Notes to Questions 13 and 14

- Two ways to evaluate polynomials
  - "Direct way": Question 13
  - "Horner's Rule": Question 14

- E.g. take polynomial $5 + 7x + 9x^2 + 3x^3$ and evaluate it at $x = 2$
  - "Direct way": compute $5 + 7 \times 2 = 19$
    compute $19 + 9 \times 2^2 = 55$
    compute $55 + 3 \times 2^3 = 79$

  - "Horner's way": Notice that

$$5 + 7x + 9x^2 + 3x^3 = 5 + x(7 + x(3x + 9))$$

and start evaluating from here

compute $3 \times 2 + 9 = 15$
compute $7 + 2 \times 15 = 37$
compute $5 + 2 \times 37 = 79$

- Both methods yield the same answer, of course.
  Which one's better? Why? (Consider complexity)