Sequence Puzzles

Find the rule for generating the following sequences! If possible, also write down an algebraic formula to give the nth term.

(1) $2, 4, 6, 8, 10, \ldots$

(2) $3, 6, 12, 24, 48, \ldots$

(3) $1, 4, 9, 16, 25, \ldots$

(4) $2, 3, 5, 7, 11, \ldots$

(5) $1, 1, 2, 3, 5, 8, \ldots$

(6) $1, 1, 2, 6, 24, 120, \ldots$

(7) $3, 10, 5, 16, 8, 25, \ldots$

(8) $1, 4, 9, 18, 35, 68, 133, 262, 519, 1032, \ldots$

(9) $1, 11, 21, 1211, 111221, 312211, 13112221, 1113213211, 31131211131221,$
$1321131123113112211, \ldots$

(10) $1, 1, 2, 4, 7, 13, 24, 44, 81, 149, \ldots$

(11) $3, 5, 11, 17, 31, 41, 59, 67, 83, 109, \ldots$

(12) $2, 3, 7, 5, 11, 13, 15, 19, 23, 29, 31, 35, 41, 43, 45, 73, 79, 61, \ldots$

(13) $2, 3, 3, 5, 10, 13, 39, 43, 172, 177, \ldots$

(14) $0, 0, 0, 0, 4, 9, 5, 1, 1, 0, 55, \ldots$ (Hint: Roman numerals)