

Ch 2 Hw HELP

Ms.Cook

2.1

Reteach video:

● Mr. Lee sold 9 apples. He sold twice as many bananas. How many bananas did he sell?

Apples $\boxed{9}$ $n = 9 \times 2$
or $n = 2 \times 9$

Bananas $\boxed{9} \quad \boxed{9}$ $n = 18$

Mr. Lee sold 18 bananas.

Twice means 2, or double.

2.1 Multiplication Comparisons

Objective: I will Model multiplication comparisons

You can use multiplication to compare numbers. For example, the number 12 is 3 times as many as 4. $12 \div 3 = 4$ and $4 \times 3 = 12$.

$3 \times 5 \rightarrow \begin{array}{|c|c|c|} \hline 3 & 5 & \\ \hline \end{array}$ $12 \div 3 = 4 \rightarrow \begin{array}{|c|c|c|c|} \hline 4 & 3 & 3 & 3 \\ \hline \end{array}$

$1 \times 5 \rightarrow \begin{array}{|c|} \hline 5 \\ \hline \end{array}$ $12 \div 4 = 3 \rightarrow \begin{array}{|c|c|} \hline 3 & 4 \\ \hline \end{array}$

Make a Model:

6 : Total

Example draw a model and write an equation to solve. Miguel $\boxed{2} \quad \boxed{2} \quad \boxed{2}$ $3 \times \underline{\quad} = 6$

Miguel has 3 times as many rabbits as Sara. Miguel has 6 rabbits. How many rabbits does Sara have? Sara $\boxed{2}$

Write an Equation

Use the model to write an equation and solve.

$6 = \underline{3} \times \underline{2}$

$6 = 3 \times \underline{n}$ Think: 3 times what number equals 6?

The value of n is 2.

Think: n is how many rabbits Sara has.

Another type of problem...

A Write an equation.

21 is 7 times as many as 3.

$21 = \underline{7} \times \underline{3}$

2.2

2.2 Comparison Problems
Objective: I will Model to Solve comparison problems.
Evan's dog weighs 7 times as much as Oxana's dog. Together, the dogs weigh 72 pounds. How much does Evan's dog weigh?

$7 \times 9 = 63 \text{ pounds}$

Evan's dog:

9	9	9	9	9	9	9	9
---	---	---	---	---	---	---	---

 72
Oxana's dog:

9

Write an equation: $8 \times n = 72$
 $n = ?$ $n = 9$

Let's try another!

Maria's dog weighs 6 times as much as her rabbit. Together, the pets weigh 56 pounds. What does Maria's dog weigh?

1	2	3	4	5	6	
Dog	8	8	8	8	8	8
R	8					

Steps:
1 Model the problem
2 Write an equation
3 Solve the equation
4 Read the question and answer it.

$6 \times 8 = 48$
4 48 pounds

Write an equation: $7 \times h = 56$
2 $n = 8$
3

2.3

Multiply Tens, Hundreds & Thousands

Find the product.

1. $4 \times 7,000 = \underline{28,000}$

Think: $4 \times 7 = 28$
So, $4 \times 7,000 = 28,000$

3. $8 \times 200 = \underline{1,600}$

2. $9 \times 60 = \underline{540}$

4. $5 \times 6,000 = \underline{30,000}$

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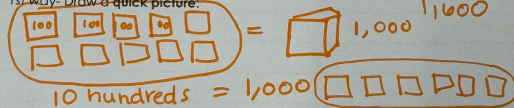
2.3 Multiply Tens, Hundreds, and Thousands

understanding
Objective: By ~~using~~ ^{using} ~~place value~~, I will ~~multiply~~ ^{multiply} tens, hundreds, and thousands.

→ Multiply
Each car on a train has 200 seats. How many seats are on a train with 8 cars?

