Exercise 2G

Question 44:

$7x^2 + 2\sqrt{14}x + 2$

$= 7x^2 + \sqrt{2}\sqrt{7}x + \sqrt{2}\sqrt{7}x + 2$
$= \sqrt{7}x\left(\sqrt{7}x + \sqrt{2}\right) + \sqrt{2}\left(\sqrt{7}x + \sqrt{2}\right)$
$= \left(\sqrt{7}x + \sqrt{2}\right)\left(\sqrt{7}x + \sqrt{2}\right) = \left(\sqrt{7}x + \sqrt{2}\right)^2$.

Question 45:
Let $x + y = z$
Then, $2(x + y)^2 - 9(x + y) - 5$

$= 2z^2 - 9z - 5$
$= 2z^2 - 10z + z - 5$
$= 2z(z - 5) + 1(z - 5)$
$= (z - 5)(2z + 1)$

Now, replacing z by $(x + y)$, we get

$2(x + y)^2 - 9(x + y) - 5$

$= [(x + y) - 5][(2(x + y) + 1)]$
$= (x + y - 5)(2x + 2y + 1)$.

Question 46:
Let $2a - b = c$
Then, $9(2a - b)^2 - 4(2a - b) - 13$

$= 9c^2 - 4c - 13$
$= 9c^2 - 13c + 9c - 13$
$= c(9c - 13) + 1(9c - 13)$
$= (c + 1)(9c - 13)$

Now, replacing c by $(2a - b)$, we get
$9(2a - b)^2 - 4(2a - b) - 13$

$= (2a - b + 1)[9(2a - b) - 13]$
$= (2a - b + 1)(18a - 9b - 13)$

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