What's Going On?

Checking In

Minds on   This **vs.** That

Action!   Finding the Variables and Solving

Consolidation   Practice It!

Learning Goal - I will review our annuity and mortgage unit and will be able to use the TI-83s on my own!

Minds on

Fixed Rate **vs.** Variable Rate

What's the difference between a fixed rate and a variable rate mortgage?

> You lock in your interest rate over the term in a fixed rate. In a variable rate mortgage, your interest rate fluctuates with the market.

When would you want a fixed rate mortgage vs. a variable rate mortgage?

> You would want a fixed rate when interest rates are low. You would want a variable rate when interest rates are high and MAY go down over your term.

What are the disadvantages of a fixed rate mortgage and of a variable rate mortgage?

> If you have a fixed rate mortgage, and the interest rate drops, you see no benefit. If you have a variable rate mortgage, and the interest rates go up, you pay more!

Minds on

Amortization Period **vs.** Mortgage Term

What's the difference between an amortization period and a mortgage term?

An amortization period is the period time it will take to pay off your entire mortgage.

A mortgage term is the period of time that you have agreed to certain terms (interest rate, monthly payments, etc....)

What is a typical time period for each?
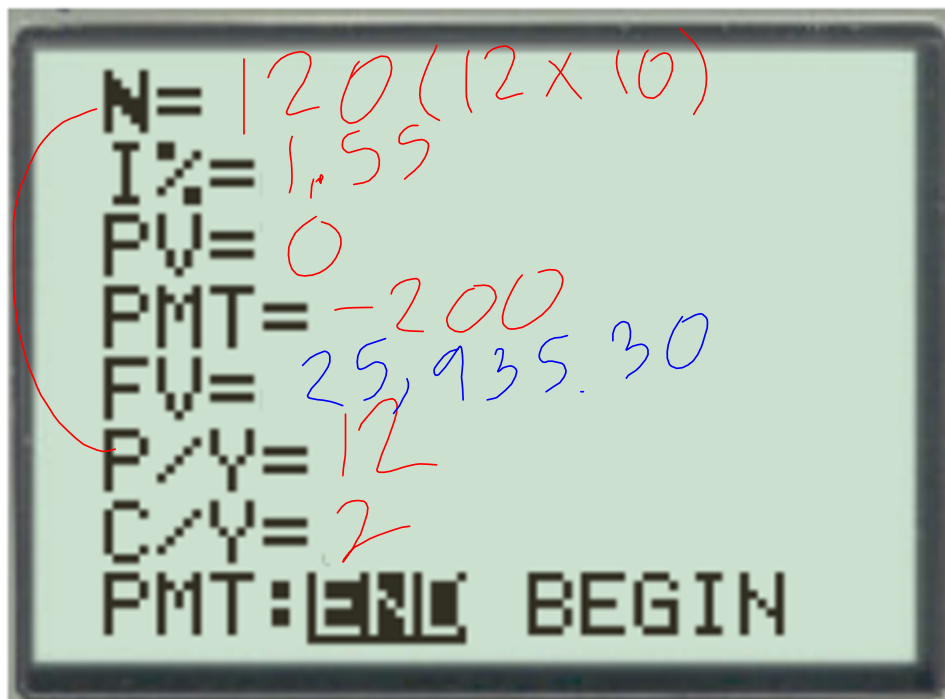
Amortization Period - 20 or 25 years

Mortgage Term - 5 years is pretty common

Action!

Finding the Variables

You are going to put away money each month to start saving for your first home.

You have decided to make monthly deposits of $200 for the next 10 years. You have found an account that will pay 1.55% compounded semi-annually.

N= 120 (12 × 10)
I%= 1.55
PV= 0
PMT= −200
FV= 25,935.30
P/Y= 12
C/Y= 2
PMT: END BEGIN

How much do you have saved after 10 years?

Finding the Variables

You are going to put away money each month to start saving for your first home.

