13. The synthetic division table for this problem takes the following form.

6	3	5	0
		18	138
	3	23	138

Thus the quotient is $3x + 23$, and the remainder is 138.

15. Since $x + 2 = x - (-2)$, the synthetic division table for this problem takes the following form.

-2	1	2	2	1
		-2	0	-4
	1	0	2	-3

Thus the quotient is $x^2 + 2$, and the remainder is -3.

17. Since $x + 3 = x - (-3)$ and $x^3 - 8x + 2 = x^3 + 0x^2 - 8x + 2$, the synthetic division table for this problem takes the following form.

-3	1	0	-8	2
		-3	9	-3
	1	-3	1	-1

Thus the quotient is $x^2 - 3x + 1$, and the remainder is -1.

19. Since $x^5 + 3x^3 - 6 = x^5 + 0x^4 + 3x^3 + 0x^2 + 0x - 6$, the synthetic division table for this problem takes the following form.

1	1	0	3	0	0	-6
		1	1	4	4	4
	1	1	4	4	4	-2

Thus the quotient is $x^4 + x^3 + 4x^2 + 4x + 4$, and the remainder is -2.