Find $8 \times 200 = 1,600$

1st way- Draw a quick picture:



2nd way- Use Place Value (rename numbers)

$8 \times 200 = 8 \times \underline{2}$ hundreds
 $= \underline{16}$ hundreds
 $= \underline{1,600}$

Other ways- use a Basic Facts

3 Use patterns. $3 \times 7,000$

Basic fact:
 $3 \times 7 = 21$ — basic fact
 $3 \times 70 = 210$
 $3 \times 700 = \underline{2,100}$
 $3 \times 7,000 = \underline{21,000}$

Basic fact with a zero:
 $8 \times 5 = 40$ — basic fact
 $8 \times 50 = 400$
 $8 \times 500 = \underline{4,000}$
 $8 \times 5,000 = \underline{40,000}$

2.4



2.4 Estimate Products

Objective: I will estimate products by rounding and determine if exact estimates are reasonable.

An elephant can reach as high as 23 feet with its trunk. It uses its trunk to pick up objects that weigh up to 3 times as much as a 165 pound person! About how much weight can an African elephant pick up with its trunk?

One way- Estimate by rounding

STEP 1 Round the greater factor to the nearest hundred.

$$3 \times 165 \rightarrow 3 \times 200 = 600$$

STEP 2 Use mental math.

Think: $3 \times 200 = 3 \times 2 \text{ hundreds} = 6 \text{ hundreds} = 600$

You can also estimate by finding two numbers the exact answer is between

$3 \times 100 = 300$ 3×165 Think: 165 is between 100 and 200, use those numbers to estimate.

$3 \times 200 = 600$ $3 \times 200 = 600$

So, the African elephant can pick up between 300 and 600 pounds.

Check for **reasonableness**- Estimates help you check to see that your answer makes sense.

$4 \times 80 = 320$ $4 \times 86 = 344$

Is this answer correct? How do you know?

The answer is not reasonable, 344 is the correct answer. 384 was not between our estimates

2.5

$$\begin{array}{r} 7 \times 15 \\ \hline 7 \times 10 = 70 \\ 7 \times 5 = 35 \\ \hline 70 + 35 = 105 \end{array}$$

$15 = 10 + 5$

$7 \times 15 = 105$

2.5 Multiply Using the Distributive Property

Objective: I will use the Distributive Property to multiply a 2-digit number by a 1-digit number.

The Distributive Property states: Multiplying a sum by a number is the same as multiplying each addend by the number and then adding the products together.

This means you can break apart numbers to make them easier to multiply!

$$6 \times 13 = 78$$

$6 \times 10 = 60$
 $6 \times 3 = 18$
 $60 + 18 = 78$

60 and 18 are products

Let's do another!

① $3 \times 13 = 39$

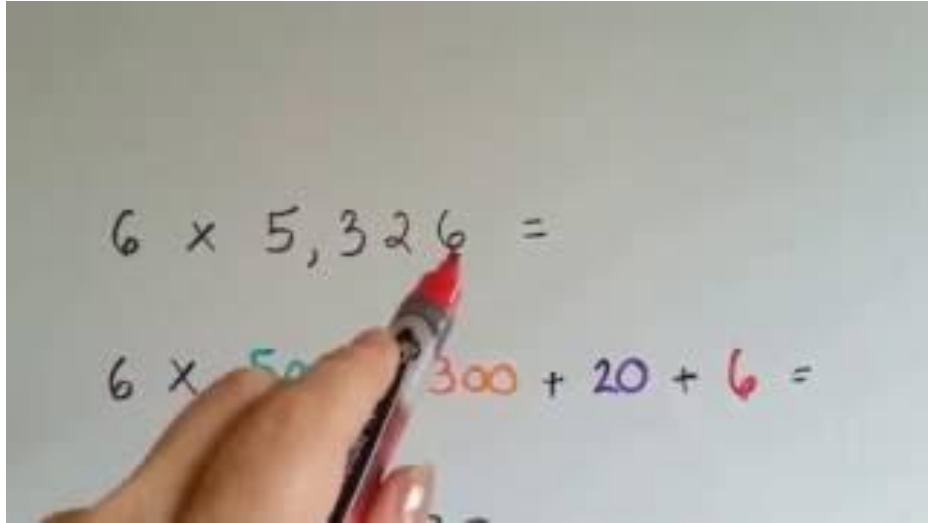
② $3 \times 8 = 24$
 $3 \times 5 = 15$

③ $24 + 15 = 39$

Steps:

- ① Break apart the 2-digit number by place value or basic facts
- ② Multiply
- ③ Add the two products together

2.6



2.6 Multiply Using Expanded Form

Objective: I will use **Expanded Form** to **multiply** a multi-digit number by a 1-digit number.

