HEWLETT-PACKARD

Working With Your
Business Consultant Professional Calculator

Direct Sales
Consultant

Direct Sales Consultant

Business Consultant
Professional Calculator

Printing History

Welcome...

...to the Consultant applications series! This series is designed to help you get the most from your Business Consultant professional calculator.

The purpose of the *Direct Sales Consultant* is to help you solve the specialized problems your industry or profession demands. We've worked with professionals in your field to provide a sample of analysis concepts that are useful and relevant. Included are keystrokes and routines to help you figure quotes, analyze sales performance, forecast sales and expenses, estimate the value of a sales prospect, and calculate leasing expenses. The *Direct Sales Consultant* is designed to serve both as a reference and a starting point for using the Business Consultant to develop your own unique analyses.

Before you use the solutions in this book, you should be familiar with certain concepts from the owner's manual:

- Chapter 1: the basics of your calculator—how to move from menu to menu, identify and move to the MAIN menu, and use the menu keys to do calculations.
- Chapter 9: entering and using formulas.

The examples in this book show two decimal places. If your display is set to something other than two, the answers in your display will not match exactly what is in this book. Refer to your owner's manual for more information about changing the number of decimal places.

For more information about the topics in the *Direct Sales Consultant*, refer to a basic textbook on the subject. Specific sources on the more specialized topics are included at the end of those topics.

Contents

When Entering Formulas...

When entering formulas into your Business Consultant, follow the instructions in chapter 9 of your owner's manual. Here are hints to help you in common error situations:

1. If the calculator displays INVALID FORMULA when you press CALC , the calculator doesn't understand something in the formula. When the formula returns to the screen, the cursor is positioned where your calculator detected the error. Check the formula in the screen against the formula in the book. Make sure the parentheses match and that the operators are where they should be.

2. If the calculator accepts the formula but your answer doesn't match the example, check the values stored in the menu key variables by recalling them (press RCL , then the menu key). If the values are correct, return to the SOLVE menu and check the formula. (Press EXIT to return to the SOLVE menu and press EDIT to view and edit the formula.) Check the formula against the one in this book for accuracy. When you find an error, edit the formula and press CALC to display the custom menu again.

3. If the calculator displays INSUFFICIENT MEMORY when you press INPUT or CALC , you must free portions of memory before continuing. Refer to pages 188 and 189 of the owner's manual for additional information.

The formulas in the *Direct Sales Consultant* use variable names that are intended to remind you of what to store. Feel free to change them to something more meaningful to you.

Forecasting Based on History

One method of forecasting sales, manufacturing rates or expenses is to look at historical trends. Once you have historical data, the data are fit to a curve with time on the x-axis, and the quantity you are forecasting on the y-axis. Linear curve fit is appropriate if you have a fairly constant growth rate; exponential curve fit is appropriate with compound growth, such as might occur for sales of a new product.

1. From the MAIN menu, press SUM to display the SUM menu.

2. Press ■ CLEAR ALL   YES to clear the list. (If you don't want to delete the list, name the old list and get a new one.)

3. Enter your time data. Press INPUT after each item.

4. Name your list.

5. Press GET   *NEW to get a new list and enter your sales data as in step 3.

6. Name your list.

7. Press CALC , MORE , then FRCST .

8. Select the list containing your x-values.

9. Select the model (LIN for linear, EXP for exponential).

10. Key in the x-value and press XLIST .

11. Press YLIST to forecast the y-value.

Example 1: Forecasting using linear curve fit. You want to estimate your sales for the next two years using a linear curve fit. The following data represents sales for the past nine years.

Year	Sales ($)
1	10,000
2	11,210
3	13,060
4	16,075
5	20,590
6	21,000
7	24,065
8	28,072
9	32,519

Start from the MAIN menu.

Keys:	Display:	Description:
SUM *		Displays SUM menu.
■ CLEAR ALL		Clears the list.
YES		
1 INPUT		Enters time values.
2 INPUT		
3 INPUT		
4 INPUT		
5 INPUT		
6 INPUT		
7 INPUT		
8 INPUT		
9 INPUT	TOTAL=45.00	
NAME YEARS		Names the list.
INPUT		
GET *NEW		Displays a new list.
10000 INPUT		Enters sales data.
11210 INPUT		
13060 INPUT		
16075 INPUT		
20590 INPUT		
21000 INPUT		
24065 INPUT		
28072 INPUT		
32519 INPUT	TOTAL=176,591.00	
NAME SALES		Names the list.
INPUT		
CALC MORE		Selects FRCST menu.
FRCST		

* If you want to preserve the current list, skip the next step (pressing ■ CLEAR ALL), name the list, then press GET *NEW .

YEARS		Selects list YEARS as the x-variable.
LIN		Selects linear model.
10 XLIST	XLIST=10.00	Stores year 10 as the x-value.
YLIST	YLIST=33,587.64	Calculates a y-value—sales forecast for year 10.
11 XLIST	XLIST=11.00	Stores year 11 as the x-value.
YLIST	YLIST=36,380.92	Calculates a y-value—sales forecast for year 11.

