Chapter Resources
GRADE 4, CHAPTER 9

Contents

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Chapter Test (2 pages)
Are You Ready?

Divide. Check your answers.

1. 4\underline{)72}  
2. 6\underline{)45}  
3. 3\underline{)70}

4. 2\underline{)56}  
5. 3\underline{)13}  
6. 6\underline{)77}

7. 4\underline{)56}  
8. 3\underline{)93}  
9. 5\underline{)79}

Solve.

10. A number is divided by 4. What numbers could the remainder be?
Check What You Know

Divide. Check your answers.

1. $3 \div 642$
2. $6 \div 704$
3. $597 \div 5 = _____$

4. $6 \div 372$
5. $7 \div 678$
6. $208 \div 4 = _____$

7. $3 \div 609$
8. $4 \div 413$
9. $545 \div 5 = _____$

10. $6 \div 9,834$
11. $3 \div 2,662$
12. $1,234 \div 8 = _____$
Divide. Check your answers.

13. \( 4 \div 3122 \)  
14. \( 6 \div 0.96 \)  
15. \( 5.07 \div 3 = \)_____

16. \( 7 \div 28.56 \)  
17. \( 6 \div 230.52 \)  
18. \( 65.52 \div 9 = \)_____

Solve.

19. Mike is thinking of a number. He adds 1 to the number, then divides by 3, then subtracts 2, and finally multiplies by 4. The result is 28. What number is Mike thinking of?


20. In the computer club, there are twice as many fifth-graders as third-graders. There are 5 fewer fourth-graders than fifth-graders. If there are 10 third-graders, how many fourth-graders are there?


### Three-Digit Quotients

Find \(635 \div 4\).

<table>
<thead>
<tr>
<th>Divide the hundreds.</th>
<th>Divide the tens.</th>
<th>Divide the ones.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>(15)</td>
<td>(\frac{158}{4})</td>
</tr>
<tr>
<td>(4)</td>
<td>(4)</td>
<td>(4)</td>
</tr>
<tr>
<td>(635)</td>
<td>(635)</td>
<td>(635)</td>
</tr>
<tr>
<td>Find 6 (\div 4).</td>
<td>Find 23 (\div 4).</td>
<td>Find 35 (\div 4).</td>
</tr>
<tr>
<td>(-4)</td>
<td>(-4)</td>
<td>(-4)</td>
</tr>
<tr>
<td>(23)</td>
<td>(23)</td>
<td>(23)</td>
</tr>
<tr>
<td>(23)</td>
<td>(35)</td>
<td>(32)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(3)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Divide. Check your answers.

1. \(3\)\(\underline{3}63\)
2. \(4\)\(\underline{6}28\)
3. \(2\)\(\underline{3}27\)
4. \(3\)\(\underline{4}70\)

5. \(3\)\(\underline{4}27\)
6. \(5\)\(\underline{6}74\)
7. \(2\)\(\underline{3}29\)
8. \(5\)\(\underline{5}78\)

9. \(3\)\(\underline{4}59\)
10. \(2\)\(\underline{5}35\)
11. \(5\)\(\underline{6}49\)
12. \(3\)\(\underline{8}14\)

13. \(2\)\(\underline{4}34\)
14. \(4\)\(\underline{5}35\)
15. \(5\)\(\underline{6}86\)
16. \(6\)\(\underline{8}02\)
Three-Digit Quotients

Divide. Check your answers.

1. \(6 \div 692\)  
2. \(4 \div 498\)  
3. \(2 \div 783\)  
4. \(7 \div 801\)

5. \(3 \div 642\)  
6. \(5 \div 712\)  
7. \(3 \div 858\)  
8. \(2 \div 793\)

9. \(5 \div 758\)  
10. \(6 \div 728\)  
11. \(4 \div 549\)  
12. \(3 \div 735\)

13. \(428 \div 3\)  
14. \(543 \div 4\)  
15. \(945 \div 5\)  
16. \(674 \div 6\)

17. \(3 \div 538\)

\(A\) 112  
\(B\) 119  
\(C\) 172 R2  
\(D\) 179 R1

18. Anna used 635 beads to make 5 bracelets. She put the same number of beads on each bracelet. How many beads did each bracelet have?
Division Jokester

Solve each division problem. Use the letter for each answer to complete the joke.

