

Business Math Chapters 6 & 7 Simple Interest Answer ①

Key by Michael Reimer

I = Interest Amount (\$)
 t = Time days or Months

P = Principal r = Interest Rate (%)

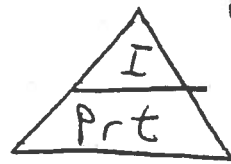
$$I = Prt$$

$$P = \frac{I}{rt}$$

$$r = \frac{I}{Pt} \times 100\%$$

$$t = \frac{I}{Pr} \times 365 \text{ For days}$$

$$t = \frac{I}{Pr} \times 12 \text{ For Months}$$



if you cover up the letter that is missing that will give you the formulae for that letter

1) $I = ?$ Investment = $P = \$4,500$ $r = 4.8\%$ $t = \frac{3}{12}$ months

$$I = Prt = \$4500 \times 0.048 \times \frac{3}{12} = \$4500 \times 0.048 \times 0.25$$
$$I = \$4500 \times 0.012 = \underline{\underline{54}}$$

2) $I = \$350$ $r = 0.3\%$ per month $t = 5$ months loan = $P = ?$

$$P = \frac{I}{rt} = \frac{\$350}{(0.003)(5)} = \frac{\$350}{0.015} = \underline{\underline{\$23,333.33}}$$

we can do the 0.003×5 because the 0.003 is per month and the loan is for 5 months.

Alternatively you could multiple the $0.003 \times 12 = 0.036$ for the whole year. By doing that, you would then need to divide the 5 by 12 $\frac{5}{12}$. Both ways should give you the same answer.

Business Math Chapters 6+7 Simple Interest Answer Key (2)

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2) $P = ?$ "or" $I = \$350$ $r = 0.036$ $t = \frac{5}{12}$

$$P = \frac{I}{rt} = \frac{\$350}{0.036 \times \frac{5}{12}} = \frac{\$350}{0.036 \times 0.416\bar{6}} = \frac{\$350}{0.015} = \underline{\underline{\$23,333.33}}$$

Use the way you are most comfortable with.

3) $r = ?$ $P = \$15000$ $t = \frac{9}{12}$ $I = \$420$

$$r = \frac{I}{Pt} \times 100 = \frac{\$420}{\$15000 \times \frac{9}{12}} \times 100 = \frac{\$420}{\$15000 \times 0.75} \times 100 = \frac{\$420}{\$11250} \times 100$$

$$r = \underline{\underline{3.73\%}}$$

4) Loan = $P = \$500$ $r = 3.4\% = 0.034$ $I = \$62.50$ $t = ?$

$t = \frac{I}{Pr}$ Since the question does not specify days or months let us do both.

$$t = \frac{\$62.50}{\$500 \times 0.034} = \frac{\$62.50}{17} = \underline{\underline{3.676470588}}$$

This 3 represents years. The decimal portion represents either days or months depending on the question. So, since the 3 is years you want to subtract the 3 and multiple the decimal by 12 For Months and 365 For days.

Business Math Chapters 6+7 Simple Interest Answer key (3)

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4) For days:

$$3.676470588 - 3 = 0.676470588 \times 365 = 246.91176471$$

3 years 247 days

For Months:

$$3.676470588 - 3 = 0.676470588 \times 12 = 8.117647059$$

3 years 8 months

5) Investment Amount = $P = \$3200$ $r = 3.8\% = 0.038$ $I = ?$
 For time "t" we need to use the calculator's date function.

2nd Date DT1 stands for Date 1 which is May 1st, since
 the year is not given, you can use 2008
 DT1 you enter MM. DD YR May is the 5th month

5.0108 **Enter** **↓**

DT2 is the 2nd date September 2nd, 2008

September is the 9th month

DT2 9.0208 **Enter** **↓**

DBD = Days between Dates at this point you want to compute the days you hit the **DBD** button

DBD = 124 $t = \frac{124}{365}$

$$I = Prt = \$3200 \times 0.038 \times \frac{124}{365} = \$3200 \times 0.038 \times 0.339726027$$

$$I = \$3200 \times 0.012909589 = \underline{\underline{\$41.31}}$$

6) Maturity Value = $S = ?$ Loan = $P = \$2300$ $r = 7.3\% = 0.073$

$t = \frac{16}{12}$ $S = P(1 + rt)$

$$S = \$2300(1 + 0.073 \times \frac{16}{12}) = \$2300(1 + 0.073 \times 1.3\bar{3})$$

$$S = \$2300(1 + 0.097\bar{3}) = \$2300(1.097\bar{3}) = \underline{\underline{\$2523.87}}$$

Business Math Chapters 6+7 Simple Interest Answer Key (4)
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7) $t = ?$ days $P = \$2200$ $S = \$2854.35$ $r = 6.84\% = 0.0684$

$$t = \frac{I}{Pr} \times 365 \quad I = S - P = \$2854.35 - \$2200 = \$654.35 = I$$

$$t = \frac{\$654.35}{\$2200 \times 0.0684} = \frac{\$654.35}{\$150.48} = 4.348418394 \times 365 =$$

$$t = 1587.172714 \downarrow \underline{1587} \text{ days}$$

8) $S = ?$ $P = \text{Loan} = \$650$ $r = 5.25\% = 0.0525$ $t = \frac{120}{365}$

$$S = P(1 + rt) = \$650 \left(1 + 0.0525 \times \frac{120}{365}\right) = \underline{\underline{\$661.22}}$$

9) Maturity Value = $S = ?$ Investment = $P = \$25000$ $t = \frac{90}{365}$
 $r = 3.4\% = 0.034$

$$S = P(1 + rt) = \$25000 \left(1 + 0.034 \times \frac{90}{365}\right) = \underline{\underline{\$25209.59}}$$

10) "Rolled over" means the S from the last question becomes the P in this question.

$$P = \$25209.59 \quad S = ? \quad t = \frac{120}{365} \quad r = 2.8\% = 0.028$$

$$S = P(1 + rt) = \$25209.59 \left(1 + 0.028 \times \frac{120}{365}\right) = \underline{\underline{\$25441.66}}$$