Example 2: Forecasting using exponential curve fit. Your sales of a new product is shown below for the first six months after introduction.

Month	Sales
June	317
July	525
August	483
September	566
October	727
November	909

Part 1. Using the exponential model, predict your sales for December.

Start from the MAIN menu.

Keys:	Display:	Description:
▩ SUM ▩*		Displays SUM menu.
▩ CLEAR ALL		Clears the list.
▩ YES		
1 [INPUT]		Enters month numbers.
2 [INPUT]		
3 [INPUT]		
4 [INPUT]		
5 [INPUT]		
6 [INPUT]	TOTAL=21.00	
▩NAME▩ MONTHS		Names the list.
[INPUT]		
▩ GET ▩ *NEW		Displays a new list.
317 [INPUT]		Enters monthly sales.
525 [INPUT]		
483 [INPUT]		
566 [INPUT]		
727 [INPUT]		
909 [INPUT]	TOTAL=3,527.00	
▩NAME▩ MOSLS		Names the list.
[INPUT]		
▩ CALC ▩ MORE ▩		Displays FRCST menu.
FRCST		

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* If you want to preserve the current list, skip the next step (pressing ▩ CLEAR ALL), name the list, then press

`MONT`		Selects list MONTH as the x-variable.
`EXP`		Selects exponential model.
7 `XLIST`	XLIST=7.00	Stores month 7 as the x-value.
`YLIST`	YLIST=1,057.79	Calculates a y-value—projected sales for December, the seventh month.

Part 2. Calculate the continuous compound growth rate.

`B` `×` 100 `=`	18.29	Calculates estimate of the monthly compound growth rate.

Forecasting Using Simple Moving Average

Moving averages are often useful to forecast sales, production rates, or expenses. In a moving average, a specified number of data points are averaged. When there is a new piece of input data, the oldest piece of data is discarded to make room for the most recent data. This replacement scheme makes the moving average a valuable tool in following trends. The fewer the number of data points, the more trend sensitive the averages become. With a large number of data points, the average behaves more like a regular average, responding slowly to new input.

1. From the MAIN menu, press <kbd>SUM</kbd> to display the SUM menu.

2. Press <kbd>■ CLEAR ALL</kbd> <kbd>YES</kbd> to clear the list. (If you don't want to delete the list, name the old list and get a new one.)

3. Enter your data points.

4. Press <kbd>CALC</kbd>, then <kbd>MEAN</kbd> to calculate the average.

5. When you have a new data point, move the pointer to the oldest item. Enter the new item and press <kbd>INPUT</kbd>. The oldest item is replaced by the new one.

Example. You want to calculate a 3 month moving average for the units you sold each month. Volumes for the first six months were:

January	440	April	367
February	536	May	404
March	290	June	320

Start from the MAIN menu.

Keys:	Display:	Description:
SUM *		Displays SUM menu.
■ CLEAR ALL YES		Clears the list.
440 [INPUT] 536 [INPUT] 290 [INPUT]	TOTAL=1,266.00	Enters sales for the first three months.
CALC MEAN	MEAN=422.00	Calculates average for first three months.
[EXIT]		
■ [↑]		Moves pointer to top of list.
367 [INPUT]	TOTAL=1,193.00	Enters month four and deletes oldest item.
CALC MEAN	MEAN=397.67	Calculates average for months two, three, and four.
[EXIT]		
404 [INPUT]	TOTAL=1,061.00	Enters month five and deletes oldest item.
CALC MEAN	MEAN=353.67	Calculates average for months three, four, and five.
[EXIT]		
320 [INPUT]	TOTAL=1,091.00	Enters month six and deletes oldest item.
CALC MEAN	MEAN=363.67	Calculates average for months four, five, and six.

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* If you want to preserve the current list, skip the next step (pressing ■ CLEAR ALL), name the list, then press GET *NEW .

Revising Forecasts to Reflect Current Market Conditions

Most sales forecasts are based on certain assumptions about, and incomplete knowledge of, your market and competition. After the forecasts are made, internal and external changes make your original assumptions and your forecast incomplete. Examples of these changes in the market that were not reflected in the original forecast are a price drop (yours or your competitors), advertising or promotional campaign, rebate offer, introduction of a new product by a competitor, or a change in distribution of your product. The formula below helps you revise your forecast, based on the perceived impact of the market changes.

Entering and Using the NEWFCST Formula:

1. From the MAIN menu, press SOLVE to display the SOLVE menu.

2. Type in the NEWFCST formula as follows:*

   $NEWFCST=BASE+((A\%+B\%+C\%) \div 100) \times BASE$

3. Press CALC to verify the formula and display the custom menu.

4. Store the following variables:

   ■ Original forecast in BASE .

   ■ Expected change in sales caused by each change in the market in A% , B% , and C% .*

5. Press NEWF to calculate the new forecast.

---

* This formula can be modified to fit the number of changes for your current market condition. If you have two factors, omit +C%; if you have five factors, change the part in parentheses to (A%+B%+C%+D%+E%).

