Divide Whole Numbers

Name: _____

Prerequisite: Relate Multiplication and Division

Study the example showing how to use multiplication to solve a division problem. Then solve problems 1–7.

Example

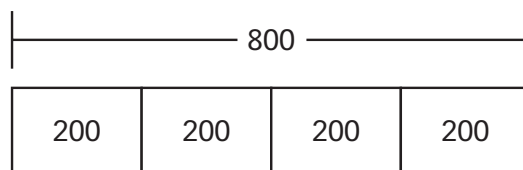The Lin family spent $800 on 4 airplane tickets. Each ticket was the same price. How much did each ticket cost?

Divide 800 by 4. $800 \div 4 = ?$
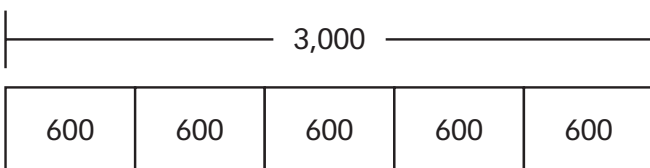
Use the related multiplication equation.
$4 \times 200 = 800$
So, $800 \div 4 = 200$

Each ticket cost $200.

	800		
200	200	200	200

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1 Look at the model below. Write a division equation and a related multiplication equation.

		3,000		
600	600	600	600	600

Division equation: _____ $\div 5 = 600$

Multiplication equation: _____ $\times$ _____ = _____

2 Multiply.

$4 \times 700 =$ _____

$6 \times 300 =$ _____

$3 \times 900 =$ _____

3 Write the missing numbers in the equation.

$5 \times 743 = ($_____ $\times 700) + ($_____ $\times 40) + ($_____ $\times 3)$

$=$ _____ $+$ _____ $+$ _____

$=$ _____

Solve.

4 Write numbers in the area model below to show 6×925. Then complete the equation.

900   +   _____   +   _____

__ | $6 \times$ _____ | $6 \times$ _____ | $6 \times$ _____

$6 \times 925 = (6 \times$ _____$) + (6 \times$ _____$) + (6 \times$ _____$)$

$= $ _____ $+$ _____ $+$ _____

$= $ _____
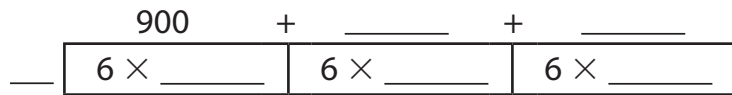
5 Multiply. $3 \times 213 = ?$

Show your work.

Solution: $3 \times 213 = $ _____

6 For each division equation below, write a related multiplication equation. The first one is done for you.

$900 \div 3 = ?$ **$3 \times 300 = 900$**

$600 \div 3 = ?$ _____

$30 \div 3 = ?$ _____
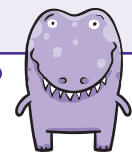
$9 \div 3 = ?$ _____

7 Heidi drove to visit her grandparents last weekend. She drove 215 miles each way. This weekend she drove to her friend's house. It was 174 miles each way. How many miles did she drive altogether on both weekends?

Show your work.

> You can multiply by 2 to find the distance Heidi drove each weekend.

Solution: Heidi drove _____ miles.

Name: _____

Divide Three-Digit Numbers by One-Digit Numbers

Study the example problem showing how to divide a three-digit number by a one-digit number. Then solve problems 1–6.

Example

Muffins are packed and sold in boxes of 4.
How many boxes are needed to pack 260 muffins?

$260 \div 4 = ?$

Use an area model.
$260 \div 4 = 65$

65 boxes are needed.

	50	+	**10**	+	**5**	=	**65**
4	$(4 \times 50 = 200)$		$(4 \times 10 = 40)$		$(4 \times 5 = 20)$		
	260		60		20		
	$-\ 200$		$-\ 40$		$-\ 20$		
	60		20		0		

Use multiplication to check:
$$4 \times 65 = (4 \times 60) + (4 \times 5)$$
$$= 240 + 20$$
$$= 260$$

1 Use the example above. Show how to subtract partial products to divide 260 by 4.

2 Identify the dividend, divisor, and quotient.

    a. $900 \div 3 = 300$

    dividend: _____ divisor: _____ quotient: _____

    b. $120 = 600 \div 5$

    dividend: _____ divisor: _____ quotient: _____

Vocabulary

dividend the number you divide in a division problem.

divisor the number you divide by in a division problem.

quotient the answer to a division problem.

dividend ÷ divisor = quotient
  260   ÷   4   =   65

$$\text{divisor}\,\overline{)\text{dividend}} \qquad \overset{65}{4\,\overline{)260}}$$

Solve.

3 A health center raised $476. The money was divided equally among 7 programs. How much did each program get? Use an area model to solve the problem.

Show your work.

Solution: _____

4 Mike has 876 building pieces to share among himself and 2 friends. He wants each person to have an equal number of pieces. How many pieces does each person get?

