5-101. See below:

   a. $y = 2 \cdot 4^x$

   b. $y = 5 \cdot (1.2)^x$

5-102. See below:

   a. 1.03

   b. 0.75

   c. 0.87

   d. 1.0208

5-103. Technically, Mathias can never leave, either because he will never reach the door or because he cannot avoid breaking the rules. The equation for this situation is $y = 100(0.5)^x$, where x is the number of minutes that have passed and y is the distance (in meters) from the door.

5-104. See below:

   a. $8m^5$

   b. $2y^3$

   c. $\dfrac{-2}{3y^5}$

   d. $-8x^6$

5-105. **See below:**

a. #1 is arithmetic, #2 is neither, #3 is geometric

b. #1 the generator is to add -3, #3 the generator is to multiply by $\frac{1}{2}$

5-106. **See below:**

a. $-3, -1, 1, 3, 5$

b. $3, -6, 12, -24, 48$

5-107. **See below:**

a. $x = -\frac{16}{5}$

b. no solution

c. $x = -4$ or 5

d. $x = 2$

5-108. **See below:**

a. $12, 7, 2, -3, -8$; $t(n) = 17 - 5n$

b. $32, 16, 8, 4, 2$; $a_n = 64(\frac{1}{2})^n$

5-109. B

5-110. **See below:**

a. $y = x + 2$

b. 28 grams