1. $626 \div 2 = \underline{\hspace{3cm}}$  A    2. $854 \div 7 = \underline{\hspace{3cm}}$  O

3. $784 \div 4 = \underline{\hspace{3cm}}$  C    4. $833 \div 7 = \underline{\hspace{3cm}}$  S

5. $744 \div 3 = \underline{\hspace{3cm}}$  E    6. $864 \div 6 = \underline{\hspace{3cm}}$  T

7. $852 \div 2 = \underline{\hspace{3cm}}$  L    8. $471 \div 3 = \underline{\hspace{3cm}}$  U

9. $813 \div 3 = \underline{\hspace{3cm}}$  M    10. $846 \div 3 = \underline{\hspace{3cm}}$  W

11. $648 \div 4 = \underline{\hspace{3cm}}$  N    12. $565 \div 5 = \underline{\hspace{3cm}}$  Y

What did the one calculator say to the other calculator?

\[ \begin{array}{cccccc}
113 & 122 & 157 & 196 & 313 & 162 \\
313 & 426 & 282 & 313 & 113 & 119 \\
196 & 122 & 157 & 162 & 144 & 122 & 162 \\
271 & 248
\end{array} \]
Three-Digit Quotients

Solve.

1. Joy has 665 photos in an album. There are 5 photos on each page. How many pages are in Joy’s photo album?

2. Carmella has 338 photos to put into an album. How many pages will she fill if she places 3 photos on each page? How many photos will she have left over?

3. Mr. Clark has 408 feet of string. He evenly divides the string into 4-foot pieces. How many pieces will he make? How much string will he have left over?

4. In art class, the students made beaded necklaces. They used 884 beads and had 12 beads left over. The teacher had bought 8 packs of beads. How many beads were in each pack?

5. Write About It The Gerard family drove 920 miles in 3 days. They drove the same number of miles the first 2 days and then drove 50 miles the third day. Explain how to find the number of miles they drove each day.
Three-Digit Quotients

Divide. Check your answers.

Remember the steps:
• Divide.
• Multiply.
• Subtract.
• Compare.
• Bring down.

1. 2)636
2. 4)507
3. 6)735
4. 5)619
5. 3)428
6. 3)515
7. 5)842
8. 6)815
9. 3)705
10. 8)942
11. 8)987
12. 7)945
13. 4)738
14. 6)874
15. 3)672
16. 2)735

Problem Solving

17. Mary has 456 baseball cards in her collection. She can fit 4 cards on a page. How many pages will she fill in her album?
Three-Digit Quotients

In English, some words sound the same but are spelled differently and have different meanings. Read the dictionary entries below.

**fair** adjective 1. pleasant to look at: a *fair maiden*. 2. free of clouds or storms: *a fair sky*. 3. showing honesty: a *fair judgment*. 4. neither good nor bad: *The movie was only fair*.

**fair** noun 1. a gathering for buying and selling things. 2. a large exhibition, often with games and rides.

**fare** noun 1. the money a passenger pays. 2. food and drink.

Write *fair* or *fare* to complete each sentence.

1. The rules were not ________________, so Rick stopped playing the game.

2. The ________________ at the hotel was very tasty.

3. Nina paid the ________________ to the driver and then found a seat on the bus.

4. Nori won a prize for his strawberries at the county ________________.

5. Alma painted a picture of a brave warrior and a ________________ maiden.

6. The judge made a ________________ decision.

7. The ballplayers had hoped for ________________ skies, but instead a storm came in.

8. Sari is a good soccer player but only a ________________ basketball player.
Place the First Digit of the Quotient

336 ÷ 4 = □

Step 1: Check the hundreds.
Because 3 < 4, there are not enough hundreds.

\[ \begin{array}{c}
4)336 \\
\end{array} \]

Step 2: Check the tens.
Because 33 > 4, place first digit in tens place. Divide the tens.

\[ \begin{array}{c}
8 \\
4)336 \\
-32 \\
\hline
1 \\
\end{array} \]

Step 3: Divide the ones.

\[ \begin{array}{c}
84 \\
4)336 \\
-32 \\
\hline
16 \\
\end{array} \]

Divide. Check your answers.

1. 4\underline{3}76
2. 3\underline{2}69
3. 5\underline{4}36
4. 3\underline{2}83

5. 5\underline{4}18
6. 7\underline{5}18
7. 2\underline{1}89
8. 6\underline{5}83

9. 197 ÷ 4
10. 132 ÷ 6
11. 483 ÷ 5
12. 326 ÷ 4

13. 234 ÷ 3
14. 357 ÷ 4
15. 475 ÷ 5
16. 538 ÷ 6
Place the First Digit of the Quotient

Divide. Check your answers.

1. 5)428
2. 4)326
3. 3)238
4. 7)645

5. 3)165
6. 4)239
7. 5)485
8. 7)538

9. 6)589
10. 2)186
11. 4)288
12. 8)649

13. 275 ÷ 3
14. 492 ÷ 5
15. 598 ÷ 6
16. 276 ÷ 4

17. 5)458
   A 90 R2   C 114
   B 91 R3   D 89

18. Jake took a total of 144 pictures of insects with 6 rolls of film. Each roll contained the same number of pictures. How many pictures did Jake take with each roll?
Code Breaker

Detective Divide has asked your help on a secret mission. He was given these math problems that are in some secret code. He knows that in the division problems, each letter stands for a digit. The same letter stands for the same digit in every problem. Your job is to solve each division problem and break the code. When you are finished, read the letters in order from 0–9 to find a secret message. Good Luck!