Multiply: 5×143

	100	40	3	
5	500	200	15	500 200 + 15 715

$5 \times (100 + 40 + 3) = 715$

$6 \times 4,121 = 24,726$

4,000	100	20	1	
6	24,000	600	120	6

Steps

- 1 Draw your boxes
- 2 Break number apart into expanded form
- 3 Multiply each place value by the single digit
- 4 Add products together

24,000
+ 600
+ 120
+ 6
24,726

2.7

2.7 Multiply Using Partial Products

Objective: I will use **place value** and **partial products** to **multiply** by a 1-digit number.

Multiply. 6×182

Yesterday we...

$100 + 80 + 2$

6	600	480	12
---	-----	-----	----

600
 $+ 480$
 $+ 12$

 1092

Now...

$100 + 80 + 2$

$\times 6$
482
<hr/>
600
$+ 480$
$+ 12$
<hr/>
1092

Let's try another!

$4000 + 500 + 70 + 2$

Multiply. $2 \times 4,572$

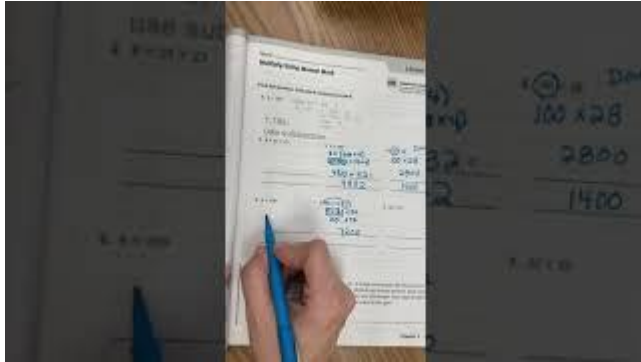
4,572
$\times 2$
<hr/>
9,144

Steps:

- 1 Write your equation vertically
- 2 Multiply the thousands place
- 3 Multiply the hundreds place
- 4 Multiply the tens
- 5 Multiply the ones
- 6 Add the products

2.8

I suggest students watch her complete one problem, then try the next on their own.



2.8 Multiply Using Mental Math

Objective: I will use **Mental Math** strategies and properties to help multiply numbers.

Use the Commutative Property = multiply factors in any order
Find $4 \times 7 \times 25$.

$$4 \times 7 \times 25 = 4 \times 25 \times 7$$
$$100 \times 7 = 700$$

Use the Associative Property = group factors in different ways
Find $(6 \times 10) \times 10$.

$$(6 \times 10) \times 10 = 6 \times (10 \times 10)$$
$$= 6 \times 100$$
$$= 600$$

More Strategies...

More Strategies Choose the strategy that works best with the numbers in the problems.

Examples

A Use friendly numbers.

Multiply 24×250

Think: $24 \times 6 = 144$ and $250 = 1,000$

$$24 \times 250 = 6 \times 4 \times 250$$

$$= 6 \times$$

$$1,000$$

$$= 6,000$$

Use addition.

Multiply 4×625

Think: $4 \times 100 = 400$

$$4 \times 625 = 4 \times (600 + 25)$$

$$= (4 \times 600) + (4 \times 25)$$

$$= 2,400 + 100$$

$$= 2,500$$

B Use halving and doubling.

Multiply 16×50

Think: $16 \div 2 = 8$ and $50 \times 2 = 100$

$$16 \div 2 = 8$$

$$8 \times 50 = 400$$

$$400 \times 2 = 800$$

$$800$$

Use subtraction.

