

Oct. 22 pg. 300

**BUILD YOUR SKILLS**

9. Use a table to show how much a deposit of \$3000.00, invested at 3.25% per annum, compounded quarterly for 2 years, would be worth at the end of each compounding period.


INTEREST TABLE			
Interest period	Investment value at beginning of period	Interest earned ( $I = Prt$ )	Investment value at end of period
3 mont	3000	$3000 \times 0.0325 \times 0.25$	3024.38
6 mont	3024.38	24.57	3048.95
9 mont			3073.72
12 mont			3098.69
15 mont			3123.87
18 mont			3149.25
21 mont			3174.84
24			3200.64

$A = P \left(1 + \frac{r}{n}\right)^{nt}$   
 $A = 3000 \left(1 + \frac{0.0325}{4}\right)^{4 \times 2}$   
**3200.64**

GMF 10 Lesson 3.2 (3)

3.2

Simple and Compound Interest



What if I need to find something other than Ammortization when using the compound formula???

To find P.....

$$A = P(1 + \frac{r}{n})^{nt}$$

ex: A = 10 000

P = ?

r = 3.5%

n = semi-annually = 2

t = 10 years

**solution:**

P = 7068.25

$P, 300$

$$10000 = P(1 + \frac{0.035}{2})^{20}$$

$$10000 = P(1.0175)^{20}$$

$$10000 = P(1.41...)$$

$$10000 \div (1.41...)$$

Mar 19-10:47 PM

What if you are asked to find the rate in the compound formula?

$$A = P(1 + \frac{r}{n})^{nt}$$

ex:

A = 5000

P = 4500

n = monthly = 12

t = 3 years

**solution:**

3.5%

$$5000 = 4500(1 + \frac{r}{12})^{36}$$

$$5000 \div 4500 = (1 + \frac{r}{12})^{36}$$

$$1.111... = (1 + \frac{r}{12})^{36}$$

can't be done.....

Unless we learn rule of 72

Mar 20-3:26 PM

## Rule of 72

- is a quick way to estimate the time it takes for an investment compounded annually to **double** in value.

$$\frac{72}{r\%} = t$$

If you wanted to know how long it would take an investment with an interest rate of 3% per annum to double in value, you would:

$$72 \div 3 = 24 \text{ years}$$

Feb 13-4:41 PM

You want to find an account that will allow your investment to double in 5 years. What interest rate should you be looking for?

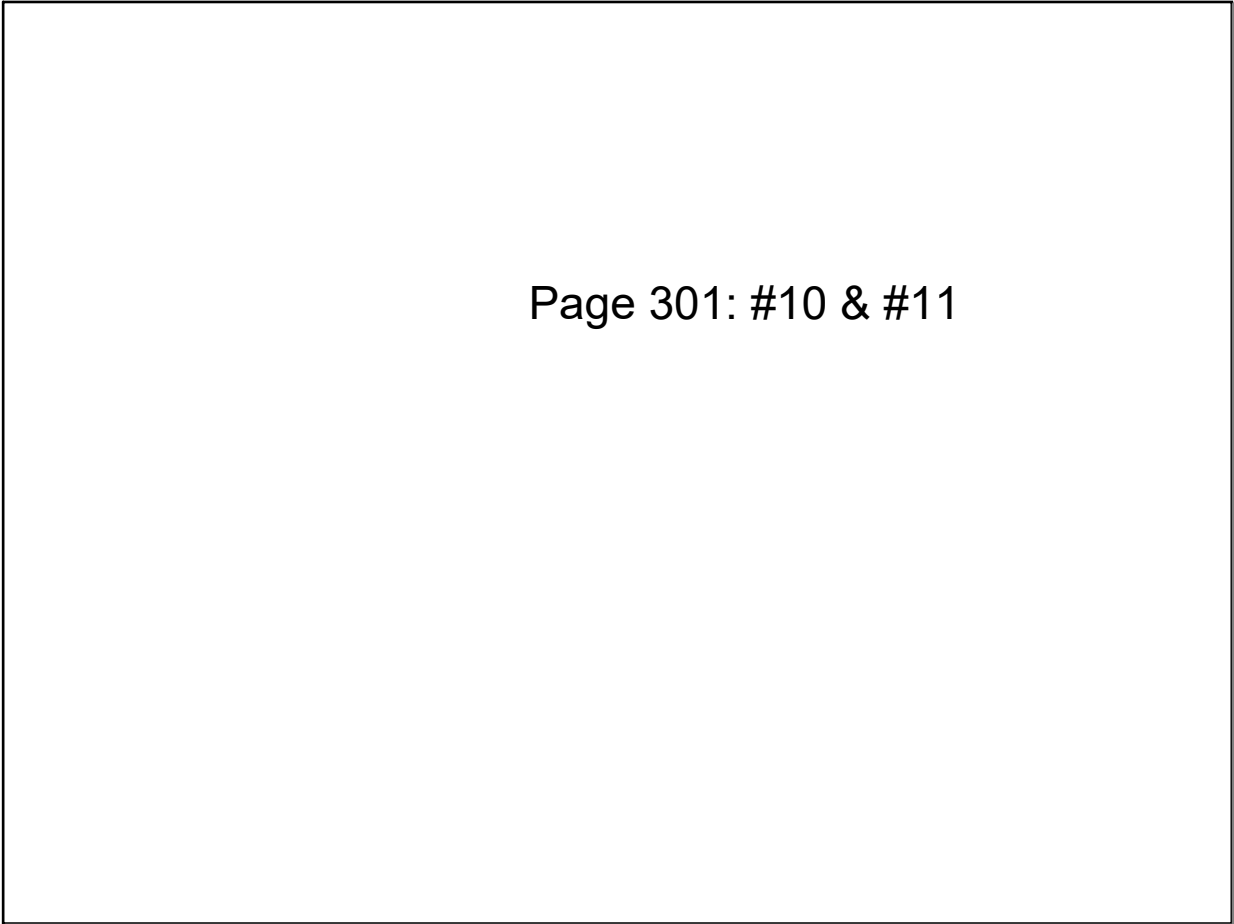
$$\frac{72}{\%} = 5$$

$$\frac{72}{5} = \%$$

**solution:**

14.4 %

Mar 20-3:49 PM



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Oct 22-11:46 AM