PV Examples:

- You are valuing a project that is expected to earn a one-time cash flow of $500m in five years. You estimate a discount rate of 11%. What is the present value of this cash flow?
  \[ PV = \frac{500}{(1+0.11)^5} = 296.73m \]

- What is the present value if the project instead pays cash flows of $100m per year for each of the next five years?
  \[ PV = 100 \left( \frac{1-(1+0.11)^{-5}}{0.11} \right) = 369.59m \]

- What is the present value if the project instead pays cash flows that grow at a rate 10% per year for five years, starting with a cash flow of $100m next year?
  \[ PV = 100 \left( \frac{1-(1+0.10)^{-5}}{(0.11-0.10)} \right) = 442.41m \]
  OR
  \[ PV = 100 + \frac{100(1.10)}{1.11} + \frac{100(1.10)^2}{1.11^2} + \frac{100(1.10)^3}{1.11^3} + \frac{100(1.10)^4}{1.11^4} = 442.41m \]

PV Examples:

- You are valuing a firm that is expected to earn cash flows of $100m per year in perpetuity. You estimate a discount rate of 11%. What is the present value of these cash flows?
  \[ PV = \frac{100}{0.11} = 909.09m \]

- What is the present value if the firm instead earns cash flows that start at $100m next year and grow at 5% in perpetuity thereafter?
  \[ PV = \frac{100}{(0.11-0.05)} = 1666.67m \]
PV Examples:

You are valuing a firm that is expected to earn cash flows that grow at 10% for the first five years and at 5% in perpetuity thereafter. The forecasted cash flow next period is $100m (which includes the 10% growth) and you estimate a discount rate of 11%. What is the present value of these cash flows?

\[
\begin{align*}
\text{Terminal Value}_t &= \frac{153.73}{(1.11 - 0.05)} = $2562.18m \\
PV \text{ of Terminal Value} &= \frac{2562.18}{(1.11)^t} = $1520.53m \\
PV \text{ of High Growth Cash Flows} &= 100 \left( \frac{1 - (1.10)^5}{(1.11 - 1.10)} \right) = $442.41m \\
Total PV &= 442.41 + 1520.53 = $1962.94m
\end{align*}
\]