

Business Math Chapter 7 Answer Key by Michael Reimer

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$$1) P = \$65000 \quad r = 3.4\% = 0.034 \quad t = \frac{270}{365} \quad I_1 = ?$$

$$I = Prt \quad I = \$65000 \times 0.034 \times \frac{270}{365} = \$1634.79$$

$$P = \$32500 \quad (2) \quad r = 3.1\% = 0.031 \quad t = \frac{270}{365} \quad I_2 = ?$$

$$I = Prt \quad I = \$32500 \times 0.031 \times \frac{270}{365} (2) = \$1490.55$$

$$I_1 - I_2 = \$1634.79 - \$1490.55 = \underline{\underline{\$144.24}}$$

$$2) P = ? \quad S = \$20000 \quad t = \frac{91}{365} \quad r = 2.678\% = 0.02678$$

$$P = \frac{S}{(1+rt)} = \frac{\$20000}{(1+0.02678 \times \frac{91}{365})} = \frac{\$20000}{1.006676658} = \underline{\underline{\$19867.35}}$$

$$3) P_1 = ? \quad S = \$50000 \quad t = \frac{182}{365} \quad r = 4.4\% = 0.044$$

$$P_1 = \frac{S}{(1+rt)} = \frac{\$50000}{(1+0.044 \times \frac{182}{365})} = \frac{\$50000}{1.021939726} = \underline{\underline{\$48926.56}}$$

$$P_2 = ? \quad S = \$50000 \quad t = \frac{182-30}{365} = \frac{152}{365} \quad r = 4.1\% = 0.041$$

$$P_2 = \frac{S}{(1+rt)} = \frac{\$50000}{(1+0.041 \times \frac{152}{365})} = \frac{\$50000}{1.017073973} = \underline{\underline{\$49160.63}}$$

$$P_2 - P_1 = \$49160.63 - \$48926.56 = \underline{\underline{\$234.07}}$$

$$4) S = \$100000 \quad P = \$99250 \quad t = \frac{90}{365} \quad r = ? \quad I = ?$$

$$I = S - P \quad I = \$100000 - \$99250 = \$750$$

$$r = \frac{I}{Pt} \times 100 \quad r = \frac{\$750}{\$99250 \times \frac{90}{365}} \times 100 = \frac{\$750}{\$26919.86301} \times 100 = 2.786\%$$

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5) August's Interest Payment August 12th - August 31st 31 - 12 = 19
 $t = \frac{19}{365}$ $P = \$2000$ $r = 2.8\% + 1\% = 3.8\% = 0.038$ $I = ?$
 $I = Prt$ $I = \$2000 \times 0.038 \times \frac{19}{365} = \underline{\underline{\$3.96}}$ For August

September's Interest Payment

① September 1st - September 20th 20 days
 $t = \frac{20}{365}$ $r = 2.8\% + 1\% = 3.8\% = 0.038$ $P = \$2000$ $I_1 = ?$
 $I_1 = Prt$ $I_1 = \$2000 \times 0.038 \times \frac{20}{365} = \4.16

② September 20th - September 30th 30 - 20 = 10 days
 $t = \frac{10}{365}$ $r = 2.8\% + 1\% = 3.8\% = 0.038$ $P = \$2000 - \$500 = \$1500$
 $I_2 = Prt$ $I_2 = \$1500 \times 0.038 \times \frac{10}{365} = \1.56

September's Interest Payment = $I_1 + I_2 = \$4.16 + \$1.56 = \underline{\underline{\$5.72}}$

6) August's Payment August 5th - August 31st 31 - 5 = 26 days
 $t = \frac{26}{365}$ $r = 3.2\% = 0.032$ $P = \$17000$ $I = ?$

$I = Prt$ $I = \$17000 \times 0.032 \times \frac{26}{365} = \38.75 Interest
Payment = \$700

Principle = Payment - Interest = \$700 - \$38.75 = \$661.25

September's Payment September 1st - September 30 30 days
 $t = \frac{30}{365}$ $r = 3.2\%$ $P = \$17000 - \$661.25 = \$16338.75$ $I = ?$

$I = Prt$ $I = \$17000 \times 0.032 \times \frac{30}{365} = \42.97

Payment = \$700

Principle = Payment - Interest = \$700 - \$42.97 = \$657.03

Interest = \$42.97 Principle = \$657.03

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7) Interest Period June 1st to November 30th

① From June 1st to September 1st Prime = 3.25% + 2.25%

② From September 1st to November 30th Prime = 3.75% + 2.25%

③ From November 30th to January 13th Prime = 3.75% + 2.25%

④ From January 13th to January 31st Prime = 3.5% + 2.25%

2nd 1

① June 1st to September 1st DT1 6.01 13 Enter ↓

DT2 9.01 13 Enter ↓

DBD CPT = 92 days

$$t = \frac{92}{365} \quad r = 3.25\% + 2.25\% = 5.5\% = 0.055 \quad P = \$7500 \quad I_1 = ?$$

$$I_1 = Prt \quad I_1 = \$7500 \times 0.055 \times \frac{92}{365} = \$103.97$$

② September 1st to November 30th 2nd 1

DT1 9.01 13 Enter ↓

DT2 11.30 13 Enter ↓

DBD CPT = 90 days

$$t = \frac{90}{365} \quad r = 3.75\% + 2.25\% = 6\% = 0.06 \quad P = \$7500 \quad I_2 = ?$$

$$I_2 = Prt \quad I_2 = \$7500 \times 0.06 \times \frac{90}{365} = \$110.96$$

Principle For November 30th = $P + I_1 + I_2 = \$7500 + \$103.97 + \$110.96$

$$P = \$7714.93$$

December's Payment

③ November 30th - December 31st 31 days

$$t = \frac{31}{365} \quad r = 3.75\% + 2.25\% = 6\% = 0.06 \quad P = \$7714.93 \quad I_3 = ?$$

$$I_3 = Prt \quad I_3 = \$7714.93 \times 0.06 \times \frac{31}{365} = \$39.31$$

$$\text{Payment} = \$200$$

$$\text{Principle} = \text{Payment} - \text{Interest} = \$200 - \$39.31 = \$160.69$$

$$\text{Interest} = \underline{\underline{\$39.31}} \quad \text{Principle} = \underline{\underline{\$160.69}}$$

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7) January's Payment

④ a) January 1st - January 13th 13 days

$$t = \frac{13}{365} \quad r = 3.75\% + 2.25\% = 6\% = 0.06 \quad I_{4a} = ?$$

$$P = \$7714.93 - \$160.69 = \$7554.24$$

$$I_{4a} = Prt \quad I_{4a} = \$7554.24 \times 0.06 \times \frac{13}{365} = \$16.14$$

b) January 13th - 31st 31 - 13 = 18 days

$$t = \frac{18}{365} \quad r = 3.5\% + 2.25\% = 5.75\% = 0.0575 \quad P = \$7554.25 \quad I_{4b} = ?$$

$$I_{4b} = Prt \quad I_{4b} = \$7554.25 \times 0.0575 \times \frac{18}{365} = \$21.42$$

$$\text{Interest} = I_{4a} + I_{4b} = \$16.14 + \$21.42 = \$37.56$$

$$\text{Payment} = \$200$$

$$\text{Principle} = \text{Payment} - \text{Interest} = \$200 - \$37.56 = \underline{\underline{\$162.44}}$$

$$\text{Interest} = \underline{\underline{\$37.56}} \quad \text{Principle} = \underline{\underline{\$162.44}}$$