# What is the Dividend Discount Model?

Worksheet

The Dividend Discount Model values a stock by discounting future dividends to present value using the formula $P = D_1/(r-g)$, where $D_1$ is next year's dividend, r is required return, and g is dividend growth rate.

$$P = D_1/(r - g)$$

P = Stock price (intrinsic value) (currency)
$D_1$ = Next year's expected dividend (currency per share)
r = Required rate of return (%)
g = Constant dividend growth rate (%)

## Questions

1. A stock with $D_1 = \$3$, r = 12%, g = 4%. DDM price?
A) $25
B) $37.50
C) $75
D) $15

2. In DDM, what must always be true?
A) r > g
B) r < g
C) r = g
D) g can be any value

3. If dividends are expected to grow at 5% forever and required return is 8%, what is r − g?
A) 5%
B) 3%
C) 13%
D) 0.4

4. DDM assumes dividends grow at a constant rate. This is called...
A) Gordon Growth Model
B) two-stage model
C) multi-stage model
D) perpetuity model

5. A stock pays a current dividend of $2/share, expected to grow at 3% annually. Required return is 10%. What is the stock's intrinsic value?

6. XYZ Corp pays $1.50 dividend per share next year. Investors demand 12% return, with 4% dividend growth expected. Value the stock.

7. A dividend stock costs 50, pays2.50 next dividend, with 5% growth. Is the required return 8% or higher?

8. Define: What is the Dividend Discount Model formula?

9. Define: What does the denominator (r − g) represent?

10. Define: When is DDM most useful?

# Answer Key

1. B) $37.50 — P = 3 / (0.12 − 0.04) =3 / 0.08 = $37.50

2. A) r > g — Required return must exceed growth rate or the formula gives negative/infinite values.

3. B) 3% — r − g = 8% − 5% = 3%.

4. A) Gordon Growth Model — The constant-growth DDM is also called the Gordon Growth Model.

5. $D_1 = D_0 \times (1 + g) = 2 \times 1.03 = 2.06$ $P = D_1 / (r - g) = 2.06 / (0.10 - 0.03) = 2.06 / 0.07 =$ $29.43

6. $P = D_1 / (r - g) = 1.50 / (0.12 - 0.04) = 1.50 / 0.08 =$ $18.75

7. $r = (D_1 / P) + g = (2.50 /50) + 0.05 = 0.05 + 0.05 = 0.10 = 10\%$ So required return is 10%, which is higher than 8%.

8. $P = D_1/(r-g)$, where P is price, $D_1$ is next dividend, r is required return, g is growth rate.

9. The difference between required return and dividend growth rate — the 'yield spread.'

10. For mature companies with stable, predictable dividend growth.