Example. You had planned to sell 2,000 units next month. Three market changes are happening next month that are not reflected in your current forecast: the price on the product is being reduced and you expect a 20% increase in sales; the product manufacturer is advertising and you expect a 5% increase in sales; a competitor has announced a new product and you expect a 15% cut into your sales. Calculate the new forecast for the month.

Start from the NEWFCST custom menu.

Keys:	Display:	Description:
2000 BASE	BASE=2,000.00	Stores original forecast.
20 A%	A%=20.00	Stores sales increase expected due to price drop.
5 B%	B%=5.00	Stores sales increase expected due to advertising.
15 +/- C%	C%=-15.00	Stores sales decrease due to new competition.
NEWF	NEWFCST=2,200.00	Calculates new forecast for the month.

Markup Calculations

Markup calculations are used to determine the selling price of an item. Your Business Consultant includes a built-in menu for calculating markup as a percent of cost and markup as a percent of price.

1. From the MAIN menu, press `BUS` to display the BUS menu.
2. Press `MU%C` to display the MU%C (markup on cost) menu, or `MU%P` to display the MU%P (markup on price) menu.
3. Store each of the values you know by keying in the number and pressing the appropriate menu key.
4. Press the menu key for the value you want to calculate.

Example 1: Calculate selling price and markup as a percent of cost given cost and markup as a percent of price. Part 1. An item costs $160. The reseller's required markup as a percent of selling price is 20%. What is the selling price?

Start from the MAIN menu.

Keys:	Display:	Description:
`BUS` `MU%P`		Displays MU%P menu.
160 `COST`	COST=160.00	Stores your cost.
20 `M%P`	MARKUP%P=20.00	Stores markup as a percent of price.
`PRICE`	PRICE=200.00	Calculates selling price.

Part 2. What is the markup as a percent of the cost?

`EXIT` `MU%C`		Displays MU%C menu.
`M%C`	MARKUP%C=25.00	Calculates markup as a percent of cost.

Example 2: Calculate cost and markup as a percent of price given selling price and markup as a percent of cost. Part 1. An item sells for $21.00. The markup as a percent of cost is 50%. What is its cost?

Start from the MAIN menu.

Keys:	Display:	Description:
BUS MU%C		Displays MU%C menu.
21 PRICE	PRICE=21.00	Stores selling price.
50 M%C	MARKUP%C=50.00	Stores markup as a percent of cost.
COST	COST=14.00	Calculates your cost.

Part 2. What is the markup if expressed as a percent of price?

EXIT MU%P		Displays MU%P menu.
M%P	MARKUP%P=33.33	Calculates markup as a percent of price.

Example 3: Calculate cost and markup on cost given selling price and markup on price. Part 1. An item sells for $38, with a markup on price of 30%. What is the markup on cost?

Start from the MAIN menu.

Keys:	Display:	Description:
BUS MU%P		Displays MU%P menu.
38 PRICE	PRICE=38.00	Stores selling price.
30 M%P	MARKUP%P=30.00	Stores markup on price.
COST	COST=26.60	Calculates your cost.
EXIT MU%C		Displays MU%C menu.
M%C	MARKUP%C=42.86	Calculates markup on cost.

Part 2. If the markup on cost is raised to 50%, what is the new selling price?

50 M%C	MARKUP%C=50.00	Stores new markup on cost.
PRICE	PRICE=39.90	Calculates new selling price.

Setting a Sales Price

One method for setting a unit sales price is to determine the unit cost of a product then multiply by the desired rate of return. The other values you must know are your total operating cost and the number of units you expect to sell.

Entering and Using the PRICE Formula:

1. From the MAIN menu, press `SOLVE` to display the SOLVE menu.
2. Type in the PRICE formula as follows:

   PRICE=(OPCOST÷UNITS+UCOST)×(1+%RTN÷100)

3. Press `CALC` to verify the formula and display the custom menu.
4. Store four of the following variables:
   - Price per unit in `PRICE`.
   - Total operating costs in `OPCOS`.
   - Number of units sold in `UNITS`.
   - Cost per unit in `UCOST`.
   - Desired percent rate of return in `%RTN`.
5. Press the menu key to calculate the unknown variable.

Example: Part 1. Your operating costs are $20,000. You want a 10% rate of return. You forecast sales to be 2,000 units, and each unit costs $13.50. Calculate the price to charge.

Start from the PRICE custom menu.

Keys:	Display:	Description:
20000 OPCOS	OPCOST=20,000.00	Stores total operating costs.
2000 UNITS	UNITS=2,000.00	Stores number of units.
13.5 UCOST	UCOST=13.50	Stores cost per unit.
10 %RTN	%RTN=10.00	Stores rate of return.
PRICE	PRICE=25.85	Calculates price.

Part 2. On this particular product, you can only charge $22.50. At that price, what is your rate of return?

