

TRY IT TOGETHER

Find each product.

$$\begin{array}{r} 6 \quad 33 \\ \times 12 \\ \hline \end{array}$$

← 2×33

+ ← 10×33

$$7 \quad 32 \times 213$$

× _____

+ _____

WORK ON YOUR OWN

HOW
TO

Multiply by a 2-Digit Number with No Regrouping

Using Symbols

1. 41×121

$$\begin{array}{r} 121 \\ \times 41 \\ \hline \end{array}$$

Using Words

Write the numbers vertically with the number with more digits on top. Line the numbers up on the right.

$$\begin{array}{r} 2. \quad 121 \\ \times 41 \\ \hline 121 \end{array}$$

Multiply the ones digit of the bottom number by the top number. Write the product under the equal bar.

$$\begin{array}{r} 3. \quad 121 \\ \times 41 \\ \hline 121 \\ + 4840 \\ \hline \end{array}$$

Multiply the tens digit of the bottom number by the top number. Write the product under the product of the ones digit and the top number. Be sure to line up the numbers by place value.

$$\begin{array}{r} 4. \quad 121 \\ \times 41 \\ \hline 121 \\ + 4840 \\ \hline 4961 \end{array}$$

Add the two products to find the final product of the problem.

Multiplying by a 2-Digit Number with Regrouping

Name _____ Class _____ Date _____

GET STARTED

1
$$\begin{array}{r} 64 \\ \times 6 \\ \hline \end{array}$$

2
$$\begin{array}{r} 64 \\ \times 30 \\ \hline \end{array}$$

3 a.
$$\begin{array}{r} 64 \\ \times 36 \\ \hline \end{array}$$

 $\leftarrow 6 \times 64$

b.
$$\begin{array}{r} 64 \\ \times 36 \\ \hline 384 \\ \hline \end{array}$$

 $\leftarrow 6 \times 64$
 $\leftarrow 30 \times 64$

c.
$$\begin{array}{r} 64 \\ \times 36 \\ \hline 384 \\ + 1920 \\ \hline \end{array}$$

 $\leftarrow 6 \times 64$
 $\leftarrow 30 \times 64$

4 a.
$$\begin{array}{r} 29 \\ \times 38 \\ \hline \end{array}$$

 $\leftarrow 8 \times 29$

b.
$$\begin{array}{r} 29 \\ \times 38 \\ \hline 232 \\ \hline \end{array}$$

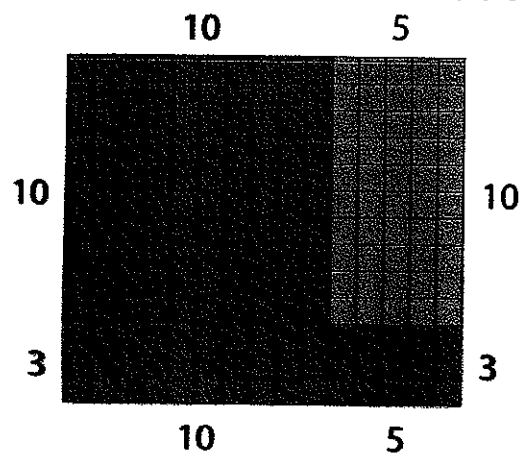
 $\leftarrow 8 \times 29$
 $\leftarrow 30 \times 29$

c.
$$\begin{array}{r} 29 \\ \times 38 \\ \hline 232 \\ + 870 \\ \hline \end{array}$$

 $\leftarrow 8 \times 29$
 $\leftarrow 30 \times 29$

$15 = 10 + 5$
 $\times 13 = 10 + 3$

$10 \times 10 = \underline{\hspace{2cm}}$
 $10 \times 5 = \underline{\hspace{2cm}}$
 $3 \times 10 = \underline{\hspace{2cm}}$
 $3 \times 5 = \underline{\hspace{2cm}}$



$\underline{\hspace{2cm}} + \underline{\hspace{2cm}} + \underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$
 So, $13 \times 15 = \underline{\hspace{2cm}}$

