16.4 – Compound Interest

Compound Interest Formula	
$A = P\left(1 + \dfrac{r}{n}\right)^{nt}$	A = balance after "t" years P = original amount invested r = interest rate in decimal form n = number of times per year interest is compounded t = number of years interest is compounded

Change the following percents into decimal form. *move decimal 2 places left.

1. 25%	2. 10.5%	3. 4.5%
.25	.105	.045

Examples:

1. The amount of $500 is deposited into an account that pays 9.5% compounded monthly. What is the balance in the account after 3 years?

$P = 500$
$r = .095$
$n = 12$
$t = 3$

$A = 500\left(1 + \dfrac{.095}{12}\right)^{12(3)}$

$A = 664.135$

$\$664.14$

2. How much would you deposit in an account that pays 6.5% interest, compounded semi-annually, to have a balance of $5000 in 15 years?

$A = 5000$
$r = .065$
$n = 2$
$t = 15$

$5000 = P\left(1 + \dfrac{.065}{2}\right)^{2(15)}$

$P = 1915.438$

$\$1915.44$