Multiply 5×398

Think: $398 = 400 - 2$

$$5 \times 398 = 5 \times (400 - 2)$$

$$= (5 \times 400) - (5 \times 2)$$

$$= 2,000 - 10$$

$$= 1,990$$

A

$$24 \times 250$$
$$\begin{array}{r} 24 \times 250 \\ \downarrow \quad \downarrow \\ 6 \times 4 \times 250 \\ \downarrow \quad \downarrow \\ 6 \times 1,000 \\ \downarrow \\ 6,000 \end{array}$$

C

$$4 \times 625$$
$$4 \times (600 + 25)$$
$$2,400 + 100 = 2,500$$

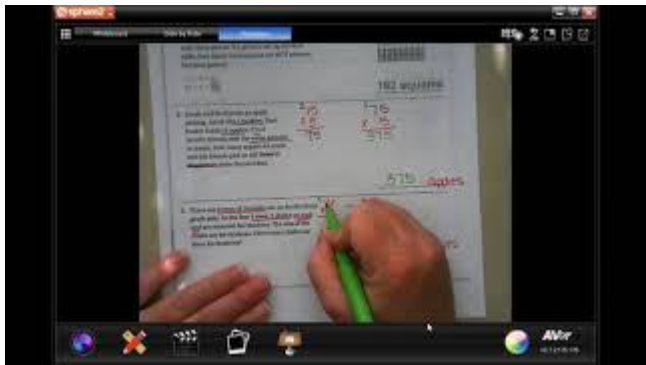
B

$$16 \times 50$$
$$\downarrow \times$$
$$8 \times 50 = 400$$
$$\downarrow \times$$
$$400 \times 2 = 800$$

D

$$5 \times 398$$
$$5 \times (400 - 2)$$
$$400 \times 5 = 2,000$$
$$5 \times 2 = 10$$
$$\text{Number } 1,990$$

2.9-



2.9 Problem Solving - Multistep Multiplication Problems

Objective: I will use Draw and Diagram strategy and/or C.U.B.E.S to _____ multistep multiplication problems.

$$\begin{array}{r} \text{7 solve} \\ 162 \\ \times 8 \\ \hline 1296 \end{array} \quad \begin{array}{r} 8 \\ \times 6 \\ \hline 48 \end{array} \quad \begin{array}{r} 162 \\ - 48 \\ \hline 114 \end{array}$$

At the sea park, one section in the stadium has 9 rows with 18 seats in each row. In the center of each of the first 6 rows, 6 seats are in the splash zone. How many seats are not in the splash zone?

C.U.B.E.S.

