BOND PRICE function. The following steps reproduce the value at 15 November 1991 for example:

Specified Discount Rate	16.265	(i)
Coupon percent p.a.	14	(PMT)
Value date	15.111987	(ENTER)
Maturity date	15.111988	(f) (PRICE) 97.984116
Add accrued interest	(zero)	(+) 97.984116

which is the per $100 nominal price corresponding to $979,841.

(3) *Example C*—(a) This illustrates the calculations involved in applying Method A to a straightforward perpetual security.

The perpetual has a face value of 100, a yearly coupon of 10 percent payable half-yearly, and was issued at 78.00 on 1 August 1991. This issuer is a New Zealand resident taxpayer with a 30 June balance date.

The Specified Discount Rate, R, corresponding to this issue price is 12.82 percent p.a., derived in Example C of Determination G11A: Present Value Based Yield to Maturity Method.

Therefore $F = 12.82/(100 \times N)$
$= 0.06410$

in all periods, since $N = 2$.

(b) At any payment date the formula (i) for Method A applies, and the present value is

$E/F = 5/0.06410$
$= 78.00$

(4) *Example D*—(a) This example illustrates the application of Method A to a more complicated perpetual note than in Example C. The note was issued at 90.00 on 1 February 1991. It has a nominal capital of 100, and has coupon interest at 14 percent commencing 1 August 1993 and payable half-yearly thereafter on 1 February and 1 August each year in perpetuity. The nominal capital is repayable only if the issuer defaults on an interest payment. The issuer is a New Zealand resident taxpayer with a 30 June balance date.

The Specified Discount Rate, R, corresponding to this issue price is 12.261 percent p.a., derived in Example D of Determination G11A: Present Value Based Yield to Maturity Method.

Therefore $F = 12.261/(100 \times N)$
$= 0.061305$

in all periods, since $N = 2$.

(b) The following schedule may then be constructed, starting in any period commencing on or after 1 February 1993:

Period Ending	*Present Value at Beginning*	*Payments by Issuer B or E**	*Payments by Holder C*	*Present Value at End A*
1/8/91	90.00	–	–	95.52
1/2/92	95.52	–	–	101.37
1/8/92	101.37	–	–	107.58
1/2/93	107.58(2)	–	–	114.18
1/8/93	114.18(1)	7.0	–	114.18
1/2/94	114.18	7.0	–	114.18
1/8/94	114.18	7.0	–	114.18

*B for periods ending prior to 1/8/93 during which formula (ii) applies; E thereafter when formula (i) applies.
(1) $E = 7$, $F = 0.61305$, $E/F = 114.18$
(2) $A = 114.18$, $B = 0$, $C = 0$, $F = 0.061305$

$$\frac{A + B - C}{1 + F} = 107.58$$

This Determination is signed by me on the 24rd day of October in the year 1990.

R. D. ADAIR, Deputy Commissioner of Inland Revenue.
go12594

Determination G11A: Present Value Based Yield to Maturity Method

This Determination may be cited as "Determination G11A: Present Value Based Yield to Maturity Method".

1. *Explanation* (which does not form part of the determination).

(1) This determination rescinds and replaces Determination G11: Present Value Based Yield to Maturity Method made by the Commissioner on 21 November 1988. This determination differs from Determination G11 by the addition of an example of its application to perpetuities in which all payments are the same after some period.

(2) This Determination states how the yield to maturity method shall be applied to a financial arrangement to calculate income derived or expenditure incurred for purposes of section 64C of the Income Tax Act 1976.

(3) This Determination is an alternative to Determination G3: Yield to Maturity Method and will give very similar answers when used with Method A of Determination G10B: Present Value Calculation Methods.

(4) The Determination applies to any financial arrangement where all the amounts and dates are known (or in the case of perpetuities the amounts of all payments due after a certain date, and the intervals at which they are payable, are able to be determined) not later that the first balance date of the issuer or holder after issue or acquisition, as the case may be, and determined in a single currency.

(5) The approach adopted is to define a constant annual interest rate representing the yield to maturity of all the cash flows in the financial arrangement. Income derived and expenditure incurred is assumed to be compounded on the date of each payment. The calculations are simplified by using regular periods such as half years, months or weeks, where most of all of the cash flows occur at such intervals. However, where a period between payments is longer than 1 year, income derived and expenditure incurred must be compounded at yearly intervals.

(6) In general, there is no explicit formula for a yield to maturity in terms of the cash flows. For purposes of this Determination, the yield to maturity is defined as the interest rate at which the Present Value of all amounts payable after the date of issue or acquisition is equal to the amount payable on that date.

(7) The formulae and method for calculating the Present Value will depend on the nature of the financial arrangement and a number of alternatives will be published in Determination G10B: Present Value Calculation Methods for this purpose.

(8) Persons may use either Determination G3: Yield to Maturity Method or this Determination for the purpose of applying the yield to maturity method to a financial arrangement. Once the person has elected to use Determination G3: Yield to Maturity Method or this Determination for a particular financial arrangement, the method set out in that Determination shall be used by the person over the life of that financial arrangement, unless the prior consent of the Commissioner is obtained to change methods.

(9) At each balance date after the date of issue or acquisition, the Present Value of the arrangement is recalculated using the same formula and method as was used originally to calculate yield to maturity (see paragraph (6) above).

(10) It will be noted that in the case of perpetuities there may not ever be a base price adjustment (see Example D).