

Resolution:

$$(P+A)[1 + (r/s)(i/2)] = [(C/2) + (C/2) a_n] + 100 v^n \text{ or}$$

$$(P + .367403)[1 + (167/181)(.0954/2)] = (9.50/2) + (9.50/2) (12.315094) + 100(.412570)$$

$$(1) (P + .367403)[1 + .044011] = 4.75 + 58.496697 + 41.2570$$

$$(2) (P + .367403)[1.044011] = 104.503697$$

$$(3) (P + .367403) = 104.503697 / 1.044011$$

$$(4) (P + .367403) = 100.098272$$

$$(5) P = 100.098272 - .367403$$

$$(6) P = 99.730869$$

$$(7) P = 99.731$$

E. For fixed-principal securities reopened during the regular portion of a long first payment period:

Formula:

$$(P + A)[1 + (r/s)(i/2)] = (r'/s'')(C/2) + C/2 + (C/2) a_n] + 100 v^n$$

Where:

$$A = AI' + AI$$

$$AI' = (r'/s'')(C/2)$$

$$AI = [(s - r)/s](C/2) \text{ and}$$

r = number of days from the reopening date to the first interest payment date

s = number of days in the semiannual period for the regular portion of the first interest payment period

r' = number of days in the fractional portion (or "initial short period") of the first interest payment period

s'' = number of days in the semiannual period ending with the commencement date of the

regular portion of the first interest payment period

Example:

A 10¾% 19-year 9-month bond due August 15, 2005, is issued on July 2, 1985, and reopened on November 4, 1985, with interest payments on February 15 and August 15 (first payment on February 15, 1986), solve for the price per 100 (P) at a yield of 10.47%. Accrued interest is calculated from July 2 to November 4.

Definitions:

$$C = 10.75$$

$$i = .1047$$

$$n = 39$$

$$r = 103 \text{ (November 4, 1985, to February 15, 1986)}$$

$$s = 184 \text{ (August 15, 1985, to February 15, 1986)}$$

$$r' = 44 \text{ (July 2 to August 15, 1985)}$$

$$s'' = 181 \text{ (February 15 to August 15, 1985)}$$

$$v^n = 1/[(1 + .1047/2)]^{39}, \text{ or } .136695$$

$$a_n] = (1 - .136695)/.05235, \text{ or } 16.491022$$

$$AI' = (44/181)(10.75 / 2), \text{ or } 1.306630$$

$$AI = [(184 - 103)/184](10.75/2), \text{ or } 2.366168$$

$$A = AI' + AI, \text{ or } 3.672798$$

Resolution:

$$(P + A)[1 + (r/s)(i/2)] = (r'/s'')(C/2) + C/2 + (C/2) a_n] + 100 v^n \text{ or}$$

$$(P + 3.672798)[1 + (103/184)(.1047/2)] = (44/181)(10.75/2) + 10.75/2 + (10.75/2)(16.491022) + 100(.136695)$$

$$(1) (P + 3.672798)[1 + .029305] = 1.306630 + 5.375 + 88.639243 + 13.6695$$

$$(2) (P + 3.672798)[1.029305] = 108.990373$$

$$(3) (P + 3.672798) = 108.990373 / 1.029305$$

$$(4) (P + 3.672798) = 105.887344$$

$$(5) P = 105.887344 - 3.672798$$

$$(6) P = 102.214546$$

$$(7) P = 102.215$$