22.5 PRICE	PRICE=22.50	Stores price.
%RTN	%RTN=-4.26	Calculates percent rate of return.

Since the rate of return is negative, you must either charge more than the going rate, or reduce your costs.

Part 3. At a zero rate of return (the break-even point), and the price in part 2, what would your operating costs have to be?

0 %RTN	%RTN=0.00	Stores zero percent return.
OPCOS	OPCOST=18,000.00	Calculates operating cost to break even.

Break-Even Analysis

Break-even analysis is a technique for analyzing the relationships among fixed costs, variable costs, and income. Until the break-even point is reached (total costs equal total income), the seller operates at a loss. After the break-even point, each unit produced and sold makes a profit. The variables in the formula below are fixed costs, cost per unit, sales price per unit, number of units sold, and gross profit.

Entering and Using the PROFIT Formula:

1. From the MAIN menu, press `SOLVE` to display the SOLVE menu.

2. Type in the PROFIT formula as follows:

   `PROFIT=#SOLD×(PRICE-COST)-FIXCO`

3. Press `CALC` to verify the formula and display the custom menu.

4. Store four of the following variables:

   - Gross profit in `PROFI`.
   - Number of units sold in `#SOL`.
   - Selling price per unit in `PRICE`.
   - Cost per unit in `COST`.
   - Fixed costs of doing business in `FIXCO`.

5. Press the menu key to calculate the unknown variable.

Example: Part 1. You sell a product for $13. The product costs $6.75. Your fixed costs are $12,000. Calculate the number of units that you must sell to break even (profit equals zero).

Start from the PROFIT custom menu.

Keys:	Display:	Description:
0 PROFI	PROFIT=0.00	Stores break-even profit of zero.
13 PRICE	PRICE=13.00	Stores price per unit.
6.75 COST	COST=6.75	Stores cost per unit.
12000 FIXCO	FIXCO=12,000.00	Stores fixed costs.
#SOL	#SOLD=1,920.00	Calculates number that must be sold to break even.

Part 2. Calculate your gross profit if you sell 2,500 units.

2500 #SOL	#SOLD=2,500.00	Stores number sold.
PROFI	PROFIT=3,625.00	Calculates gross profit.

Part 3. You want a gross profit of $4,500 at the sales volume in part 2 (2,500 units). What should the selling price be?

4500 PROFI	PROFIT=4,500.00	Stores required gross profit.
PRICE	PRICE=13.35	Calculates required selling price.

Leasing Calculations

Advance Payments

Situations may exist where one or more payments are made in advance (leasing is a good example). These agreements call for the extra payments to be made when the transaction is closed. A residual value (salvage value) can exist at the end of the normal term.

The following formula calculates the monthly payment amount (PMT) and the annual yield (I%YR) when one or more payments are made in advance. The formula can be modified to accommodate other than monthly payments by changing the constant 12 to the number of payments per year. In that case, PMT, N, and #ADV would apply to the periodic payment. Remember to use the cash flow sign convention (money paid out is negative, money received is positive).

Entering and Using the ADVPMT Formula:

1. From the MAIN menu, press `SOLVE` to display the SOLVE menu.

2. Type in the ADVPMT formula as follows:

   `ADVPMT:PMT=(-PV-FV×(SPPV(I%YR÷12:N)))÷`
   `(USPV(I%YR÷12:N-#ADV)+#ADV)`

3. Press `CALC` to verify the formula and display the custom menu.

4. Store five of the following variables:

   - Monthly payment amount in `PMT`.
   - Loan amount in `PV`.
   - Amount of the balloon payment in `FV`.
   - Annual interest rate as a percent in `I%YR`.
   - Total number of monthly payments in `N`.
   - Number of monthly payments made in advance in `#ADV`.

5. Press the menu key to calculate the unkown variable.

Example 1: Part 1. Equipment worth $750 is leased for 12 months. The equipment is assumed to have no salvage value at the end of the lease. The lessee has agreed to make three payments at the time of closing. What monthly payment is necessary to yield the lessor 10% annually?

Start from the ADVPMT custom menu.

Keys:	Display:	Description:
750 +/- PV	PV=-750.00	Stores known values.
12 N	N=12.00	
0 FV	FV=0.00	
3 #ADV	#ADV=3.00	
10 I%YR	I%YR=10.00	
PMT	PMT=64.45	Calculates monthly payment.

Part 2. What is the payment amount if the yearly interest rate is 15%?

15 I%YR	I%YR=15.00	Stores new interest rate.
PMT	PMT=65.43	Calculates monthly payment to achieve 15% yield.

Example 2. A lease has been written to run for 60 months. The leased equipment has a value of $25,000 and a monthly payment of $600. The lessee has agreed to make 3 payments at the time of closing ($1,800). What is the annual yield to the lessor?

Start from the ADVPMT custom menu.

Keys:	Display:	Description:
60 N	N=60.00	Stores known values.
3 #ADV	#ADV=3.00	
600 PMT	PMT=600.00	
25000 +/-		
PV	PV=-25,000.00	
0 FV	FV=0.00	
I%YR	I%YR=17.33*	Calculates percent annual yield.