BUILD THE CONCEPT

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Find each product. Regroup as needed.

$$\begin{array}{r} 48 \\ \times 24 \\ \hline \end{array}$$

← 4×48

← 20×48

$$\begin{array}{r} 47 \times 623 \\ \times \\ \hline \\ + \\ \hline \end{array}$$

WORK ON YOUR OWN

HOW TO

Multiply by a 2-Digit Number with Regrouping

Using Symbols

$$\begin{array}{r} 1. \quad 63 \times 156 \\ 156 \\ \times 63 \\ \hline \end{array}$$

Using Words

Write the numbers vertically with the number with more digits on top. Line the numbers up on the right.

$$\begin{array}{r} 2. \quad \begin{array}{r} 11 \\ 156 \\ \times 63 \\ \hline \end{array} \\ 468 \end{array}$$

Multiply the ones digit of the bottom number by the top number. Regroup if necessary.

$$\begin{array}{r} 3. \quad \begin{array}{r} 33 \\ 156 \\ \times 63 \\ \hline \end{array} \\ 468 \\ 9360 \end{array}$$

Multiply the tens digit of the bottom number by the top number. Regroup if necessary.

$$\begin{array}{r} 4. \quad \begin{array}{r} 33 \\ 156 \\ \times 63 \\ \hline \end{array} \\ 468 \\ 9360 \\ \hline 9828 \end{array}$$

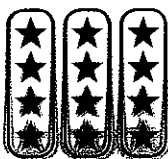
Add the two products to find the final product of the problem.

Understanding Division

Name _____ Class _____ Date _____

GET STARTED

1



3 groups of _____ stars

$$\underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

2



_____ stars divided into _____ groups
of 5 stars

$$\underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$20 \div 5 = \underline{\hspace{2cm}}$$

3



$$10 \div 2 = \underline{\hspace{2cm}}$$

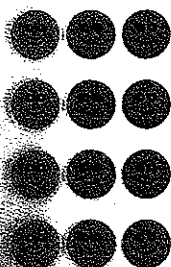
4

24 eggs in 2 cartons with 12 eggs in each carton

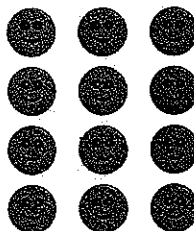
$$\underline{\hspace{2cm}} \div \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$



**BUILD
THE
CONCEPT**



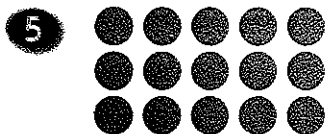
$$12 \div \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$



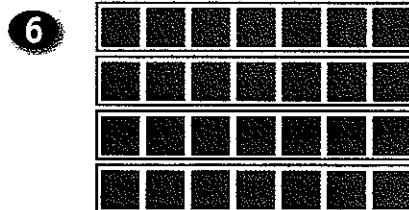
$$12 \div \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

TRY IT TOGETHER

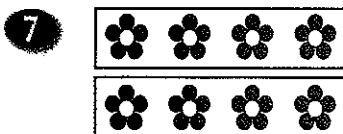
Write a division sentence for each problem.



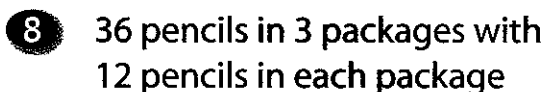
$$15 \div 3 = \underline{\quad}$$



$$\underline{\quad} \div \underline{\quad} = \underline{\quad}$$



$$\underline{\quad} \div \underline{\quad} = \underline{\quad}$$



$$\underline{\quad} \div \underline{\quad} = \underline{\quad}$$

WORK ON YOUR OWN



Understand Division

Using Symbols



$$6 \div 3$$

Using Words

If the number of items is given, group the given number of items together in equal groups determined by the divisor until no other groups can be formed.

dividend: 6

divisor: 3

quotient: 2

$$6 \div 3 = 2$$

To write a division problem, use the total number of items as the dividend, the number of items within each group as the divisor, and the number of groups as the quotient.