↳ Subtract 114 seats

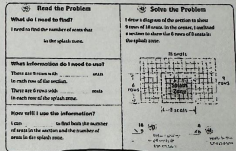
Circle Key numbers and units

Underline the question

Box the math key words

Eliminate unnecessary information

Solve the problem



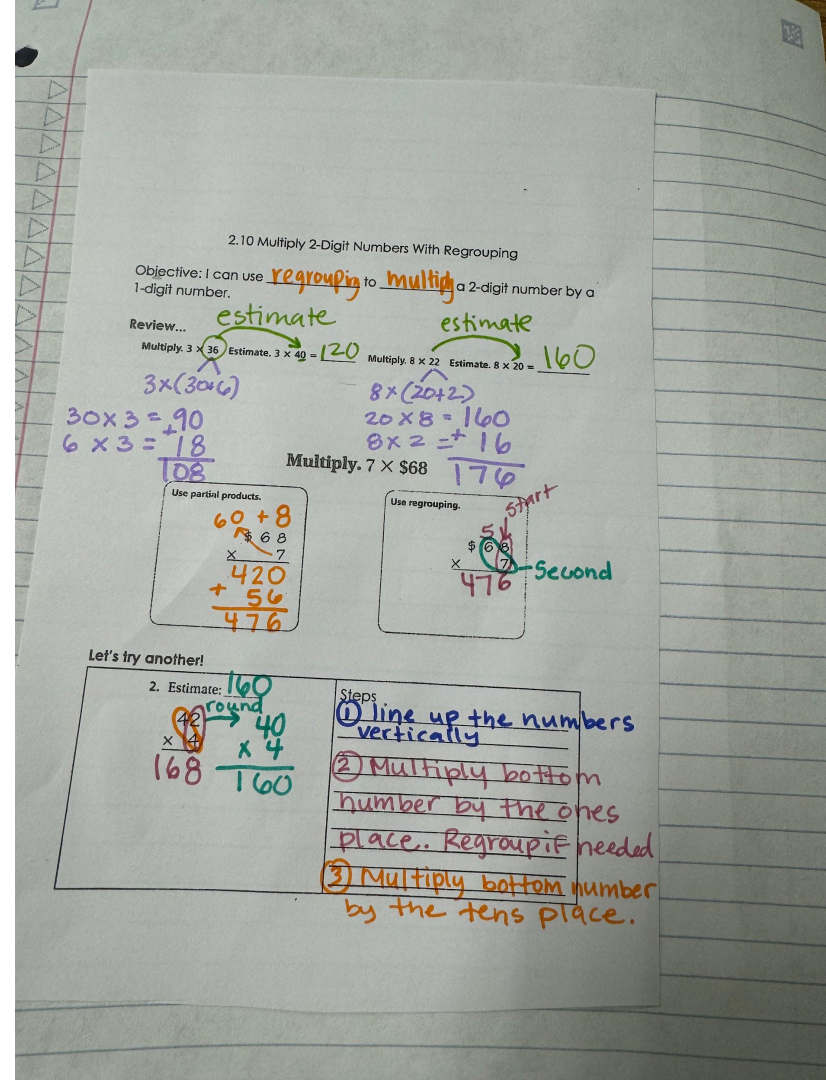
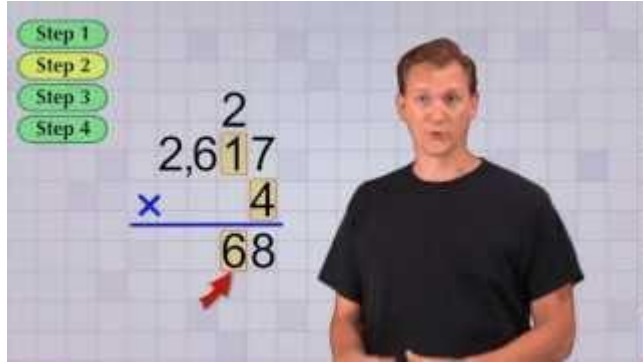
Try Another

At the sea park, one section of the shark theater has 8 rows with 14 seats in each row.

In the middle of the section, 4 rows of 6 seats are reserved. How many seats are not reserved?

2.10

Reteach video:



2.11

Reteach video:

$$5 \times 398$$

	300	90	8
5	5 × 300	5 × 90	5 × 8
	1500	450	40

1990 ✓

$$\begin{array}{r} +4 \quad +4 \\ 398 \\ \times 5 \\ \hline 1990 \end{array}$$

2.11 Multiply 3-digit and 4-digit numbers with Regrouping

Objective: I will use regrouping to multiply 3-digit and 4-digit numbers

Review:

Multiply. $7 \times \$68$

Let's try...

Estimate: 2,400

$$\begin{array}{r} 10 \\ 605 \\ \times 4 \\ \hline 2412 \end{array}$$

600 → 2,400

Estimate: 14,000

$$\begin{array}{r} 6 \quad 2 \quad 3 \\ 1935 \\ \times 7 \\ \hline 13545 \end{array}$$

2,000 → 14,000

Let's try another!

Estimate: 40,000

$$\begin{array}{r} 8000 \\ 4930 \\ \times 5 \\ \hline 24650 \end{array}$$

8,000 → 40,000

- Steps
- 1 Line up the numbers vertically
 - 2 Multiply bottom number by the ones place
 - 3 Multiply bottom number by the tens place.
 - 4 Multiply bottom number by the hundreds place
 - 5 Multiply bottom number by the thousands

2.12-

Reteach practice video

$$\begin{array}{r} 6 \overline{) 24018} \\ \underline{12} \\ 120 \\ \underline{12} \\ 18 \\ \underline{18} \\ 0 \end{array}$$

$(8 \times 10) + (8 \times 9)$ PEMDAS
 $80 + 72$
 152

$6 \times 43 + 8 \times 19 - 39 = n$

$258 + 152 - 39 = n$

$410 - 39 = n$

$371 = n$

$$\begin{array}{r} 258 \\ + 152 \\ \hline 348 \\ - 39 \\ \hline 371 \end{array}$$

2.12 Solve Multistep problems using equations

Objective: I will represent and solve multistep problems and equations.

