15. **Calculate** the price and yield-to-maturity of a 2.5% coupon, five-year bond given the following spot rates. Assume annual compounding.

1-year	3.000%
2-year	2.800%
3-year	2.600%
4-year	2.400%
5-year	2.200%

16 **Calculate** a three-year par rate given the following spot rates. Assume annual compounding:

1-year	3.000%
2-year	2.800%
3-year	2.600%

15. The price is 101.314.

$$\text{PV} = \frac{PMT}{(1+Z_1)^1} + \frac{PMT}{(1+Z_2)^2} + \cdots + \frac{PMT+FV}{(1+Z_N)^N}$$

$$\text{PV} = \frac{2.50}{(1+0.03)^1} + \frac{2.50}{(1+0.028)^2} + \frac{2.50}{(1+0.026)^3} + \frac{2.50}{(1+0.024)^4} \frac{2.50102.50}{(1+0.022)^5}$$

$$\text{PV} = 101.34$$

The YTM is 2.22%

$$\text{PV} = \frac{2.50}{(1+r)^1} + \frac{2.50}{(1+r)^2} + \frac{2.50}{(1+r)^3} + \frac{2.50}{(1+r)^4} + \frac{2.50}{(1+r)^5}$$

$$\text{r} = 0.022195 = 2.22\%$$

16. 2.607%.

$$100 = \frac{PMT}{(1+Z_1)^1} + \frac{PMT}{(1+Z_2)^2} + \cdots + \frac{PMT+100}{(1+Z_N)^N}$$

$$100 = \frac{PMT}{(1+0.03)^1} + \frac{PMT}{(1+0.028)^2} + \frac{PMT}{(1+0.026)^3} + \frac{PMT+100}{(1+0.024)^3}$$

$$100 = \text{PMT} \times (\frac{1}{(1+0.03)^1} + \frac{1}{(1+0.028)^2} + \frac{1}{(1+0.026)^3} + \frac{100}{(1+0.026)^3}$$

PMT=2.607%