Example 3. Equipment worth $5,000 is leased for 36 months at $145 per month. The lessee has agreed to pay the first and last payments in advance. At the end of the lease, the equipment can be purchased for $1,500. What is the annual yield to the lessor if the equipment is purchased?

Start from the ADVPMT custom menu.

Keys:	Display:	Description:
5000 +/- PV	PV=-5,000.00	Stores known values.
36 N	N=36.00	
145 PMT	PMT=145.00	
2 #ADV	#ADV=2.00	
1500 FV	FV=1,500.00	
I%YR	I%YR=18.10*	Calculates annual yield to lessor.

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* The solver searches for a numerical solution and displays intermediate estimates.

Skipped Payments

Sometimes a loan (or lease) can be negotiated in which a specific number of monthly payments are going to be skipped each year. Seasonality is usually the reason for such an agreement. For example, because of heavy rainfall, a bulldozer cannot be operated in Oregon during December, January, and February, and the lessee wishes to make payments only when his machinery is being used. He makes nine payments per year, but the interest continues to compound during the months in which a payment is not made.

The following procedure calculates the monthly payment amount necessary to amortize the loan in the specified amount of time. The only restriction is that the term of the loan must be an integer number of years.

1. From the MAIN menu, press ▮ FIN ▮, then ▮ CFLO ▮ to display the cash flow menu.

2. Using a cash flow of $1.00 for each payment that is made during the first 12 months, and $0 for each payment that is skipped, calculate the NFV, at the discount rate, of the cash flows in year 1. (This is an equivalent annual cash flow that occurs at the end of the first year.) Store the result in register 0.

3. Display the interest conversion menu (ICONV) and calculate the effective annual interest rate.

4. Display the TVM menu, store the effective interest rate in ▮ I%YR ▮, store 1 in ▮ #P/Y ▮, and set End mode.

5. Store the total number of years in ▮ N ▮, the value from register 0 in ▮ PMT ▮, and 0 in ▮ FV ▮.

6. Press ▮ PV ▮ to calculate the present value of the annualized payments.

7. Key in the loan amount and press ÷ RCL ▮ PV ▮ = to calculate the monthly payment amount.

Reference:
Greynolds, Aronofsky, Frame, *Financial Analysis Using Calculators*, McGraw-Hill, 1980.

Example 4. A bulldozer worth $100,000 is purchased in September. The first payment is due one month later, and payments continue for 5 years. Because of the weather, the machinery will not be used during the winter months, and the purchaser does not wish to make payments during January, February, and March (months 4 thru 6). If the current interest rate is 14%, what monthly payment is necessary to amortize the loan?

Start from the MAIN menu.

Keys:	Display:	Description:
FIN CFLO *		Displays the CFLO menu.
▮ CLEAR ALL		Clears the list.
YES		
0 INPUT		Stores 0 as initial cash flow.
1 INPUT		Stores first group of cash flows.
3 INPUT		
0 INPUT		Stores second group of cash flows.
3 INPUT		
1 INPUT		Stores third group of cash flows.
6 INPUT		
CALC		Displays CALC menu.
14 ÷ 12 I%	I%=1.17	Stores monthly discount rate.
NFV	NFV=9.55	Calculates net future value of cash flows in first year.
STO 0		Stores NFV in register 0.
EXIT EXIT		Displays ICONV menu.
ICONV		
EFFCT		Displays EFFCT menu.

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* If you want to preserve the current list, skip the next step (pressing ▮ CLEAR ALL), name the list, then press GET *NEW .

14 NOM%	NOM%=14.00	Stores known values.
12 P	P=12.00	
EFF%	EFF%=14.93	Calculates effective annual interest rate.
EXIT EXIT		Displays TVM menu.
TVM		
STO I%YR	I%YR=14.93	Stores annual interest rate.
OTHER		Stores 1 payment per year and sets End mode.
1 #P/Y		
END EXIT		
5 N	N=5.00	Stores known values.
RCL 0 PMT	PMT=9.55	
0 FV	FV=0.00	
PV	PV=-32.05	Calculates present value of $1 cash flows.
100000 ÷ RCL	-3,119.89	Calculates monthly payment amount.
PV =		

Figuring Quotes

In many sales situations, you have some leeway in what you charge the customer. You can negotiate the price by changing the discount rate, offering a special rate for quantity purchase, and so on. The Business Consultant makes it easy to give your customer price quotes on the spot and to change those quotes quickly based on comments from the customer. If the price is too high, for example, the customer can select lower-cost products, or increase his quantity to get a quantity discount. You can store the new product cost or discount rate and quote the new price.

An example of some elements that may go into your formula are listed on page 31. To develop your own formula, list all the elements that you use to make a quote and how each relates to the other elements (do you add or subtract it? multiply or divide?). Then use the table of elements below and the examples to help you turn your elements into a formula to keep in your Business Consultant.

