Simple Discount Formula

\[ d = \text{discount rate} \quad P = \text{Proceeds} \]

\[ I = Fdt \]

\[ d = \frac{I}{Ft} \]

\[ F = \frac{I}{dt} \]

\[ t = \frac{I}{Fd} \]

Proceeds Formula

\[ P = F(1 - dt) \]

Maturity Value Formula

\[ F = \frac{P}{1 - dt} \]

Example:

1. Discount 25000 for 3 years and 6 months at 10% simple discount.

\[
P = 25000(1 - 0.10 \times 3.5)
\]

\[
P = 16250
\]

2. If 12300 is due at the end of 5 years at 8% simple discount, find the proceeds and simple discount.

\[
P = 12300(1 - 0.08 \times 5)
\]

\[
P = 7380 \quad \text{Proceeds}
\]

\[
I = 12300 \times 0.08 \times 5
\]

\[
I = 4920 \quad \text{Simple Discount}
\]

Equivalent Rates

\[ r = \frac{d}{1 - dt} \]

\[ d = \frac{r}{1 + rt} \]

Example:

1. A bank discounts 160000 loan due in 3 years at 10% simple discount. Find the equivalent simple interest rate.

\[
r = \frac{0.10}{1 - 0.10 \times 3}
\]

\[
r = 14.29\%
\]

2. Find the simple discount rate to 15% simple interest for 240 days.

\[
d = \frac{0.15}{1 + 0.15 \times \left(\frac{240}{360}\right)}
\]

\[
d = 13.64\%
\]