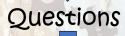


## Only for Financial Geniuses Can you Solve this investing Puzzle?

## The Puzzle

- •Initial Investment (Principal): \$1,000
- •Monthly Contribution: \$100
- ·Annual Interest Rate: 5%
- •Compounding Frequency: Monthly
- •Time Horizons: 10, 20, and 30 years



- How much will the investment grow to in 10, 20, and 30 years?
- How does increasing the annual interest rate by 1% (to 6%) impact the investment's growth over the same periods?

## A Formula?

$$A = P imes (1 + rac{r}{n})^{nt} + PMT imes \left(rac{(1 + rac{r}{n})^{nt} - 1}{rac{r}{n}}
ight)$$

## Or Spreadsheets?

		5%		Interest rate		
		1,000.00	\$	Starting capital		
		100.00	\$	Monthly addition		
Interest \$		Monthly added \$		Account balance \$	Month	
4.07	\$	-	\$	\$ 1,000.00	0	
4.50	\$	100.00	\$	\$ 1,104.07	1	
69.53	\$	100.00	\$	\$ 17,065.21	120	
176.14	\$	100.00	\$	\$ 43,233.75	240	
349.80	\$	100.00	\$	\$ 85,859.53	360	

		Interest rate		6%		
	Starting capital		\$	1,000.00		
	Мо	nthly addition	\$	100.00		
Month	Account balance \$		Monthly added \$		Interest \$	
0	\$	1,000.00	\$	78 <u>4</u> 8	\$	4.87
1	\$	1,104.87	\$	100.00	\$	5.38
120	\$	18,038.19	\$	100.00	\$	87.80
240	\$	48,551.00	\$	100.00	\$	236.32
360	\$	103,194.79	\$	100.00	\$	502.31