You have decided to make monthly deposits of $200 for the next 10 years. You have found an account that will pay 1.55% compounded semi-annually. In addition, you will put $1,000 into the account to get things started.
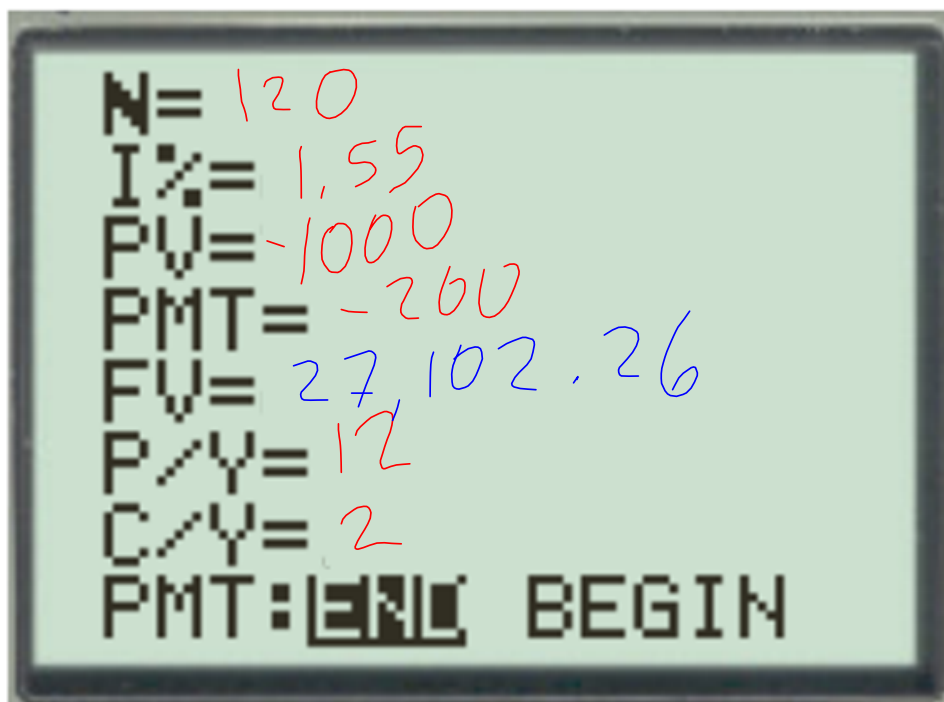
N= 120
I%= 1.55
PV= -1000
PMT= -200
FV= 27,102.26
P/Y= 12
C/Y= 2
PMT: **END** BEGIN

How much do you have saved after 10 years?

Finding the Variables

You are one lucky guy/girl! You have come into an inheritance of $100,000. You invest the money into an account earning 2.95% interest ~~compounded monthly~~ because you're super responsible.

You decide to use the account to fund your ~~weekly~~ adventures and allot yourself $150 per ~~week.~~

N= 837.56
I%= 2.95
PV= 100,000
PMT= -150
FV= 0
P/Y= 52 *
C/Y= 12
PMT: END BEGIN
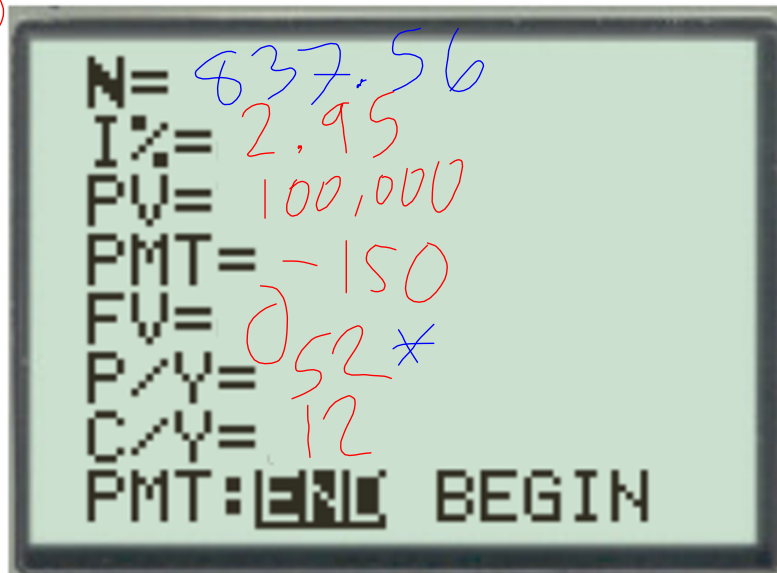
At this rate, how long will your money last?

