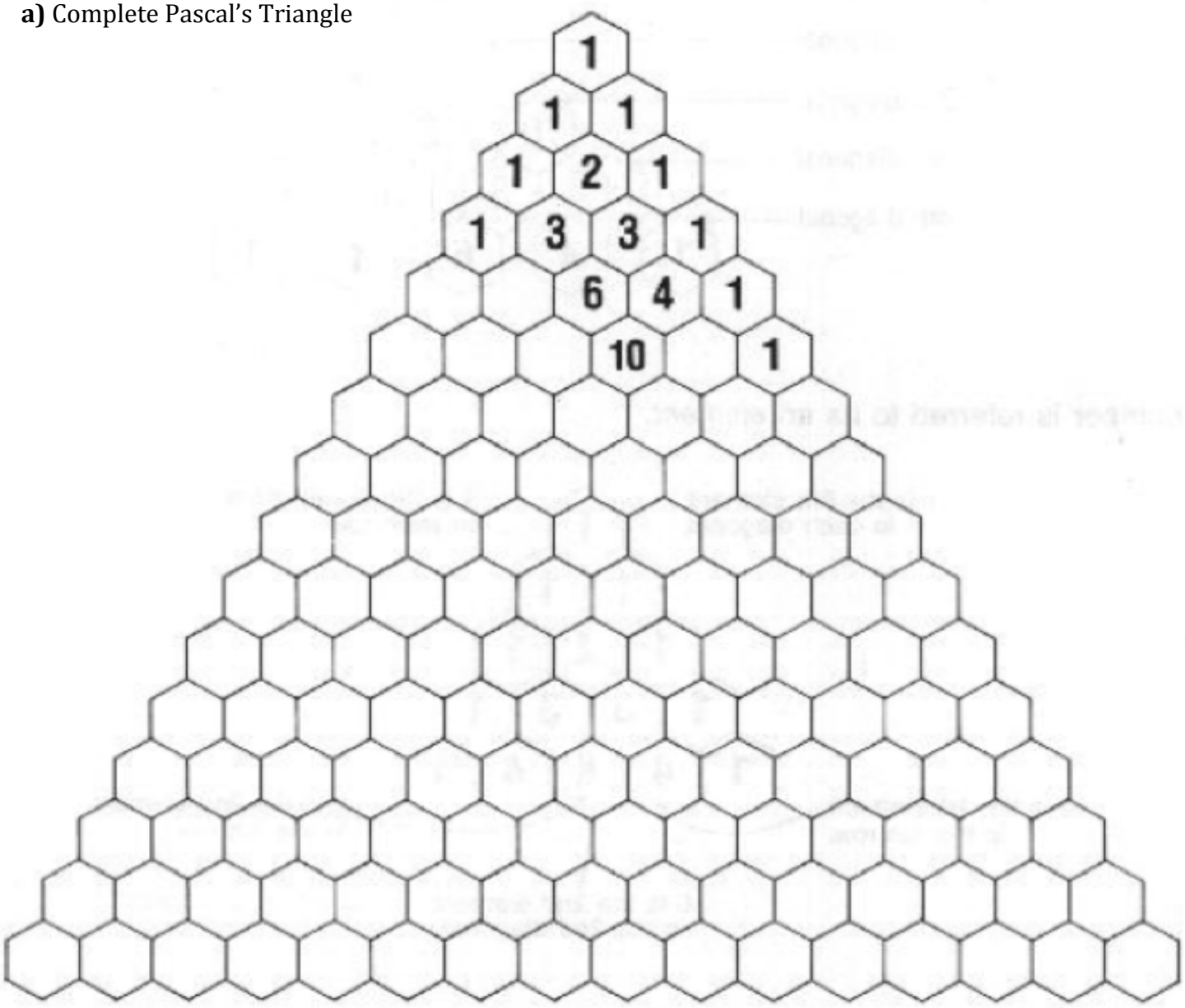
6.3 Pascal's Triangle – Lesson

MCR3U

Jensen

a) Complete Pascal's Triangle



b) What patterns do you notice in Pascal's Triangle?

c) Expand each of the following binomials.

$(a+b)^0 =$

$(a+b)^1 =$

$(a+b)^2 =$

$(a+b)^3 =$

$(a+b)^4 =$

Blaise Pascal (French Mathematician) discovered a pattern in the expansion of $(a+b)^n$.... which patterns do you notice?

Example 1: Expand each binomial using Pascal's Triangle

a) $(a+b)^6$

b) $(2x-3)^5$

c) $(2x+3y^2)^5$

d) $\left(\frac{y}{2}-y^2\right)^4$

Example 2: How many terms will there be if you expand $(x + 2y)^{20}$?

Example 3:

a) What is the second term in the expansion of $(x + 6)^7$

b) What is the 5th term in the expansion of $(3y - 4)^8$

Example 4:

a) What is the coefficient of x^3 in the expansion of $(x + 6)^6$

b) What is the coefficient of y^4x^2 in the expansion of $(y + 3x)^6$