Show your work.

Solution: _____

5 Look at how you solved problem 4. Explain how you could have used estimation before you divided so that you would know whether your answer was reasonable.

_____

_____

_____

6 Explain how to use multiplication to check your answer in problem 4.

_____

_____

Name: _____

Divide Four-Digit Numbers by One-Digit Numbers

Study the example problem showing how to divide a four-digit number by a one-digit number. Then solve problems 1–5.

Example

A group of hikers plan to take 8 hours to hike a mountain trail 5,380 meters long. If they hike the same distance each hour, how many meters should they hike in an hour?

$5,380 \div 8 = 672$ R4

The hikers should hike 672 meters each hour. Then they will need to hike 4 more meters to reach the end of the trail.

The sum of the partial quotients is $600 + 70 + 2$, or 672. The remainder is 4.

```
      2
     70
    600
 8)5,380   ⟶ There are 600 groups of 8 in 5,000.
 − 4,800   ⟶ Subtract 600 groups of 8; 8 × 600.
      580  ⟶ There are 70 groups of 8 in 580.
  −   560  ⟶ Subtract 70 groups of 8; 8 × 70.
       20  ⟶ There are 2 groups of 8 in 20.
  −    16  ⟶ Subtract 2 groups of 8; 8 × 2.
        4
```

1 Complete the division problem.

$8,236 \div 5 =$ _____

```
              □
           □  0
        □  0  0
     □  0  0  0
  5)8, 2  3  6
  − □  0  0  0
     3, 2  3  6
   − □  0  0  0
        2  3  6
     − □  0  0
           3  6
        − □□
            1
```

2 Complete the division problem.

$4,507 \div 4 =$ _____

```
           □
        □ □
      □ □ □
    □ □ □ □
 4)4, 5 0 7
 − 4, 0 0 0
      5 0 7
  − □□□
      □□□
    − □□
       □□
     − □□
        □
```

Solve.

3 One week has 7 days. How many weeks do 1,230 days make? What does the remainder mean?

Show your work.

Solution: _____

4 Mugs are packed 6 to a box. How many boxes are needed to pack 1,524 mugs?

Show your work.

Solution: _____

5 Tyson used a calculator to find the quotient for each of the problems below. Use estimation to tell whether each quotient is *Correct* or *Incorrect*.

a. $4,960 \div 2 = 9,920$ ☐ Correct ☐ Incorrect

b. $7,095 \div 5 = 1,419$ ☐ Correct ☐ Incorrect

c. $9,621 \div 3 = 230$ R7 ☐ Correct ☐ Incorrect

d. $3,875 \div 6 = 645$ R5 ☐ Correct ☐ Incorrect

6 Explain how you used estimation to tell which quotients were incorrect in problem 5.

_____

_____

_____

_____

_____

_____

_____

Vocabulary

remainder the amount left over that will not divide equally into the given number of groups.

$5,380 \div 8 = 672$ R4

↑ remainder

Name: _____

Divide Whole Numbers

Solve the problems.

1 Find the quotient.

3,752 ÷ 6

A 652

C 625

B 652 R2

D 625 R2

To check the quotient, multiply it by the divisor and add any remainder.

2 Carter has a pack of 800 rubber bands. Alicia has twice as many rubber bands as Carter. They combine their rubber bands so that they can make bracelets. Each bracelet needs 100 rubber bands. Which equation below can be used to find how many bracelets they can make?

A (800 × 2) ÷ 100

C (800 ÷ 100) × 2

B (800 × 3) ÷ 100

D (800 × 100) ÷ 3

Jon chose **A** as the correct answer. How did he get that answer?

_____

_____

Drawing a model or picture can help make sense of this problem.

3 Tell whether each sentence is *True* or *False*.

a. 5,497 ÷ 4 = 1,374 ☐ True ☐ False

b. 4,806 ÷ 6 = 81 ☐ True ☐ False

c. 955 ÷ 5 = 191 ☐ True ☐ False

d. 642 ÷ 8 = 82 ☐ True ☐ False

What does it mean to have a zero place value in the dividend?

Solve.

4 Chloe and Ingrid are packing boxes with books. They have 238 books. Each box will fit 8 books. Chloe says 29 boxes is enough to pack all the books. Ingrid thinks they need 30 boxes. Explain who is correct.

What does the remainder mean in this problem?

Show your work.

Solution: _____

5 Carolyn has 1,090 photos that she wants to organize into an album. Each album page holds 6 photos. How many pages can she fill with 6 photos each?

Divide each place value in the dividend, 1,090, by the divisor, 6.

Show your work.

Solution: _____

6 In 4 weeks, a school raised $2,560 for Health and Fitness awareness. Students collected donations 5 days each week. The principal agreed to make one donation that was the same as the amount collected in a day. If an equal amount was collected each day, how much did the principal donate?

This looks like a multi-step problem. To start, what number do you divide 2,560 by?

Show your work.

Solution: _____