837.56 weeks (more than 16 years)

Total withdrawals -$125,634

150 × 837.56

Finding the Variables

You are one lucky guy/girl! You have come into an inheritance of $100,000. You invest the money into an account earning 2.95% interest compounded monthly because you're super responsible.

You want to have money available for the next 30 years of your life. *Withdraw each week.*

```
N= 1560
I%= 2.95
PV= 100,000
PMT= -96.58
FV= 0
P/Y= 52
C/Y= 12
PMT:END BEGIN
```
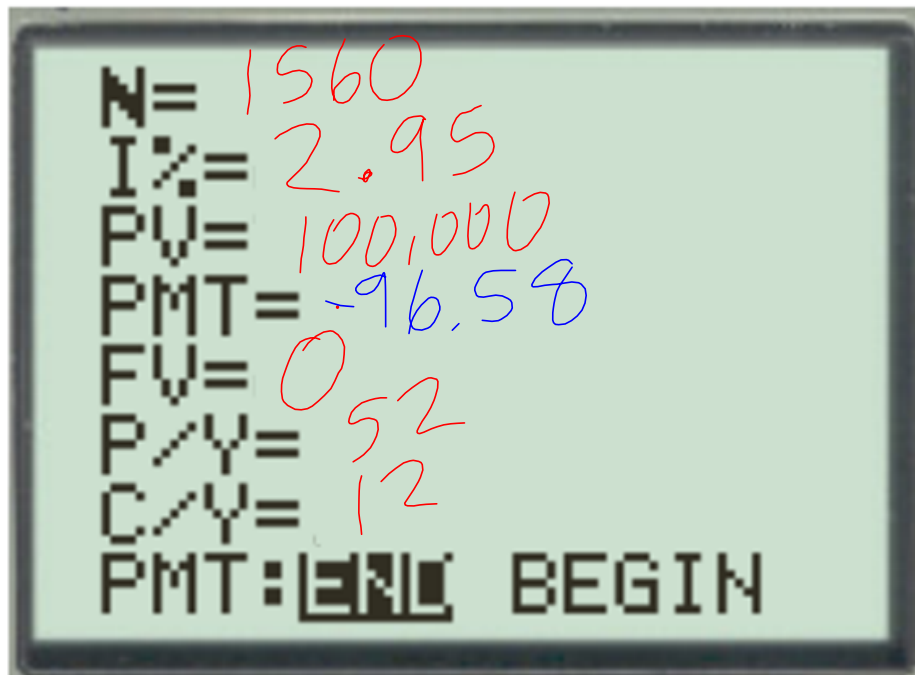
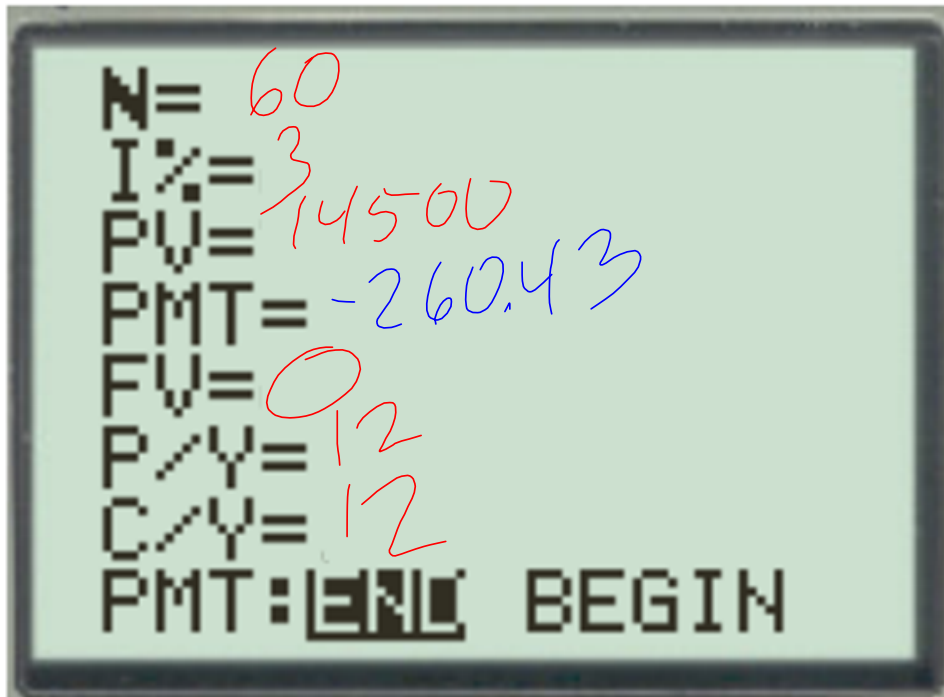How much can you take out, each week, under these conditions?

