

WORKSHEET

**1 MATH SKILLS**

*Addition Review*

Addition is used to find the total of two or more quantities. The answer to an addition problem is known as the *sum*.

**PROCEDURE:** To find the sum of a set of numbers, align the numbers vertically so that the ones digits are in the same column. Add each column, working from right to left.

**SAMPLE PROBLEM:** Find the sum of 317, 435, and 92.

**Step 1:** Add the ones. Don't forget to carry your numbers.

$$\begin{array}{r} \phantom{0}1 \\ 317 \\ 435 \\ + \phantom{0}92 \\ \hline \phantom{0}4 \end{array}$$

**Step 2:** Add the tens.

$$\begin{array}{r} \phantom{00}11 \\ 317 \\ 435 \\ + \phantom{00}92 \\ \hline \phantom{00}44 \end{array}$$

**Step 3:** Add the hundreds.

$$\begin{array}{r} \phantom{000}1 \\ 317 \\ 435 \\ + \phantom{000}92 \\ \hline \phantom{000}844 \end{array}$$

The sum is **844**.

**Add It Up!**

1. Find the sums of the following problems:

a. 
$$\begin{array}{r} 348 \\ + 21 \\ \hline \end{array}$$

b. 
$$\begin{array}{r} 98,125 \\ + 233 \\ \hline \end{array}$$

c. 
$$\begin{array}{r} 593 \\ + 386 \\ \hline \end{array}$$

d. 
$$\begin{array}{r} 36,186 \\ + 27,309 \\ \hline \end{array}$$

2. Your doctor advises you to take 60 mg of vitamin C, 20 mg of niacin, and 15 mg of zinc every day. How many milligrams of nutrients will you take?

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3. A chemistry experiment calls for 356 mL of water, 197 mL of saline solution, and 55 mL of vinegar. How much liquid is needed in all?

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4. Between 1980 and 1992, the population of San Bernardino County, CA, increased by 639,327 people. If the population in 1980 was 895,016, what was the population in 1992?

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5. Halley's comet returns to our solar system every 76 years. Its last visit was in 1986. What year will it appear again?

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## Subtraction Review

Subtraction is used to take one number from another number. The answer to a subtraction problem is known as the *difference*. The difference is how much larger or smaller one number is than the other.

**PROCEDURE:** To find the difference between two numbers, first align the numbers vertically so that the ones digits are in the same column, with the larger number above the smaller number. Subtract, working from right to left, one column at a time. Remember to borrow when necessary.

**SAMPLE PROBLEM:** Find the difference between 622 and 348.

**Step 1:** Subtract the ones, borrowing when necessary.

$$\begin{array}{r} 62\overset{1}{2} \\ - 34\overset{5}{8} \\ \hline 4 \end{array}$$

**Step 2:** Subtract the tens, borrowing when necessary.

$$\begin{array}{r} 6\overset{1}{2}\overset{1}{2} \\ - 3\overset{4}{4}\overset{5}{8} \\ \hline 74 \end{array}$$

**Step 3:** Subtract the hundreds.

$$\begin{array}{r} 6\overset{1}{2}\overset{1}{2} \\ - 3\overset{4}{4}\overset{5}{8} \\ \hline 274 \end{array}$$

The difference of the numbers is **274**.

### Take It Away!

1. Find the difference in the following problems:

a. 
$$\begin{array}{r} 88 \\ - 36 \\ \hline \end{array}$$

b. 
$$\begin{array}{r} 1695 \\ - 352 \\ \hline \end{array}$$

c. 
$$\begin{array}{r} 47,220 \\ - 36,195 \\ \hline \end{array}$$

d. 
$$\begin{array}{r} 6048 \\ - 3724 \\ \hline \end{array}$$

2.  $571 - 338 =$  \_\_\_\_\_ 3.  $8317 - 211 =$  \_\_\_\_\_

4. Mars has a diameter of 6790 km. The diameter of Jupiter is 142,984 km. How much larger is the diameter of Jupiter than the diameter of Mars?

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5. A horse is born with a mass of 36 kg. It is expected to have a mass of 495 kg when fully grown. How much mass will it gain?

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6. Traveling with the wind, a plane reaches a speed of 212 m/s. On the return trip, the same plane flies into the wind and achieves a speed of only 179 m/s. How much faster does the plane fly with the wind?