Formula Elements

Element	How It's Figured	Formula
Calculate price of goods sold	#units × price per unit	`#UNITS×PRICE`
Total cost of goods sold	+ cost	`+COST`
Service agreement	Service unit × price per unit	`+SRVUNIT×SRVPR`
Service as a flat rate	+ service	`+SERV`
Freight cost, based on rate per mile	Miles × rate per mile	`+MILES×R/MI*`
Freight as a flat rate	+ freight	`+FRT`
Trade-in allowance	− trade in	`-TRADE`
Profit or overhead	1 + profit% ÷ 100	`×(1+PROF%÷100)`
Quantity sales discount	1 − discount% ÷ 100	`×(1-DISC%÷100)`
Credit terms	If bill is paid within a certain time (D days), subtract discount rate	`×(1-IF(#DAYS<` `D:1:0)×DISC%` `÷100)†`

* To key in the / character, press ⬛Ⓦ.
† To key in the ⟨ character, press ⬛Ⓨ.

Entering and Using Your Formula:

1. From the MAIN menu, press `SOLVE` to display the SOLVE menu.

2. Type in your formula.

3. Press `CALC` to verify the formula and display the custom menu.

4. Store the values you know.

5. Press the menu key to calculate the unknown variable.

Example 1. You sell paper goods. You figure your quotes as follows:

Price of the order
 − discount rate if order is over $200
 + freight

The formula is*: `QUOTE=PRICE×(1-IF(PRICE>200:1:0)× DISC%÷100)+FRT`

Follow the steps on page 31 to enter and use the formula.

Store three of the following variables:

- Quote in `QUOTE`.
- Total price of the goods in `PRICE`.
- Discount rate as a percent in `DISC%`.
- Freight in `FRT`.

Press the menu key to calculate the unknown variable.

Part 1. Your customer places an order worth $300. The standard discount rate is 2%. The freight is $35. Calculate the quote for the order.

Keys:	Display:	Description:
300 `PRICE`	`PRICE=300.00`	Stores price of goods sold.
2 `DISC%`	`DISC%=2.00`	Stores discount percent.
35 `FRT`	`FRT=35.00`	Stores freight cost.
`QUOTE`	`QUOTE=329.00`	Calculates quote.

* To key in the > character, press `■` `Z`.

Example 2. You sell two major products, plus supplies and service to go with the products. You figure your quotes as follows:

Quantity of product 1 × price of product 1
+ Quantity of product 2 × price of product 2
+ Supplies
+ Number of years of service agreement × price per year

Your formula
is: QUOTE=QUA1×PR1+QUA2×PR2+$SUPP+YRSRV×PRSRV

Follow the steps on page 31 to enter and use the formula.

Store seven of the following variables:

- Quote in `QUOTE`.

- Quantity sold of product 1 in `QUA1`.

- Price of product 1 in `PR1`.

- Quantity sold of product 2 in `QUA2`.

- Price of product 2 in `PR2`.

- Dollar value of supplies in `$SUP`.

- Number of years of service wanted in `YRSRV`.

- Price per year of service in `PRSRV`.

Press the menu key to calculate the unknown variable.

Your customer wants to order three of product 1 at $1,000 each, and two of product 2 at $4,500 each. He orders $150 in supplies, and wants a three year service agreement at $500 per year. Calculate the quote.

Keys:	Display:	Description:
3 QUA1	QUA1=3.00	Stores quantity of product 1.
1000 PR1	PR1=1,000.00	Stores price of product 1.
2 QUA2	QUA2=2.00	Stores quantity of product 2.
4500 PR2	PR2=4,500.00	Stores price of product 2.
MORE		
150 $SUP	$SUPP=150.00	Stores dollar value of supplies.
3 YRSRV	YRSRV=3.00	Stores years of service.
500 PRSRV	PRSRV=500.00	Stores price of service for one year.
MORE		
QUOTE	QUOTE=13,650.00	Calculates quote.

Example 3. You always tell your customers about your cash discount—that is, if they pay within 10 days, you give a discount. When giving quotes, you want your customer to see how this effects him. You base your quotes on:

Price of goods sold
− discount rate if paid within 10 days
+ freight

Your formula is*: QUOTE=PRICE×(1−IF(#DAY<11:1:0)× DISC%÷100)+FRT

Store four of the following variables:

- Quote in QUOTE .
- Total price of the goods in PRICE .
- Number of days until bill is paid in #DAY .
- Discount rate as a percent in DISC% .
- Freight in FRT .

Press the menu key to calculate the unknown variable.

* To key in the 〈 character, press ■ Y .

Part 1. The price of the goods sold is $2,575. The freight is $55. Calculate the quote if the bill will be paid in 30 days. The discount percent is 2%.

Keys:	Display:	Description:
2575 PRICE	PRICE=2,575.00	Stores price of goods sold.
30 #DAY	#DAY=30.00	Stores number of days until bill is paid.
2 DISC%	DISC%=2.00	Stores discount percent.
55 FRT	FRT=55.00	Stores freight.
QUOTE	QUOTE=2,630.00	Calculates quote.