$$1560 \times 96.58$$
$$= 150,464.80$$

Finding the Variables

You have taken out a loan to buy your first car! The loan is for $14,500. The current rate is 3.00% compounded monthly.

You plan to pay off the car in 5 years with monthly payments.

```
N=    60
I%=  3
PV=  14500
PMT= -260.43
FV=  0
P/Y= 12
C/Y= 12
PMT: END  BEGIN
```
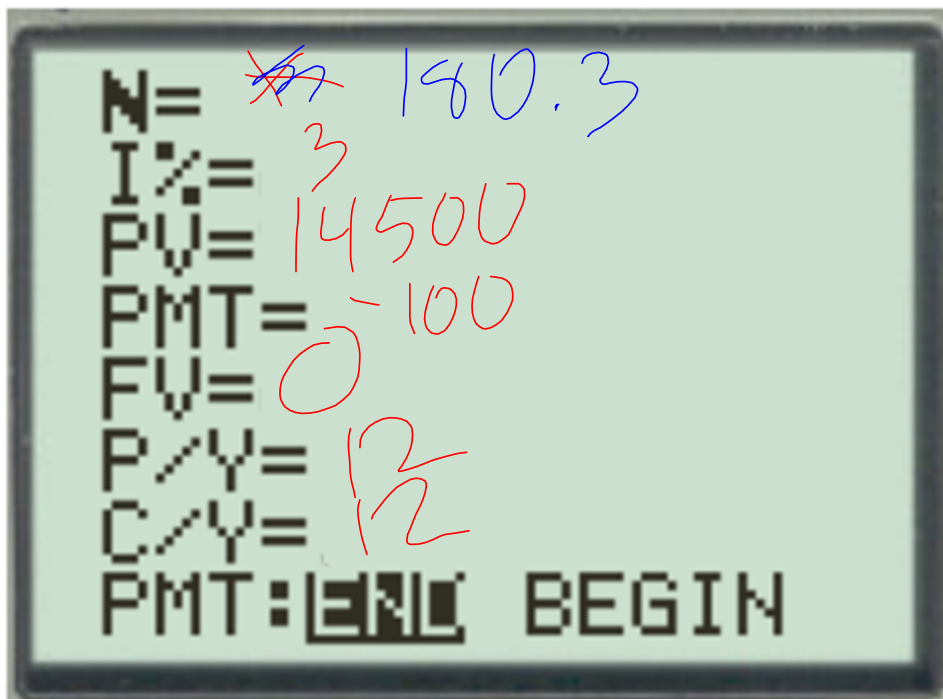
What are your monthly payments?

Total Cost = 60 × 260.43
= 15,625.40

Finding the Variables

You have taken out a loan to buy your first car! The loan is for $14,500. The current rate is 3.00% compounded monthly.

