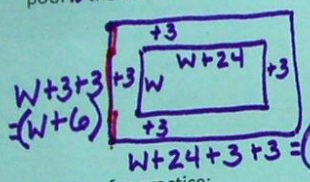
Area Problems; #5

Example:

A rectangular swimming pool is 24 m longer than it is wide and it's surrounded by a deck 3 m wide. Find the area of the pool if the area of the deck is 324 m^2.



deck

Whole − 324 = pool

$(W+6)(W+30) - 324 = W(W+24)$

$W^2 + 30W + 6W + 180 - 324 = W^2 + 24W$

$36W + -144 = 24W$

$-144 = -12W$

$W = 12$

Pool area

$12 * 36 = 432\ m^2$

Problem for practice:

An oil painting is 8 in. longer than it is wide and is bordered on all sides by a frame 3 in. wide. If the area of the frame alone is 468 in^2, what are the dimensions of the painting?

ving, Growing, Growing Investigation 3.3

Making a Difference

roblem 3.2, the value of Sam's stamp collection increased by the same ent each year. However, each year, this percent was applied to the ious year's value. So, for example, the increase from year 1 to year 2 % of $2,650, not 6% of the original $2,500. This type of change is ed **compound growth.**

he next problem, you will continue to explore compound growth. You consider the effects of both the initial value and the growth factor on value of an investment.

nnecting Growth Factor and Growth Rate

Cassie's grandmother started college funds for her two granddaughters. She gave $1,250 to Cassie and $2,500 to Cassie's older sister, Kaylie. Each fund was invested in a 10-year bond that pays 4% interest a year.

For each fund, write an equation to show the relationship between the number of years, n, and the a money in the fund, m.

Cassie: $m = 1.04^n \cdot 1250$ Kaylie: _____

Make a table to show the amount in each fund for 0 to 10 years.

Number of Years	Amount of Money in Funds	
	Cassie's Account	Kaylie's Account
0	1250	2500
1	1300	
2	1352	
3	1406.08	
4		

later, Cassie's grandmother started a fund for Cassie's younger brother, Matt. Cassie made thi

n to predict the value of Matt's fund several years from now: $= 2000 \cdot 1.05^4$

Value = \$2000 * 1.05 * 1.05 * 1.05 * 1.05

What is the initial value? 2000 growth factor? 1.05

growth rate? 5% Number of years that Cassie is assuming? 4

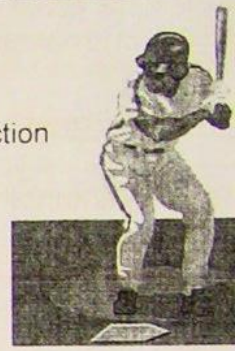
. Write an equation to predict the value, v, of Matt's fund given n number of years. $V = 2000$

. If the value continues to increase at this rate, how much would the fund be worth in 10 years?

(Show your work.) $1.05^{10} \cdot 2000 = \$3257.79$

ır Own:

ner made the following calculations to predict the value of his baseball card collection several years from now:



value = \$130 * 1.07 * 1.07 * 1.07 * 1.07 * 1.07

a. What is the initial value? _____ growth factor? _____

growth rate? _____ Number of years that Tanner is assuming? _____

b. Write an equation to predict the value, v, of Tanner's cards given n number of years. _____

3. If the value continues to increase at this rate, how much would the cards be worth in 10 years?

(Show your work.) _____

lultiple Choice Ms. Diaz wants to invest \$500 in a savings bond. At hich bank would her investment grow the most over 8 years?

. Bank 1: 7% interest for 8 years.

3. Bank 2: 2% interest for the first 4 years and 12% interest for the next four years.

1. Bank 3: 12% interest for the first 4 years and 2% interest for the next four years.

. All three result in the same growth.