



Arab Academy for Science & Technology and Maritime Transport (AASTMT)

College of Computing and Information Technology (CCIT)

Computing Alg. CS312 – Spring 2014

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**Q1.**

Apply Horner's rule to convert 110100101 from binary to decimal.

**Hint:**

Compute  $p(2)$  where  $p(x) = x^8 + x^7 + x^5 + x^2 + 1$

**Q2.**

a. Apply the left-to-right binary exponentiation algorithm to compute  $a^{17}$ .

b. Is it possible to extend the left-to-right binary exponentiation algorithm to work for every nonnegative integer exponent?

**Hint:**

a. Trace the left-to-right binary exponentiation algorithm on the instance given the same way it is done for another instance in the section.

b. The answer is "yes": the algorithm can be extended to work for the zero exponent as well. How?