

- (i) If amounts are payable at regular half-yearly intervals, N shall be taken as 2 and the preceding due date shall be taken as the date 6 calendar months prior to the date on which the first amount is payable on or after the date of issue or acquisition;
- (ii) If amounts are payable at regular quarterly intervals, N shall be taken as 4 and the preceding due date shall be taken as the date 3 calendar months prior to the date on which the first amount is payable on or after the date of issue or acquisition.
- (c) The amount of the present value of a financial arrangement calculated according to Method B as at a date shall be calculated according to the following formula:

$$\frac{A + B - C}{D}$$

where—

A is the present value (if any) as at the end of the Period immediately following the date; and

B is the sum of the amounts receivable by the holder or payable by the issuer at the end of the Period immediately following the date; and

C is the sum of the amounts payable by the holder or receivable by the issuer at the end of the Period immediately following the date; and

D is (a) Where an amount is payable at the end of the period immediately following the date is the last amount payable under the financial arrangement, an amount calculated according to the following formula:

$$= 1 + \frac{F \times T1}{T2}$$

(b) In any other case, an amount calculated according to the following formula:

$$\frac{(T1)}{(T2)} (1 + F); \text{ and}$$

F means an amount calculated according to the following formula:

$$\frac{R}{100 \times N}; \text{ and}$$

R is the Specified Discount Rate; and

T1 is the number of days in the Period immediately following the date calculated on a 365 day basis; and

T2 is the sum of T1 and—

- (i) Where an amount is payable on the date, zero; or
- (ii) In any other case, the number of days between the preceding due date and the date calculated on a 365 day basis.

7. Example—(1) Example A (a) This example illustrates Method A, using the same example as in Determination G3: Yield to Maturity Method (except for the dates) and Determination G11A: Present Value Based Yield to Maturity Method, Example A. The example shows that the present value at the beginning of a Period is the same as the principal outstanding during the Period.

On 12 March 1991 (the Specified Date) a holder acquires for \$1,012,500 the right to receive the following income—

15 May 1991	\$70,000
15 November 1991	\$70,000
15 May 1992	\$70,000
15 November 1992	\$1,070,000

The greatest common divisor of all Periods except the first is 6 months, so that $N = 2$; in the first (broken) Period ending on 15 May 1991

$$N = \frac{365}{64} = 5.703125$$

The Specified Discount Rate R is 16.2308 percent per annum, which in this case is also the yield to maturity as is verified in the schedule below.

Therefore $F = 0.028459$ in the Period ending 15 May 1991 and 0.081154 in all the remaining Periods.

(b) The following schedule may then be constructed, starting at the bottom and working up:

Period Ending	Present Value at Beginning	Payments by Issuer B	Payments by Holder C	Present Value at End A
15/5/91	1,012,500	70,000	—	971,315
15/11/91	971,315	70,000	—	980,141
15/5/92	980,141	70,000	—	989,683
15/11/92	989,683	1,070,000	—	—

The present value at the beginning of the first Period is the same as the acquisition price, verifying that the Specified Discount Rate is equal to the yield to maturity for this particular transaction. Note that this will often *not* be the case.

(2) Example B—(a) This example illustrates Method B, using the same example as in Determination G3: Yield to Maturity Method (except for the dates) and Determination G11B: Present Value Based Yield to Maturity Method, Example B.

On 12 March 1991 (the Specified Date) a holder acquires for \$1,012,500 the right to receive the following income—

15 May 1991	\$70,000
15 November 1991	\$70,000
15 May 1992	\$70,000
15 November 1992	\$1,070,000

All amounts are expressed in New Zealand dollars.

Amounts are payable at regular half-yearly intervals, so that $N = 2$ and the preceding due date is 6 months prior to 15 May 1991, namely 15 November 1990.

Also, $T1 = T2$ except for the first (broken) Period ending on 15 May 1991 for which

$T1 = 15/5/91 - 12/3/91 = 64$ days, and

$T2 = 64$ days + $12/3/91 - 15/11/90 = 181$ days.

The Specified Discount Rate R is 16.265 percent per annum, derived in Example B of Determination G11A: Present Value Based Yield to Maturity Methods.

Therefore $F = 0.081325$, and

$D = 1.028032$ in the Period ending 15 May 1991 (that being $(1 + F)$ to the power of $64/181$) and 1.081325 in all the remaining Periods.

(b) The following schedule may then be constructed, starting at the bottom and working up:

Period Ending	Present Value at Beginning	Payments by Issuer B	Payments by Holder C	Present Value at End A
15/5/91	1,012,500	70,000	—	970,884
15/11/91	970,884	70,000	—	979,841
15/5/92	979,841	70,000	—	989,527
15/11/92	989,527	1,070,000	—	—

(See footnote to this Example B for details of the present value calculations using the HP-12C calculator.)

The present value at the beginning of the first Period is the same as the acquisition price, verifying that the Specified Discount Rate is equal to the yield to maturity for this transaction.

Footnote: Calculating the present values—The “Present Values at Beginning” shown in the schedule may be calculated on an, HP-12C or equivalent calculator, directly using the