Simple Interest

COURSE TEACHING ASSISTANTS

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Rules

1 Simple interest

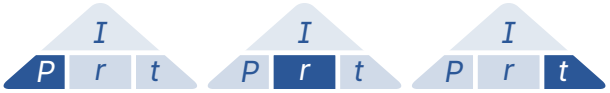
sum, amount or became means S · I = S − P

$$I = P \times r \times t$$

interest · principal · rate · time

$$S = P + I$$

sum



$$P = \frac{I}{r \times t} \qquad r = \frac{I}{P \times t} \qquad t = \frac{I}{P \times r}$$

2 Count the days

skip the first day, count the last

Days in each month *31, except the blue ones*

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
31	28·29	31	30	31	30	31	31	30	31	30	31

Leap year? *divide the year by 4*

2020 ÷ 4 = 505 ↙ no fraction: leap year, **366 days**

2022 ÷ 4 = 505.5 ↙ fraction: simple year, **365 days**

3 Commercial and exact

$I_c : I_e = 73 : 72$ · *the difference is 1 part*

	Normal way	One of them given	Difference given
Commercial the default	$I_c = P \times r \times \frac{\text{days}}{360}$	$I_c = I_e \times \frac{73}{72}$	$I_c = (I_c - I_e) \times 73$
Exact 366 in a leap year	$I_e = P \times r \times \frac{\text{days}}{365}$	$I_e = I_c \times \frac{72}{73}$	$I_e = (I_c - I_e) \times 72$

4 Make *r* yearly

no type? it is already yearly

Monthly	Every 2 months	Quarterly	Every 4 months	Semi-annual
× 12	× 6	× 4	× 3	× 2

Q1

Find the number of days from 13/1/2022 to 24/6/2022.

Q2

Find the number of days from 22/1/2020 to 15/8/2020.

Q3

Ahmed deposited $100,000 in a bank at a simple interest rate of 12% annually. Calculate the interest and the sum at the end of:

a) 2 years

b) 1.5 years

c) 9 months

d) 15 months

e) 135 days, commercial interest

f) 180 days, exact interest

Q4

Nahla deposited $50,000 in a bank at a simple interest rate of 12% annually. After a certain period, the sum became $53,000. Find this period.

Q5

Find the rate of interest if the principal is $500, the time is 2 months and the interest is $12.5.

Q6

On 5 Feb. 2022 a person deposited $72,000 in a bank at a simple interest rate of 15% annually. Compute the interest amount on 10 Aug. 2022.

Q7

Compute the commercial interest and the exact interest for $7,300 deposited in a bank at 12% annually for 60 days, knowing that the deposit was in the year 2020.

Q8

If the commercial interest for a certain sum of money, for a certain period and at a certain rate, is $36.5, compute the exact interest.

Q9

If the exact interest for a certain sum of money, for a certain period and at a certain rate, is $300, compute the commercial interest.

Q10

If the difference between the commercial and exact interest for a certain sum of money, for a certain period and at a certain rate, is $50, calculate the commercial and exact interest.

Q11

If the difference between the commercial and exact interest for a certain sum of money, for a period of 144 days at a rate of 15% annually, is $6, find the commercial and exact interest and the money invested.

Q12 Extra

Find the principal in each case:

a) The interest is $1,800 for 9 months at 8% annually.

b) The commercial interest is $450 for 120 days at 9% annually.

Q13 Extra

Find the interest on each deposit:

a) $12,000 at 1% monthly for 5 months

b) $8,000 at 2% quarterly for 9 months

c) $9,000 at 1.5% every 2 months for 10 months

d) $5,000 at 3% semi-annually for 1.5 years

Q14 Extra

$15,600 is deposited for 26 weeks at 10% annually. Find the interest and the sum at the end of the period.

Q15 Extra

A deposit of $20,000 became $20,600 after 26 weeks. Find the annual rate of interest.