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# Multiplying Whole Numbers

Suppose every student in your class planted 5 seeds in your school's garden. How many seeds were planted? You could repeatedly add 5 seeds plus 5 seeds until every student's seeds had been added, but this would be pretty time consuming. **Multiplication**, which simplifies addition, is the process of calculating the total of a number that is added together a specific number of times. For example,  $3 \times 4$  means adding 3 together 4 times, or  $3 + 3 + 3 + 3 = 12$ . So  $3 \times 4 = 12$ . The answer to a multiplication problem is called the *product*.

**PROCEDURE:** To find the product of two whole numbers, align your numbers so that the ones digits are in the same column. Multiply each digit of the top number by the ones digit in the bottom number, carrying when necessary. Then multiply each digit in the top number by the tens in the bottom number, regrouping when necessary. Finally, add the partial products to find the final product.

**SAMPLE PROBLEM:** Find the product of 34 and 16.

**Step 1:** Align the numbers vertically. Multiply each digit in the top number by the ones digit in the bottom number. Carry when necessary.

$$\begin{array}{r} 34 \\ \times 16 \\ \hline 204 \end{array}$$

**Step 2:** Multiply each digit in the top number by the tens in the bottom number. Imagine adding a zero in the ones column as a place holder.

$$\begin{array}{r} 34 \\ \times 16 \\ \hline 204 \\ 340 \end{array}$$

**Step 3:** Add the partial products.

$$\begin{array}{r} 34 \\ \times 16 \\ \hline 204 \\ + 340 \\ \hline 544 \end{array}$$

The product is **544**.

## Practice Your Skills!

1. Multiply. Don't forget to show all your work.

a. 
$$\begin{array}{r} 12 \\ \times 24 \\ \hline \\ \hline \end{array}$$

b. 
$$\begin{array}{r} 245 \\ \times 36 \\ \hline \\ \hline \end{array}$$

c. 
$$\begin{array}{r} 46 \\ \times 87 \\ \hline \\ \hline \end{array}$$

d. 
$$\begin{array}{r} 2751 \\ \times 11 \\ \hline \\ \hline \end{array}$$

2. A farm produces 864 bushels of corn per square kilometer. The farmer plants 127 km<sup>2</sup> of corn. How many bushels of corn will the farm produce?

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3. A bee travels 147 m one way from its hive to the garden. If the bee makes 93 round trips between the hive and the garden, how far will it have traveled? Be careful!

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## A Shortcut for Multiplying Large Numbers

Imagine that you are a doctor doing research on white blood cells. You know that there are approximately 80,000 white blood cells in 1 mL of blood. You have a sample of 50 mL of blood. How many white blood cells are in the sample? You could multiply to find the answer, of course, but it's a large number and you need an answer quickly. How can you make this easier? Read on to learn an easy way to find the product of large numbers.

**PROCEDURE:** To find the product of large numbers, remove the zeros at the end of one or both numbers. Next, multiply the non-zero numbers. Finally, at the end of the product, replace the same number of zeros that you removed from your multipliers.

**SAMPLE PROBLEM:** Multiply 80,000 by 50.

**Step 1:** Remove the zeros from the end of your numbers, and multiply the non-zero numbers.

$$\begin{array}{r}
 80,000 \rightarrow 80,000 \rightarrow \quad \quad \quad 8 \\
 50 \quad \rightarrow 50 \quad \rightarrow \quad \quad \quad \times \quad 5 \\
 \hline
 \quad \quad \quad \quad \quad \quad \quad \quad 40
 \end{array}$$

**Step 2:** At the end of your product, replace the total number of zeros you removed from the multipliers. Because you removed a total of five zeros from your multipliers, place five zeros after your product.

$$80,000 \times 50 = 4,000,000$$

### It's Your Turn!

Using the method above, find the products of the following problems, and write the corresponding letter from the correct answer on the line.

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|------------------------|-------|---------------|
| 1. $300 \times 90,000$ | _____ | A. 31,720,000 |
| 2. $45 \times 8500$    | _____ | B. 3,524,000  |
| 3. $4400 \times 7500$  | _____ | C. 27,000,000 |
| 4. $52,000 \times 610$ | _____ | D. 33,000,000 |
| 5. $88,100 \times 40$  | _____ | E. 382,500    |

### Challenge Yourself!

A super-fast chess computer can perform 200,000,000 calculations per second. How many calculations can it perform in the 3 minutes it is allowed for each move?

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