Part 2. Calculate the quote if the bill is paid in nine days.

9 #DAY	#DAY=9.00	Stores number of days until bill is paid.
QUOTE	QUOTE=2,578.50	Calculates quote.

Figuring Commissions

This section helps you create a formula to figure your commissions. The table below shows some common elements in figuring commissions. Following the table are sample formulas and examples. Using these three, and your company's commission schedule, you can write your own formula.

Formula Elements

Element	How It's Figured	Formula
Basic commission	$sales × commission% ÷ 100	`$SLS×COM%÷100`
Premium for selling certain products	#special units sold × premium per unit	`+#UNITS×$PREM`
Additional commission for exceeding quota	Sales greater than break point × additional commission%	`+IF($SLS>BKPT:` `$SLS-BKPT:0)` `×AD%÷100*`

* To key in the > character, press ▮ Z .

Sample Formulas

Here are some sample formulas for figuring commissions:

■ Multiple commission rates, depending on the product:

`$COM=PROD1×CO%1÷100+PROD2×CO%2÷100+...`

      Basic commission   Basic commission

where $COM = dollars of commission paid.
PROD1 = dollars sold of product one.
CO%1 = commission percent paid on product one.
PROD2 = dollars sold of product two.
CO%2 = commission percent paid on product two.

- Multiple commission rates, depending on dollar sales volume*:

$COM=$SLS×COM%÷100+

          Basic commission

IF($SLS>BKPT:$SLS-BKPT:0)×AD%÷100

     Additional commission for exceeding quota

where $COM = dollars of commission paid.
$SLS = dollar volume sold.
COM% = commission percent paid on all sales.
BKPT = break point in dollars at which commission increases.
AD% = additional commission paid on dollar sales above break point.

- Premium for selling certain products.

$COM=$SLS×COM%÷100+#UNITS×$PREM

   Basic commission   Premium for
                    certain products

where $COM = dollars of commission paid.
$SLS = dollar volume sold.
COM% = commission percent paid on sales.
#UNITS = number of units sold on which premium is paid.
$PREM = premium paid on each unit.

Entering and Using Your Formula

1. From the MAIN menu, press SOLVE to display the SOLVE menu.
2. Type in your formula.
3. Press CALC to verify the formula and display the custom menu.
4. Store the values you know.
5. Press the menu key to calculate the unknown variable.

* To key in the > character, press ■Z.

38 Figuring Commissions

Examples

Example 1: Multiple commission rates depending on the product.
Suppose you sell products for three companies. All pay 15% commission on major equipment. One pays 10% on parts and accessories. Another pays 20% on their parts.

Your formula is: $COM=$EQUIP×.15+$ACC×.1+$PARTS×.2

Follow the steps on page 38 to enter and use the formula.

Store three of the following variables:

- Commission paid in $COM .
- Dollars of equipment sold in $EQU .
- Dollars of accessories sold in $ACC .
- Dollars of parts sold in $PAR .

Press the menu key to calculate the unknown variable.

You sold a $10,000 piece of equipment, $350 of accessories and supplies, and $400 in parts. What is your commission on the sale?

Keys:	Display:	Description:
10000 $EQU	$EQUIP=10,000.00	Stores equipment sold.
350 $ACC	$ACC=350.00	Stores accessories sold.
400 $PAR	$PARTS=400.00	Stores parts sold.
$COM	$COM=1,615.00	Calculates commission on the sale.

Example 2: Multiple commission rates depending on dollar sales volume.
Your company pays one commission rate up to a dollar break point, and an additional rate above this point. The break point and commission percentages change from time to time.

Your formula is*: $COM=$SLS×COM%÷100
+IF($SLS>BKPT:$SLS-BKPT:0)×AD%÷100

---

* To key in the > character, press ■ Z .

Follow the steps on page 38 to enter and use the formula.

Store four of the following variables:

- Commission paid in `$COM` .
- Dollars sold in `$SLS` .
- Commission percent on all sales in `COM%` .
- Dollars of sales at break point in `BKPT` .
- Additional commission percent above break point in `AD%` .

Press the menu key to calculate the unknown variable.

Part 1. This quarter, your company is paying 1½% commission on sales, plus an additional 1% on all sales over $200,000. You use the SUM menu to keep a running list of all sales. Each time you have a sale, you enter the item in the list. The total from this list is $252,400. Calculate the commission paid for the period.

Keys:	Display:	Description:
252400 `$SLS`	$SLS=252,400.00	Stores dollar amount of sales.
1.5 `COM%`	COM%=1.50	Stores commission percent.
200000 `BKPT`	BKPT=200,000.00	Stores break point.
1 `AD%`	AD%=1.00	Stores additional commission percent.
`$COM`	$COM=4,310.00	Calculates commission paid this period.

Part 2. Your commission check was $3,970. Calculate the dollar amount of sales.

3970 `$COM`	$COM=3,970.00	Stores amount of commission check.
`$SLS`	$SLS=238,800.00*	Calculates dollar sales to generate commission check.

* The solver searches for a numerical solution and displays intermediate estimates.