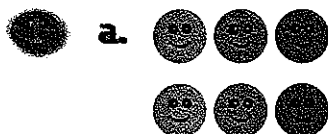
Multiplication and Division Fact Families

Name _____

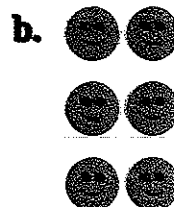
Class _____

Date _____

GET STARTED



$$\underline{\quad} \times \underline{\quad} = \underline{\quad}$$



$$\underline{\quad} \times \underline{\quad} = \underline{\quad}$$

2 a. $6 \div 3 = \underline{\quad}$

b. $6 \div 2 = \underline{\quad}$

3 4, 7, 28

Multiplication Facts

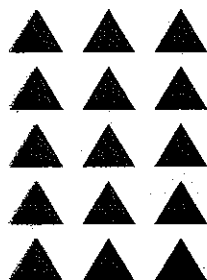
$$4 \times \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} \times \underline{\quad} = \underline{\quad}$$

Division Facts

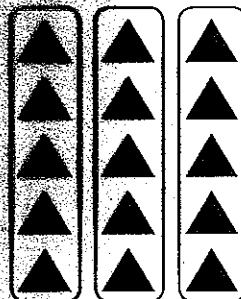
$$\underline{\quad} \div \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} \div \underline{\quad} = \underline{\quad}$$



$$\underline{\quad} \times \underline{\quad} = 15$$

$$\underline{\quad} \times \underline{\quad} = 15$$



$$15 \div \underline{\quad} = \underline{\quad}$$

$$15 \div \underline{\quad} = \underline{\quad}$$

**BUILD
THE
CONCEPT**

TRY IT TOGETHER

Write the multiplication and division facts for each fact family.

4 5, 5, 25 $\underline{\quad} \times \underline{\quad} = \underline{\quad}$ $\underline{\quad} \div \underline{\quad} = \underline{\quad}$

5 9, 54, 6 $\underline{\quad} \times 6 = \underline{\quad}$ $\underline{\quad} \div \underline{\quad} = \underline{\quad}$
 6 $\times \underline{\quad} = \underline{\quad}$ $\underline{\quad} \div \underline{\quad} = \underline{\quad}$

Complete the fact family.

6 12 $\div$ 4 = 3 $\underline{\quad} \times \underline{\quad} = \underline{\quad}$
 $\underline{\quad} \div \underline{\quad} = \underline{\quad}$ $\underline{\quad} \times \underline{\quad} = \underline{\quad}$

WORK ON YOUR OWN

Recognize Multiplication and Division Fact Families

Using Symbols

Multiplication
Facts

$$6 \times 8 = 48$$

$$8 \times 6 = 48$$

Division
Facts

$$48 \div 8 = 6$$

$$48 \div 6 = 8$$

$$4 \times 4 = 16$$

$$16 \div 4 = 4$$

Using Words

Two different factors and their product make a fact family. Each fact in a fact family uses the same **three numbers**. The three numbers in a fact family make **two multiplication facts** and **two division facts**.

If the two factors are the same, the three numbers make one multiplication fact and one division fact.

HOW
TO

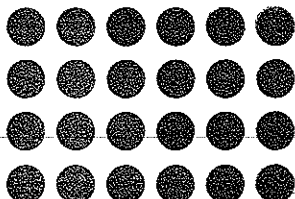
Dividing by a 1-Digit Divisor with No Remainder

Name _____

Class _____

Date _____

GET STARTED

1  _____ $\div$ _____ = _____

2 $96 \div 4$

$$\begin{array}{r} 4 \overline{) 96} \\ \underline{} \\ \end{array}$$

Check:

$\times$ _____

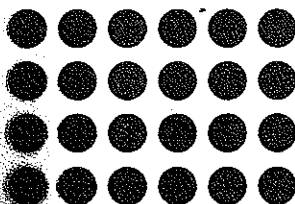
3 $717 \div 3$

$$\begin{array}{r} 3 \overline{) 717} \\ \underline{} \\ \end{array}$$

Check:

$\times$ _____

The model can be used to divide 24 by 2.



