Section 1.R.2 Rounding and Estimating Whole Numbers

Go to Section 1.R.2 Learn mode in Hawkes to follow along!

Rounding Whole Numbers

Rounding Numbers

To **round** a given number means _____

Rounding Rule for Whole Numbers

1. Look at the single digit just to the right of the digit in the place of desired accuracy.

a. **If this digit is less than 5**, leave the digit in the place of desired accuracy as it is, and _____

_____

b. **If this digit is 5 or greater**, increase the digit in the desired place of accuracy by _____

_____ All digits to the left remain unchanged unless

_____ Then the 9 is replaced by 0 and _____

_____

Example 3 **Application: Rounding Whole Numbers**

A jar at a local candy store is filled with 2709 jelly beans and put on display in the store window. Round this value to the nearest thousand.

Solution

Exercises

Use a number line to round each number as indicated. (Graph the number on the line with a heavy dot and mark the rounded number with an *x*.)

1. 78 (nearest ten)

2. 382 (nearest ten)

Fill in the blanks to correctly complete each statement.

3. Round 1426 to the nearest ten.

a. The digit in the tens position is _____.

b. The next digit to the right is _____.

c. Since _____ is greater than 5, change _____ to _____ and replace _____ with 0.

d. So 1426 rounds to _____ to the nearest _____.

Round each number as indicated.

To the nearest ten:

4. 31

5. 503

To the nearest hundred:

6. 75

7. 4163

Solve.

8. A certain manufacturer pays his workers for every ten widgets that a person produces, rounded to the nearest ten. If Jim produced 4564 widgets, how many widgets will he be paid for?

Estimating Sums and Differences

To **estimate an answer** means to use rounded numbers in a calculation to form an idea of what the size of the actual answer should be.

To Estimate a Sum or Difference

1. Round each number to _____
2. Perform the _____

Example 4 Estimating a Sum of Whole Numbers

Estimate the sum; then find the actual sum.

$$\begin{array}{r} 68 \\ 925 \\ +\ 487 \\ \hline \end{array}$$

Solution

Exercises

Estimate each answer; then find the actual sum or difference.

9.
$$\begin{array}{r} 49 \\ 31 \\ +\ 86 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 483 \\ 1681 \\ 3054 \\ +\ 4006 \\ \hline \end{array}$$

11.
$$\begin{array}{r} 854 \\ -\ 367 \\ \hline \end{array}$$

12.
$$\begin{array}{r} 74{,}305 \\ -\ 33{,}082 \\ \hline \end{array}$$

Solve.

13. Emilia is sending her three children to different week long daytime summer camps. The cost of the summer camp is $239 for the youngest child, $487 for the middle child, and $350 for the oldest child. Estimate how much it will cost to send the three kids to summer camp.

Estimating Products and Quotients

To Estimate a Product

1. Round each number to _____
2. Multiply the _____

To Estimate a Quotient

1. Round both the divisor and dividend to _____
2. Divide with _____

Example 8 Estimating Products of Whole Numbers

Estimate the product; then find the actual product.

$$\begin{array}{r} 62 \\ \times\, 38 \\ \hline \end{array}$$

Solution

Exercises

Estimate each answer; then find the actual product or quotient. (Remember that single-digit numbers are already considered to be rounded.)

14. 56×4

15. 16×26

16. $18\overline{)216}$

17. $49\overline{)993}$

Solve.

18. A total of 22 microphones are to be purchased. Each microphone costs $347. Estimate the total purchase price by using rounded numbers. Then calculate the actual purchase price.