1 way: Use Multiple single-step equations → multiply

$$\begin{array}{r} 64 \\ \times 3 \\ \hline 192 \end{array}$$

$$\begin{array}{r} 16 \\ \times 2 \\ \hline 32 \end{array}$$

$$\begin{array}{r} 192 \\ + 32 \\ \hline 224 \end{array}$$
 ← all together

$$\begin{array}{r} 224 \\ - 84 \\ \hline 140 \end{array}$$

146 gigabytes left

CUBES

Another way: Use one multi-step equation

Parenttheses (2+2) Subtraction -

Exponent (2) Order of Operations: The Order of Operations is a special set of rules that gives the order in which calculations are done in an expression. First, multiply and divide from left to right. Then, add and subtract from left to right.

Multiply × PEMDAS

Divide ÷ ① multiply and divide from L to R

Addition + ② add and subtract from L to R

1. Use the order of operations to find the value of n .

$$\begin{array}{r} 5 \times 17 + 5 \times 20 - 32 = n \\ 85 + 100 - 32 \\ 185 - 32 \\ n = 153 \end{array}$$

$$\begin{array}{r} 17 \\ \times 5 \\ \hline 85 \end{array}$$

$$\begin{array}{r} 20 \\ \times 5 \\ \hline 100 \end{array}$$

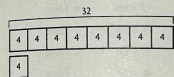
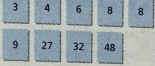
$$\begin{array}{r} 100 \\ + 85 \\ \hline 185 \end{array}$$

$$\begin{array}{r} 185 \\ - 32 \\ \hline 153 \end{array}$$

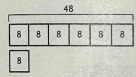
Study guide answer key

Name _____

6. For numbers 6a–6c, write an equation or a comparison sentence using the numbers on the box.

6a.  

8 times as many as 4 is 32.

6b. 

6 times as many as 8 is 48.

6c. $9 \times 3 = 27$

9 times as many as 3 is 27.

7. Multiply 7×43 . For 7a–7d, select True or False for each statement.

7a. A reasonable estimate of the product is 280. True False

7b. Using partial products, the products are 21 and 28. True False

7c. Using regrouping, 21 ones are regrouped as 1 ten and 2 ones. True False

7d. The product is 301. True False


8. It costs 3,326 points to build each apartment building in the computer game *Big City Building*. What is the cost to build 5 apartment buildings? Show your work.

$$\begin{array}{r} 46,640 \text{ points} \\ \times \quad 5 \\ \hline 9,328 \\ 46,640 \\ \hline \end{array}$$

Check students' work.

9. Multiply 7×462 using place value and expanded form. Choose the number from the box to complete the expression.

$(7 \times \begin{array}{|c|} \hline 4 \\ \hline \end{array}) + (7 \times \begin{array}{|c|} \hline 60 \\ \hline \end{array}) + (7 \times \begin{array}{|c|} \hline 20 \\ \hline \end{array})$



10. For numbers 10a–10b, use place value to find the product.

10a. $3 \times 600 = 3 \times \begin{array}{|c|} \hline 6 \\ \hline \end{array}$ hundreds

$= 18$ hundreds

$= 1,800$

10b. $5 \times 400 = 5 \times \begin{array}{|c|} \hline 4 \\ \hline \end{array}$ hundreds

$= 20$ hundreds

$= 2,000$

11. Liam has 3 boxes of baseball cards with 50 cards in each box. He also has 5 boxes with 40 basketball cards in each box. If Liam goes to the store and buys 50 more baseball cards, how many baseball and basketball cards does Liam have? Show your work.

$$\begin{array}{l} 3 \times 50 = 150 \\ 5 \times 40 = 200 \\ 150 + 200 = 350 \\ 350 + 50 = 400 \end{array}$$

Liam has 400 baseball and basketball cards.


Check students' work.

Chapter 2 99 100

Name _____

12. There is a book sale at the library. The price for each book is \$4. Which expression can be used to show how much money the library will make if it sells 289 books? Use the numbers on the tiles to complete your answer.