$24 \div 2 =$ _____

Check: _____ $\times 2 = 24$

**BUILD
THE
CONCEPT**

TRY IT TOGETHER

Find each quotient. Check each answer by multiplying.

4 $5 \overline{)85}$ Check:

$\times$

5 $7 \overline{)518}$ Check:

$\times$

WORK ON YOUR OWN



Divide by a 1-Digit Divisor with No Remainder

Using Symbols

Using Words

1.
$$\begin{array}{r} 1 \\ 5 \overline{)75} \\ -5 \\ \hline \end{array}$$

Divide the greatest place value digit of the dividend by the divisor. Multiply the quotient by the divisor, writing that product under the dividend.

2.
$$\begin{array}{r} 1 \\ 5 \overline{)75} \\ -5 \downarrow \\ \hline 25 \end{array}$$

Subtract the product from the digit(s) above it. Bring down the next digit of the dividend. Write it next to the difference from the previous step.

3.
$$\begin{array}{r} 15 \\ 5 \overline{)75} \\ -5 \downarrow \\ \hline 25 \\ -25 \\ \hline 0 \end{array}$$

Repeat steps 1 and 2 for each digit of the dividend brought down.

4.
$$\begin{array}{r} 15 \\ \times 5 \\ \hline 75 \end{array}$$

Check the answer by multiplying.

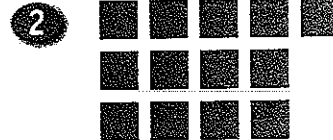
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Dividing by a 1-Digit Divisor with a Remainder

Name _____ Class _____ Date _____

GET STARTED

1 $4 \overline{) 52}$



$13 \div 3 = \underline{\quad} R \underline{\quad}$

3 $5 \overline{) 94}$ R $\underline{\quad}$

Check:

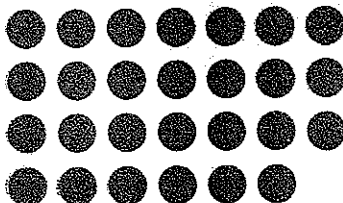
$$\begin{array}{r} \times 5 \\ + \\ \hline \end{array}$$

4 $7 \overline{) 834}$ R $\underline{\quad}$

Check:

$$\begin{array}{r} \times 7 \\ + \\ \hline \end{array}$$

The model can be used to divide 27 by 4.



$27 \div 4 = \underline{\quad} R \underline{\quad}$

Check: $\underline{\quad} \times 4 = \underline{\quad}$

$\underline{\quad} + \underline{\quad} = \underline{\quad}$

**BUILD
THE
CONCEPT**

TRY IT TOGETHER

Find each quotient. Check each answer by multiplying.

5 $76 \div 3$

$$\begin{array}{r} \cdot \\ 3 \overline{) 76} \end{array} \text{R } \underline{\quad}$$

Check:

$$\begin{array}{r} \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} + \\ \hline \end{array}$$

6 $709 \div 5$

$$\begin{array}{r} \cdot \\ 5 \overline{) 709} \end{array} \text{R } \underline{\quad}$$

Check:

$$\begin{array}{r} \times \\ \hline \end{array}$$

$$\begin{array}{r} + \\ \hline \end{array}$$

WORK ON YOUR OWN

Divide by a 1-Digit Divisor with a Remainder

HOW TO

Using Symbols

1.
$$\begin{array}{r} 1 \\ 5 \overline{) 63} \\ -5 \\ \hline \end{array}$$

Using Words

Divide the **greatest** place value digit of the dividend by the divisor. **Multiply** the quotient by the divisor, writing that **product** under the dividend.

2.
$$\begin{array}{r} 1 \\ 5 \overline{) 63} \\ -5 \\ \hline 13 \end{array}$$

Subtract the product from the digit(s) above it. Bring down the next digit of the dividend. Write it next to the difference from the previous step.

3.
$$\begin{array}{r} 12 \\ 5 \overline{) 63} \\ -5 \\ \hline 13 \\ -10 \\ \hline 3 \end{array}$$

Repeat steps 1 and 2 for each **digit** of the dividend brought down. If there are no digits left to bring down, the last **difference** is the remainder.

