - 6)\,(x^2 + 4y^2 + 36 + 2xy - 12y + 6x)$
$= 0\,(x^2 + 4y^2 + 36 + 2xy - 12y + 6x)$
$= 0.$

********** END **********