

Learning Targets:

- Solve problems about interest.

SUGGESTED LEARNING STRATEGIES: Close Reading, Marking the Text, Summarizing, Interactive Word Wall, Create a Plan

Starting a veterinary clinic often includes taking out loans that the veterinarians need to pay back. Paying back a loan includes **interest**.

Example

Dr. Blevins is a first-year veterinarian and plans to rent space for an office for her new hospital. She will take out a loan of \$94,000 over 7 years at 6.25% interest to remodel the office. How much will she pay in interest on this loan?

The problem is asking for the simple interest, so use the formula for finding interest:

$$Interest = P \cdot r \cdot t$$

where p is the principal, or the amount of money borrowed, r represents the rate of interest charged, and t is the time in years.

Substitute in the values and solve for I .

$$\begin{aligned} I &= P \cdot r \cdot t \\ I &= \$94,000 \cdot 0.0625 \cdot 7 \\ I &= \$41,125 \end{aligned}$$

Solution: The interest paid on the loan will be \$41,125.

Try These

Work with your group to find the amount of simple interest to the nearest cent. As needed, refer to the Glossary to review the meaning of key terms. Use your understandings of the terms in group discussions to confirm your knowledge and correct use of math language.

- \$12,000 at 2.5% for 3 years
- \$15,000 at 4% for 6 months

My Notes

MATH TIP

The variables in the equation represent:

I = interest

P = principal

r = rate

t = time

MATH TIP

If time is given in another unit, such as months or days, it needs to be converted to years when using the interest formula.

My Notes

Check Your Understanding

- Dr. Blevins will have to take out another loan for other costs, such as equipment, furniture, products, and advertising. The loan will be for \$25,900 over 5 years at 6.25%. Find what the interest will be on the loan for these other costs.
- Attend to precision.** The local shelter decided to build an addition for cats. They borrowed \$6300 from a local bank at a rate of 8%. The high school held a fundraiser that allowed the shelter to pay off the loan after only 9 months. How much interest did the shelter pay on this loan?

LESSON 12-3 PRACTICE

- Pet owners may have to take out a loan when their animal has a major operation. Buddy needs to have surgery on his leg. The cost of the surgery is \$2500. His owner will get a loan for this amount over 2 years at a rate of 7.5%. How much will the interest be on this loan?
 - What is the total cost of the surgery including the loan and the interest?
- The average cost of an education to become a veterinarian is \$147,656, which includes veterinary school. To cover these costs, most students take out loans. What would the interest on a loan be if the rate is 3.25% and the term is 15 years?
- Reason abstractly.** How is interest similar to sales tax and markups? How is it different?
- Dr. Jones took out a loan for a van that could be equipped with veterinarian supplies for visits to animal shelters. The van cost \$22,500 and the loan was for 4 years. If the interest rate was 4.5%, how much will be paid?
- An X-ray machine for animals costs \$125,000. If the loan is for 10 years, and the interest paid is \$65,625, what is the interest rate on the loan?
- Make sense of problems.** Dr. Jones would like a computer system for the office to help with management of the clinic. The cost is \$15,000, and the interest rate is 4.6%. The amount of interest to be paid is \$3,450. How many months is the loan for?