So, 63 divided by 5 is 12 R3.

4. $12 \times 5 = 60$

$60 + 3 = 63$

Check the answer by multiplication and addition.

Problem-Solving: Finding Patterns Using a Table

Name _____ Class _____ Date _____

GET STARTED

1 $4 \times 2 =$ _____

2 $63 \div 9 =$ _____

Number of Bicycles	1	2	3	4	5	6
Number of Wheels	2	4	6	8		

- a. Find: _____
b. How? _____

- c. Solve. Pattern: _____

$5 \times$ _____ $=$ _____

$6 \times$ _____ $=$ _____

The missing values in the table are _____ and _____.

- d. Are the answers reasonable? Explain. _____

4

Number	2	3	4	5	6	7
Double Plus 1	5	7	9	11		

- a. Find: _____
b. How? _____

- c. Solve. Pattern: Multiply the number by _____, then add _____.

$6 \times$ _____ $=$ _____ $+$ _____ $=$ _____

$7 \times$ _____ $=$ _____ $+$ _____ $=$ _____

The missing values in the table are _____ and _____.

- d. Are the answers reasonable? Explain. _____

TRY IT TOGETHER

Find the pattern. Then complete the table.

Number of Bags	1	2	3	4	5	6
Number of Balloons	10	20	30	40		

- Find: _____
- How? _____
- Solve.
Pattern: Multiply the number of bags by _____.
 $5 \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$
 $6 \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$
 The missing values in the table are _____ and _____.
- Are the answers reasonable? Explain. _____

WORK ON YOUR OWN

Use a Table to Find a Pattern

Days	1	2	3	4	8
Hours Worked	6	12	18	?	?

- Find: the missing values in the table
- How? First, find the pattern. Then, use the pattern to find the missing values.
- Solve.

Pattern: Multiply the number of days by 6.

$$4 \times 6 = 24$$

$$8 \times 6 = 48$$

The missing values in the table are 24 and 48.

Are the answers reasonable? Explain. Yes, each value in the Hours Worked row goes up by 6 for each additional day.

Estimating Products and Quotients

Name _____ Class _____ Date _____

GET STARTED

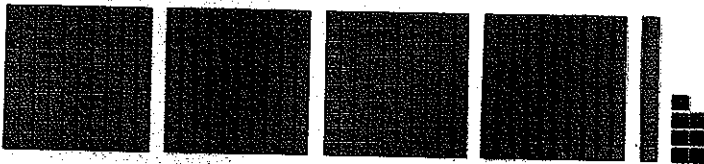
1 $296 \rightarrow$ _____
 $617 \rightarrow$ _____

2 $6,000$
 $\times 40$

3 173
 $\times 540$ $\times$ _____

4 $617 \div 2$
 _____ $\div$ _____ = _____
 $\overline{)$

Estimate $417 \div 2$.



_____ $\div 2 =$ _____

**BUILD
THE
CONCEPT**

TRY IT TOGETHER

Estimate each product or quotient.

5 $26 \div 6$

$\underline{\hspace{1cm}} \div \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$

6 96×18

$\times \underline{\hspace{1cm}}$

7 273

$\times 14$

$\times \underline{\hspace{1cm}}$

8 $407 \div 5 =$

$\overline{) \hspace{1cm}}$

WORK ON YOUR OWN

Estimate a Product

Using Symbols

1. 428×15

$\downarrow \quad \downarrow$
 400×20

2. 400

$\times 20$

$8,000$

Using Words

Round each multi-digit factor to its greatest place value.

Multiply the numbers to find a reasonable estimate of the actual product.

HOW
TO

Estimate a Quotient

Using Symbols

1. $83 \div 4$

$\downarrow \quad \downarrow$
 $80 \quad 4$

2. 20

$4 \overline{) 80}$

20

80

0

0

Using Words

Round the dividend to its greatest place value. Because the divisor is a single-digit number, keep the divisor the same.

Divide the numbers to find a reasonable estimate of the actual quotient.