Name: _____ Period: _____

6.4 EXPONENTIAL GROWTH WORKSHEET

In the growth models shown for #1–8, identify the initial amount, growth factor, and percent growth rate.

1. $y = 2(1.25)^t$

Initial Amount: _____

Growth Factor: _____

Growth Rate: _____

2. $y = 3(1.05)^t$

Initial Amount: _____

Growth Factor: _____

Growth Rate: _____

3. $y = 0.1(1.75)^t$

Initial Amount: _____

Growth Factor: _____

Growth Rate: _____

4. $y = 7(1.04)^t$

Initial Amount: _____

Growth Factor: _____

Growth Rate: _____

5. $y = (1.0068)^t$

Initial Amount: _____

Growth Factor: _____

Growth Rate: _____

6. $y = 14.8(2)t$

Initial Amount: _____

Growth Factor: _____

Growth Rate: _____

7. $y = 5{,}403(3.1)^t$

Initial Amount: _____

Growth Factor: _____

Growth Rate: _____

8. $y = 9(1.002)^t$

Initial Amount: _____

Growth Factor: _____

Growth Rate: _____

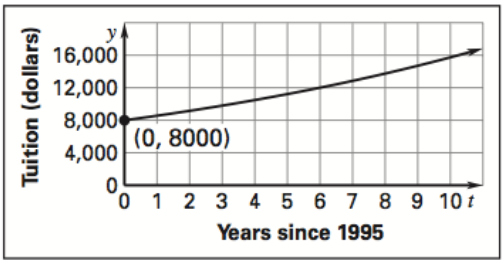
9. **A successful small business made $10,000 in profit in the year 2000. Then the profit began to increase by 8% each year. If this trend continues…**

a. Write an exponential growth function that models the profit in dollars over time.

b. What will the profit be in 2015?

c. What will the profit be in 2025?

10. **From 1995 to 2005, the tuition at a college increased by about 7% per year. If this trend continues…**



a. Write an exponential growth function that models the tuition over time.

b. What will the tuition be in 2020?

c. What was the tuition in 1995?

d. What was the tuition in 2011?

11. **The table shows the total numbers of shares of initial public offering A purchased days after it opens on the stock market.**

Public Offering A

days	*number of shares*
0	400
1	600
2	900
3	1350
4	2025

a. What is the initial amount?

b. What is the growth factor?

c. What is the growth rate?

d. Write an exponential growth function that models the number of shares over time.

12. **The table shows the total numbers of shares of initial public offering B purchased days after it opens on the stock market.**

Public Offering B

days	*number of shares*
0	625
1	750
2	900
3	1080
4	1296

a. What is the initial amount?

b. What is the growth factor?

c. What is the growth rate?

d. Write an exponential growth function that models the number of shares over time.

13. **Use the information from questions 11–12 to answer the following:**

a. On which day did the two public offerings have the same number of shares sold?

b. On day 15, *how many more* shares will public offering A have sold than public offering B?

(Worked–Out Solutions Online!)

ANSWERS:

1. initial amt: 2
   growth factor: 1.25
   growth rate: 25%

2. initial amt: 3
   growth factor: 1.05
   growth rate: 5%

3. initial amt: 0.1
   growth factor: 1.75
   growth rate: 75%

4. initial amt: 7
   growth factor: 1.04
   growth rate: 4%

5. initial amt: 1
   growth factor: 1.0068
   growth rate: 0.68%

6. initial amt: 14.8
   growth factor: 2
   growth rate: 100%

7. initial amt: 5,403
   growth factor: 3.1
   growth rate: 210%

8. initial amt: 9
   growth factor: 1.002
   growth rate: 0.2%

9. a. $y = 10{,}000(1.08)^t$
   b. $31,721.69
   c. $68,484.75

10. a. $y = 8{,}000(1.07)^t$
    b. $43,419.46
    c. $8,000.00
    d. $23,617.31

11. initial amt: 400 shares
    growth factor: 1.5
    growth rate: 50%
    $y = 400(1.5)^t$

12. initial amt: 625 shares
    growth factor: 1.2
    growth rate: 20%
    $y = 625(1.2)^t$

13. a. Day 2 (they both sold 900 shares on day 2) b. A will have sold 165,529 more shares than B on day 15.