Solution

To calculate the weighted average balance for the three-month period, we will need to use the weighted mean equation, $\bar{x} = \dfrac{\sum(x_i \cdot w_i)}{\sum w_i}$.

First, it is helpful to determine which numbers are data values and which are weights. In this case, the data values, x_i, are the average monthly balances. The weights, w_i, are then the number of days in each month: 31, 30, and 31. The weighted mean is then calculated as follows:

$$\bar{x} = \frac{(31)(2251.33)+(30)(2490.51)+(31)(1478.27)}{31+30+31}$$

Simplifying the numerator of the weighted mean formula requires the multiplication of real numbers.

$$= \frac{190{,}332.90}{92}$$

The final step in calculating the weighted mean is to divide the calculated numerator and denominator.

$$\approx 2068.84$$

3.R.3 Exercises

True/False. Determine whether each statement is true or false. If a statement is false, explain how it can be changed so the statement will be true. (**Note:** There may be more than one acceptable change.)

1. If a negative number is divided by a positive number, the result will be a negative number.

2. The product of zero and a number is zero.

3. If two numbers have the same sign, both the product and the quotient of the two numbers will be negative.

4. The mean of a set of numbers is always positive.

Practice

Multiply.

5. $12 \cdot 4$

6. $(-7)(-16)(0)$

Divide. Reduce fractions to lowest terms. Round answers with decimals to the nearest tenth.

7. $\frac{-20}{-10}$

8. $\frac{-5.6}{7}$

Applications

Solve.

9. ***Animals:*** According to the US Fish and Wildlife Service, migratory birds are imported at a value of about $19 each. Suppose that about 800,000 live birds are imported each year. What is the total value of these imported birds?

10. ***Summary Statistics:*** Find the mean and range of the following data set.

$$-10, 15, 16, -17, -34, -42$$

Writing & Thinking

11. If you multiply an odd number of negative numbers together, do you think that the product will be positive or negative? Explain your reasoning.

12. Explain the conditions under which the quotient of two numbers is 0.