

Review Exercise Set 15

Exercise 1: A local developer is selling homes for \$125,000 with a required down payment of 6%. Find the amount of the required down payment and the mortgage.

Exercise 2: A couple obtained a loan for \$130,000 to purchase their home. How much would the loan origination fee be if the couple had to pay 3 points on the loan. (Loan origination fee = Mortgage * Points).

Exercise 3: New houses in a neighborhood are selling for \$175,000. A down payment of \$18,000 is required and a 25-year mortgage at an annual interest rate of 8% is available. Find the monthly mortgage payment.

Exercise 4: Office Depot has a warehouse with a 20-year mortgage of \$250,000 at an annual interest rate of 9%. During a month when \$1,650.33 of the monthly mortgage payment is principal, how much of the payment is interest?

	7%	8%	9%
1 year	0.0865267	0.0869884	0.0874515
5 years	0.0198012	0.0202764	0.0207584
20 years	0.0077530	0.0083644	0.0089973
25 years	0.0070678	0.0077182	0.0083920
30 years	0.0066530	0.0073376	0.0080462

Exercise 5: The monthly mortgage payment on a house is \$824.36, and the homeowner must pay an annual property tax of \$930. Find the total monthly payment for the mortgage and the property tax.

Review Exercise Set 15 Answer Key

Exercise 1: A local developer is selling homes for \$125,000 with a required down payment of 6%. Find the amount of the required down payment and the mortgage.

$$\text{down payment} = \text{selling price} * 6\%$$

$$\text{down payment} = 125000 * 0.06$$

$$\text{down payment} = 7500$$

$$\text{mortgage} = \text{selling price} - \text{down payment}$$

$$\text{mortgage} = 125000 - 7500$$

$$\text{mortgage} = 117500$$

Down payment is \$7,500 and the mortgage is \$117,500.

Exercise 2: A couple obtained a loan for \$130,000 to purchase their home. How much would the loan origination fee be if the couple had to pay 3 points on the loan. (Loan origination fee = Mortgage * Points).

$$\text{Mortgage} = 130000$$

$$\text{Points} = 3 = 0.03$$

$$\text{Loan origination fee} = 130000 * 0.03$$

$$\text{Loan origination fee} = 3900$$

The loan origination fee would be \$3,900.

Points is a term used to represent a percentage. So 3 points would be the same as 3%.

Exercise 3: New houses in a neighborhood are selling for \$175,000. A down payment of \$18,000 is required and a 25-year mortgage at an annual interest rate of 8% is available. Find the monthly mortgage payment.

$$\text{Selling price} = 175000$$

$$\text{down payment} = 18000$$

$$\text{interest rate} = 8\% = 0.08$$

$$\text{time} = 25 \text{ years} = 300 \text{ months} (25 * 12)$$

First, we will compute the total interest for the loan

$$I = P * R * T$$

$$I = (175000 - 18000)(0.08)(25)$$

$$I = (157000)(0.08)(25)$$

$$I = 314000$$

Example 3 (Continued):

Next, compute the maturity value which is the principal plus the interest

$$\begin{aligned}M &= P + I \\M &= 157000 + 314000 \\M &= 471000\end{aligned}$$

Now, compute the monthly payment by dividing the maturity value by the number of months in the loan.

$$\begin{aligned}\text{Monthly payment} &= M \div 300 \\ \text{Monthly payment} &= 471000 \div 300 \\ \text{Monthly payment} &= 1570\end{aligned}$$

The monthly payment would be \$1,570.

Exercise 4: Office Depot has a warehouse with a 20-year mortgage of \$250,000 at an annual interest rate of 9%. During a month when \$1,650.33 of the monthly mortgage payment is principal, how much of the payment is interest?

	7%	8%	9%
1 year	0.0865267	0.0869884	0.0874515
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First, calculate the monthly payment using the table

$$\begin{aligned}\text{Monthly payment} &= \text{Mortgage} * \text{Interest Factor}_{(9\%, 20 \text{ yr})} \\ \text{Monthly payment} &= 250000 * 0.0089973 \\ \text{Monthly payment} &= 2249.325\end{aligned}$$

The monthly payment is \$2,249.33

Now, figure the interest portion by subtracting out the principal portion.

$$\begin{aligned}\text{Interest payment} &= \text{monthly payment} - \text{principal payment} \\ \text{Interest payment} &= 2249.33 - 1650.33 \\ \text{Interest payment} &= 599\end{aligned}$$

\$599 of the monthly payment went toward interest.

Exercise 5: The monthly mortgage payment on a house is \$824.36, and the homeowner must pay an annual property tax of \$930. Find the total monthly payment for the mortgage and the property tax.

$$\text{Monthly property tax} = \text{annual property tax} \div 12$$

$$\text{Monthly property tax} = 930 \div 12$$

$$\text{Monthly property tax} = 77.5$$

$$\text{Total monthly payment} = \text{monthly mortgage} + \text{monthly property tax}$$

$$\text{Total monthly payment} = 824.36 + 77.50$$

$$\text{Total monthly payment} = 901.86$$

The total monthly payment for the mortgage and property tax would be \$901.86.