$(4 \times \begin{array}{|c|} \hline 200 \\ \hline \end{array}) + (4 \times \begin{array}{|c|} \hline 80 \\ \hline \end{array}) + (4 \times \begin{array}{|c|} \hline 9 \\ \hline \end{array})$



13. Find 9×97 . Show your work and explain why the strategy you chose works best with the factors.

3,176. Possible explanation: Since 97 is 3 less than 100, I used subtraction.

$8 \times (100 - 3) = (8 \times 100) - (8 \times 3) = 800 - 24 = 3,176$

14. A clown bought 6 bags of round balloons with 24 balloons in each bag. The clown also bought 3 bags of long balloons with 96 balloons in each bag.

Part A

How many more long balloons than round balloons did the clown buy? Show your work.

$$36 \text{ balloons; } 6 \times 24 = 144; 3 \times 96 = 288; 144 - 288 = -144$$


Check students' work.

Part B

The clown also bought 5 bags of heart-shaped balloons with 14 balloons in each bag. When the clown blew up all of the round, long, and heart-shaped balloons, 23 balloons burst. How many blown-up balloons were left? Explain your answer.

299 blown-up balloons; possible explanation: first I found the number of heart-shaped balloons, $5 \times 14 = 70$. Next, I added that number to the number of round balloons and long balloons, $70 + 144 + 108 = 322$ balloons. In all, I subtracted the number of burst balloons, so $322 - 23 = 299$ balloons left.

15. Hector planted 185 flowers in 2 days. There were 5 volunteers, including Hector, who each planted about the same number of flowers. About how many flowers did they plant?

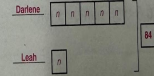


16. Jay and Blair went fishing. Together, they caught 27 fish. Jay caught 2 times as many fish as Blair. How many fish did Jay and Blair each catch? Write an equation and solve. Explain your work.

Possible explanation: Blair caught n fish, and Jay caught $2 \times n$ fish. Together they caught $3 \times n$ fish, so I wrote the equation $3 \times n = 27$. I solved to find $n = 9$ fish, and $2 \times n = 18$ fish. Blair caught 9 fish and Jay caught 18 fish.

17. At the pet fair, Darlene's dog weighed 5 times as much as Leah's dog. Together, the dogs weighed 84 pounds. How much did each dog weigh? Complete the bar model. Write an equation and solve.

Part A



$6 \times n = 84$
 $n = 14$
Leah's dog weighed 14 pounds.
Darlene's dog weighed 70 pounds.

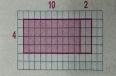
Part B

The clown also bought 5 bags of heart-shaped balloons with 14 balloons in each bag. When the clown blew up all of the round, long, and heart-shaped balloons, 23 balloons burst. How many blown-up balloons were left? Explain your answer.

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18. Use the Distributive Property to model the product on the grid. Record the product.

$4 \times 12 = 48$



Chapter 2 101 102

Extra practice

Please complete the multiplication/division sheet I sent home with student daily if they are struggling with their multiplication or division facts.

I provided a sheet protector so it can be reused with a dry erase marker.

If you need one let me know and I can send the students home with one :)



**13, you know
it!
17, 19**

PEMDAS Practice song

Please -parenthesis

Excuse-Exponent

My -Multiply

Dear -Divide

Aunt -Add

Sally -Subtract



Order of Operations

4th grade is required to know m-S

ORDER

always work **LEFT** to **RIGHT**

PRACTICE:			P arentheses $()$
$3 + 7 \times 6 \div 3 =$ $3 + 42 \div 3 =$ $3 + 14 =$ 17	$(6 \times 4) \div 3 - 6 + 2 =$ $24 \div 3 - 6 + 2 =$ $8 - 6 + 2 =$ $2 + 2 =$ 4	$2^2 \times 9 \div 3 =$ $4 \times 9 \div 3 =$ $36 \div 3 =$ 12	E xponents x^3
			M ultiply \times
OR			D ivide \div
			A dd $+$
OR			S ubtract $-$

My dear AUNT SALLY

P	Please	Parentheses
E	Excuse	Exponents
M	My	Multiply
D	Dear	Divide
A	Aunt	Add
S	Sally	Subtract

5th Grade • Bundle 8.1 • Order of Operations PEMDAS