

The Deltona Instrument Company has 9 percent coupon bonds on the market with 6 years left to maturity.

The bonds make annual payments. If the bond currently sells for \$974.60, what is its YTM?

8.82 percent

8.90 percent

8.98 percent

9.58 percent

9.63 percent

$$f(x) = 1000 + -974.6 * (1+x)^6 + 90 [(1+x)^6 - 1]/x$$

$$f'(x) = 6 * -974.6 * (1+x)^5 + 90 * (6 * (1+x)^5 - (1+x)^6 + 1) / (x^2)$$

$$x = 0.1$$

$$f(x) = -32.1585$$

$$f'(x) = -7664.9133$$

$$x1 = 0.1 - -32.1585/-7664.9133 = 0.0958044599538$$

$$\text{Error Bound} = 0.0958044599538 - 0.1 = 0.004196 > 0.000001$$

$$x1 = 0.0958044599538$$

$$f(x1) = -0.3356$$

$$f'(x1) = -7505.3769$$

$$x2 = 0.0958044599538 - -0.3356/-7505.3769 = 0.0957597499751$$

$$\text{Error Bound} = 0.0957597499751 - 0.0958044599538 = 4.5E-5 > 0.000001$$

$$x2 = 0.0957597499751$$

$$f(x2) = -0$$

$$f'(x2) = -7503.6905$$

$$x3 = 0.0957597499751 - -0/-7503.6905 = 0.0957597449509$$

$$\text{Error Bound} = 0.0957597449509 - 0.0957597499751 = 0 < 0.000001$$

$$\text{YTM} = 9.58\%$$

$$\text{Annual YTM} = 9.58\%$$