

El-Sabry
Discrete Math

1-11-15
WS 11

1. 7.4

$$1) \{1, 4, 16, 64, 256\}$$

$$f(x) = 1 + 4x + 16x^2 + 64x^3 + 256x^4$$

$$f(x) = \sum_{i=0}^4 (4x)^i$$

$$\frac{1 - (4x)^5}{1 - 4x}$$

2) a)

$$f(x) = \frac{-(1-x)^7}{1-x}$$

$$b) a^n = 3^n \quad \frac{1}{1-3x}$$

c)

4)

$$\left(\frac{1-x^4}{1-x} \right)^5$$

$$\frac{1 - 5x^4 + 8x^{10} - 10x^{12} + \dots}{(1-x)^5}$$

2. 8.1

1) a) $\{x\}$

b) $\{x, y, z\}$

$$(x, y), (y, x), (x, z)$$

2) Yes def. of relations