You can only afford to pay $100 per month.

```
N=      180.3
I%=   3
PV=  14500
PMT=  -100
FV=  0
P/Y=  12
C/Y=  12
PMT:END  BEGIN
```

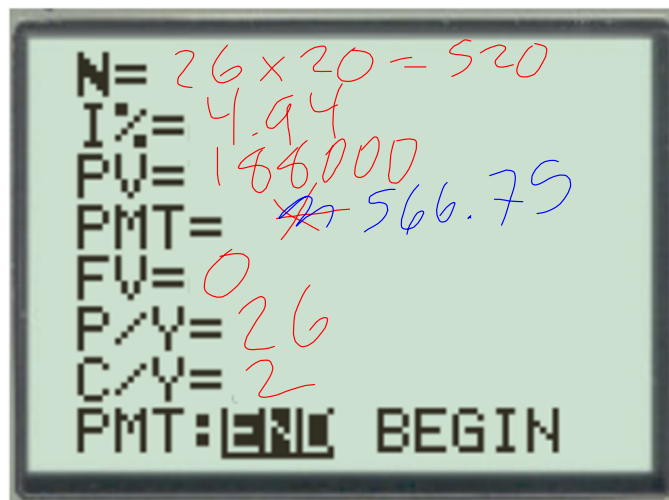How long before the car is ALLLL yours?

$$180.3 \times 100 = 18030$$

15 years!

Finding the Variables

You're all grown up and you're about to "buy" your first home.

You have settled on a home for $235,000 and you need a 20% down payment. *47 000*

You have a 4.94% APR mortgage with a 20 year amortization period, you will make bi-weekly payments.

$$N = 26 \times 20 = 520$$
$$I\% = 4.94$$
$$PV = 188{,}000$$
$$PMT = \cancel{} 566.75$$
$$FV = 0$$
$$P/Y = 26$$
$$C/Y = 2$$
$$PMT: \boxed{END} \quad BEGIN$$

What are your payments?

$566.75 / week

How much will your home cost you by the time you own your home outright?

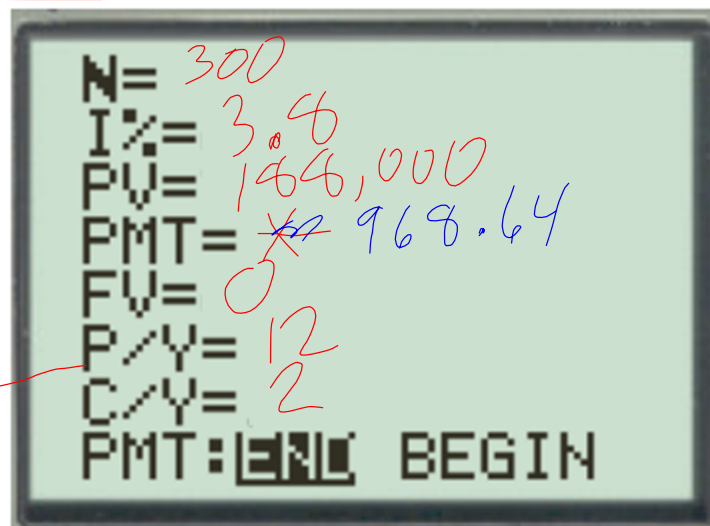*Total Cost = Payments + down phymnt*

$$= 566.75 \times 520 + 47000$$
$$= \$341{,}710$$

Finding the Variables

You're all grown up and you're about to "buy" your first home.

You have settled on a home for $235,000 and you need a 20% down payment.

You have a 3.80% APR mortgage with a 25 year amortization period, you will make monthly payments.

N= 300
I%= 3.8
PV= 188,000
PMT= 968.64
FV= 0
P/Y= 12
C/Y= 2
PMT: END BEGIN

What are your payments?

$968.64

How much will your home cost you by the time you own your home outright?

Cost = 968.64 × 300 + 47000

= $337,592

Consolidation

Practice It!

Review

Pg. 438 - 439

1-12

(Be sure to check the timelines in the back of the book)