

TIP

TECHNOLOGICAL INSTITUTE OF THE PHILIPPINES

Account

Dashboard

Courses

Groups

Calendar

Inbox

History

Help

Second Semester SY 2020-2...

Home

Modules

Conferences

Announcements

Grades

Office 365

Chat

T.I.P. Manila Library Video Presentation

[SHS ONLY] Senior Highschool Teachers Online Class Performance Evaluation (Manila: Part 5)[Required]

Student Perception on Limited F2F Survey (Required)

ME 304A-CPE22S2 - Engineering Economics

Pages

2.2 Compound Interest

Immersive Reader

2.2 Compound Interest

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COMPOUND INTEREST

Engr. Feb June R. Gogola

Intended Learning Outcomes

At the end of the lesson, the student shall be able to:

1. Differentiate the difference between simple and compound interest.

2. Apply the formulas/equations in compound interest to solve word problems.

Compound interest

In calculations of compound interest, the interest for an interesting period is calculated on the principal plus total amount of interest accumulated in previous periods. This compound interest means “interest on top of interest”.

Future Amount

$$F = P(1 + i)^n$$
$$F = P \left(1 + \frac{i_n}{m} \right)^{mn}$$

where:

$P = \textit{prinicipal or present amount}$ $i = \textit{interest per period}$ $n = \textit{no. of interest periods}$ $(1 + i)^n = \textit{single payment compound amount factor}$

Present Amount

$$P = \frac{F}{(1+i)^n}$$

where:

$$\frac{1}{(1+i)^n} = \textit{single payment present worth factor}$$

Period	Principal	Interest	Total Amount
1	P	Pi	$P + Pi$ $= P(1 + i)$
2	$P(1 + i)$	$[P(1 + i)] i$	$P(1 + i) + [P(1 + i)] i$ $= [P(1 + i)] (1 + i)$ $= P(1 + i)^2$
3	$P(1 + i)^2$	$P(1 + i)^2 i$	$P(1 + i)^2 + P(1 + i)^2 i$ $= \left[P(1 + i)^2 \right] (1 + i)$ $= P(1 + i)^3$

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◀ Previous

Next ▶