Performance Measurements

This section uses percentages to analyze sales performance. Percentages can be used to compare:

- Individual sales or expenses to average sales or expenses.
- Individual sales and expenses to total sales and expenses.
- Current sales and expenses to past sales and expenses.
- Call reports to actual sales.
- Individual percentages of total sales to percentages of total expenses.

The built-in BUS menu makes it easy to calculate these percentages.

1. From the MAIN menu, press ▓BUS▓, then ▓%TOTL▓ to display the %TOTL menu, or ▓%CHG▓ to display the %CHG menu.

2. Store the values you know by keying in the number and pressing the appropriate menu key.

3. Press the menu key for the value you want to calculate.

Example 1: Calculate the percent change in sales over time. Sales this period were $36,450; sales last period were $33,220. Calculate the percent change in sales.

Start from the MAIN menu.

Keys:	Display:	Description:
▓BUS▓ ▓%CHG▓		Displays %CHG menu.
33220 ▓OLD▓	OLD=33,220.00	Stores old sales.
36450 ▓NEW▓	NEW=36,450.00	Stores new sales.
▓%CH▓	%CHANGE=9.72	Calculates percent change in sales from last period to this period.

Example 2: Compare individual sales and expenses to total sales and expenses. Total sales for the period were $134,000. Expenses for the period were $12,250. The sales force records for the period are as follows:

Sales Person	$ Sales	$ Expenses
#1	35,000	3,500
#2	33,750	2,750
#3	39,500	4,000
#4	25,750	2,000

Part 1. Calculate the percentage of individual sales to total sales for each sales person.

Start from the MAIN menu.

Keys:	Display:	Description:
BUS %TOTL		Displays %TOTL menu.
134000 TOTAL	TOTAL=134,000.00	Stores total sales.
35000 PART	PART=35,000.00	Stores sales for #1.
%T	%TOTAL=26.12	Calculates percent of total sales for #1.
33750 PART	PART=33,750.00	Stores sales for #2.
%T	%TOTAL=25.19	Calculates percent of total sales for #2.
39500 PART	PART=39,500.00	Stores sales for #3.
%T	%TOTAL=29.48	Calculates percent of total sales for #3.
25750 PART	PART=25,750.00	Stores sales for #4.
%T	%TOTAL=19.22	Calculates percent of total sales for #4.

In order of sales performance, sales person #3 was best, followed by #1, #2, and #4.

Part 2. Calculate the percentage of individual expenses to total expenses for each sales person.

Start from the %TOTL menu.

12250 TOTAL	TOTAL=12,250.00	Stores total expenses.
3500 PART	PART=3,500.00	Stores expenses for #1.
%T	%TOTAL=28.57	Calculates percent of total expenses for #1.
2750 PART	PART=2,750.00	Stores expenses for #2.
%T	%TOTAL=22.45	Calculates percent of total expenses for #2.
4000 PART	PART=4,000.00	Stores expenses for #3.
%T	%TOTAL=32.65	Calculates percent of total expenses for #3.
2000 PART	PART=2,000.00	Stores expenses for #4.
%T	%TOTAL=16.33	Calculates percent of total expenses for #4.

In order of expense performance, sales person #4 had the lowest expenses, followed by #2, #1, and #3.

Looking at the percentages, however, sales person #4 achieved 19.2% of the sales while spending only 16.3% of the expenses. Sales person #3, on the other hand, achieved 29.5% of the sales, but used 32.7% of the expenses. In this period, sales person #4 was more efficient than #3.

A

Conserving Memory

The formulas in this book are intended to provide useful solutions. The variable names are several characters long to be meaningful to you. The formulas change a percent to a decimal so you don't have to remember to do it. These features make the formulas longer and take up more memory. Here are a few hints to help you conserve memory, should you need to:

- Shorten variable names. Variables are named to be as intuitive as possible. One way to save memory is to use single letter variable names.

- Delete division by 100. The formulas using a percent are written so you enter the percentage rather than the decimal value. Examples of this are tax rate as a percent, discount rate as a percent, or interest rate. If you do delete division by 100 from the formulas, remember to divide the percent by 100, or enter the percent and press %, before storing the value in the variable.

- Delete variables for other formulas. When the SOLVE menu is displayed and you press ▌ CLEAR ALL VARS , the variables are erased, giving you more usable memory. (If you select BOTH instead of VARS , all formulas and their variables will be gone.)

- Delete individual formulas. When the SOLVE menu is displayed, move the pointer to the formula you want to delete, and press DELET BOTH .

Working With Your
Business Consultant Professional Calculator

The *Direct Sales Consultant* contains a variety of applications, formulas and keystrokes to help you solve the specialized problems of your profession.

- Forecasting Based on History
- Forecasting Using Simple Moving Average
- Revising Forecasts to Reflect Current Market Conditions
- Markup Calculations
- Setting a Sales Price
- Break-Even Analysis
- Leasing Calculations
- Figuring Quotes
- Figuring Commissions
- Performance Measurements