

COMPOUND INTEREST (15a)

... INVOLVES ADDING IN INTEREST AT REGULAR INTERVALS, SO YOU'RE EARNING INTEREST ON INTEREST!

LET: P = INITIAL INVESTMENT (\$)
 r = ANNUAL INTEREST RATE (eg, 2% = 0.02)
 n = # OF TIMES, PER YEAR, THAT INTEREST IS ADDED IN; # OF COMPOUNDING PERIODS/YEAR

MONTHLY: $n = 12$ WEEKLY: $n = 52$ DAILY: $n = 365$

AFTER THIS TIME... ... YOU'LL HAVE THIS MUCH \$\$...

1 COMPOUNDING PERIOD	$P + P \cdot r \cdot \frac{1}{n} = P \left(1 + \frac{r}{n}\right)^1$
2 " "	$P \left(1 + \frac{r}{n}\right) + P \left(1 + \frac{r}{n}\right) \cdot r \cdot \frac{1}{n} = P \left(1 + \frac{r}{n}\right)^2$
⋮	⋮
$n = 1$ YEAR	$P \left(1 + \frac{r}{n}\right)^{n \cdot 1}$
⋮	⋮
$2n = 2$ YEARS	$P \left(1 + \frac{r}{n}\right)^{n \cdot 2}$

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

USING THE COMPOUND INTEREST FORMULA (15b)

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

EX SUPPOSE \$1000 IS INVESTED AT 3% ANNUAL INTEREST, COMPOUNDED DAILY, FOR 5 YEARS. HOW MUCH MONEY WILL YOU HAVE?

$P = 1000$, $r = 0.03$, $n = 365$, $t = 5$

$A = 1000 \left(1 + \frac{0.03}{365}\right)^{365 \cdot 5} = \$1,161.83$

↑
BE ABLE TO DO THIS ON YOUR CALCULATOR!!