

Now, let's calculate the stock price today.

$$\begin{aligned} \text{Stock price today} &= \frac{D_1}{(1+r)} + \frac{D_2}{(1+r)^2} + \frac{D_3}{(1+r)^3} + \dots \\ &= \frac{D_1}{(1+r)} + \frac{D_1(1+g)}{(1+r)^2} + \frac{D_1(1+g)^2}{(1+r)^3} + \frac{D_1(1+g)^3}{(1+r)^4} + \dots \\ &= \frac{D_1}{r-g} \end{aligned}$$

So, the constant growth model is:

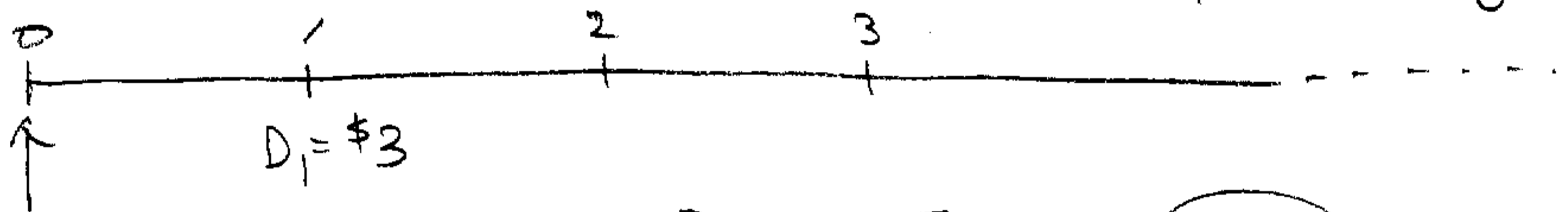
$$P_0 (\text{stock price today}) = \frac{D_1}{r-g}$$

D_1 = next year's dividend
 r = required rate of return
 g = dividend growth rate per share

General formula: $P_N = \frac{D_{N+1}}{r-g}$

Ex) A firm is expected to pay \$3 dividend next year.

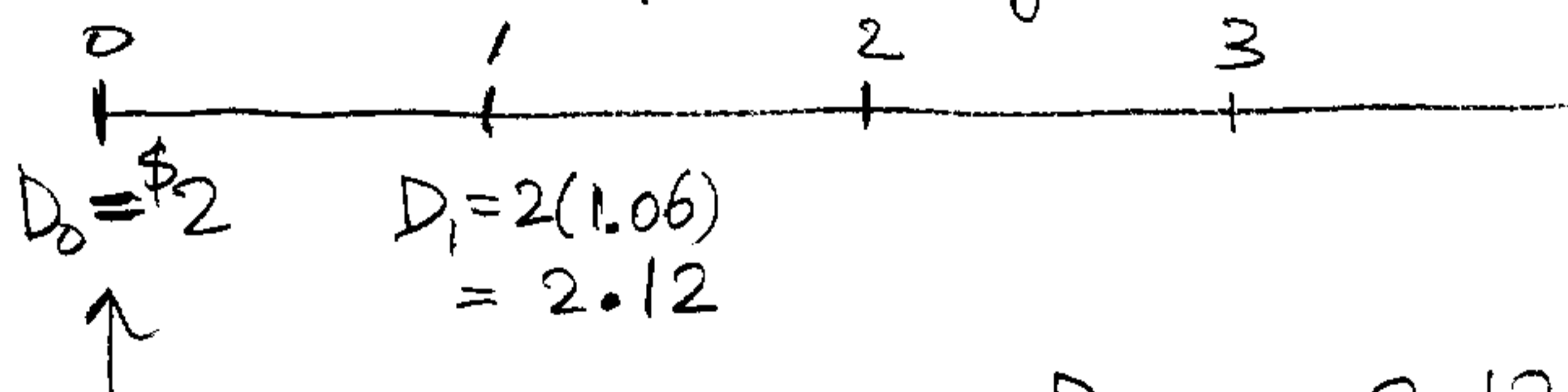
The dividend will grow at a 5% constant rate and the required rate of return is 10%. Find the stock price today.



$$P_0 (\text{stock price today}) = \frac{D_1}{r-g} = \frac{3}{.1-.05} = \text{\$60}$$

Ex) A firm just paid a \$2 dividend per share. The dividend growth rate is 6% and the required rate of return is 15%.

Find the stock price today.



$$P_0 (\text{stock price today}) = \frac{D_1}{r-g} = \frac{2.12}{.15-.06} = \text{\$23.56}$$