Hints: The letter R means remainder and is not part of the code. Zeros can be found where a letter is subtracted from itself, and at the bottom of the subtraction when there is no remainder. The letter M stands for 1, the letter I stands for 2, and the letter L stands for 3.

1. \( \frac{D L}{L} I M Y \)
   \[- I M \]
   \[- Y \]
   \[- S \]

2. \( \frac{D M}{O E I O} \)
   \[- E I \]
   \[- O \]
   \[- S \]

3. \( \frac{M M I}{T O I} \)
   \[- T \]
   \[- O \]
   \[- M I \]
   \[- T \]

4. \( \frac{M M Y}{D A L O} \)
   \[- D \]
   \[- M L \]
   \[- O O \]
   \[- L \]

5. \( \frac{M D A}{E D M E} \)
   \[- E \]
   \[- L M \]
   \[- L E \]

6. \( \frac{E I L}{A E O} \)
   \[- A \]
   \[- E \]
   \[- O \]

Use with text pages 230–232.
Place the First Digit of the Quotient

Use the data in the table for Problems 1–4.

1. In the video store, there are 4 rows of shelves for horror movies. If there are the same number of movies in each row, how many horror movies are in each row?

2. Half of the action movies are on DVD and the other half are on VHS. How many action DVDs does the video store have?

3. How many shelves are needed for the New Releases if each shelf holds 8 videos?

4. Allen sorts the comedy movies into 6 equal sections. How many movies does he have left over?

5. Reasoning A three-digit number is divided by a one-digit number. The quotient is a two-digit number. What can you say about the dividend and divisor? Give an example of this situation.
Place the First Digit of the Quotient

Divide. Check your answers.

1. \(2 \div 158\)
2. \(5 \div 375\)
3. \(3 \div 164\)
4. \(9 \div 125\)

Remember the steps:
- Estimate to place the first digit.
- Divide the tens.
- Bring down the ones.
- Divide the ones.

5. \(4 \div 185\)
6. \(6 \div 560\)
7. \(2 \div 143\)
8. \(6 \div 416\)

9. \(3 \div 184\)
10. \(2 \div 179\)
11. \(5 \div 348\)
12. \(4 \div 326\)

13. \(215 \div 5\)
14. \(138 \div 3\)
15. \(163 \div 2\)
16. \(275 \div 3\)

Problem Solving

17. Carlos bought a large pack of 176 stickers. There are 8 sheets of stickers in the pack. Each sheet contains the same number of stickers. How many stickers are on each sheet?
Place the First Digit of the Quotient

The word *left* is the form of *leave* used to talk about the past. *Left* is used in several expressions with special meanings. Read these definitions.

<table>
<thead>
<tr>
<th>left over</th>
<th>left out</th>
<th>left behind</th>
<th>left alone</th>
</tr>
</thead>
<tbody>
<tr>
<td>not used; remaining</td>
<td>not included</td>
<td>not taken on a trip</td>
<td>not bothered</td>
</tr>
</tbody>
</table>

Write an expression from the box to complete each sentence.

1. Reyna told her noisy little brother that she wanted to be ________________.

2. After giving everyone an orange, Wilson had 3 oranges ________________.

3. Cammie cared for 2 cats ________________ by a family that moved to Ohio.

4. A child ________________ of a game usually feels sad.

5. Jan discovered that she had ________________ the sunglasses she needed for her vacation.

6. The sentence did not make sense because a word had been ________________.

7. Khalid likes to be ________________ when he does his math homework.

8. When Penny put her photos into 5 groups of the same size, she had 3 photos ________________.
Divide Money

Find $6.95 \div 5.$

Divide the dollars.  
Divide the dimes.  
Divide the pennies.

<table>
<thead>
<tr>
<th>Dollar</th>
<th>Dime</th>
<th>Penny</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1.39</td>
<td>$5.39</td>
<td>$4.50</td>
</tr>
</tbody>
</table>

Divide Money

Estimate. Then divide.

1. $3\overline{)}$6.42  
2. $2\overline{)}$5.32  
3. $5\overline{)}$3.80  
4. $3\overline{)}$8.34  
5. $4\overline{)}$5.40  
6. $7\overline{)}$9.73  
7. $2\overline{)}$5.38  
8. $6\overline{)}$7.68  
9. $3\overline{)}$1.32  
10. $2\overline{)}$6.58  
11. $5\overline{)}$8.50  
12. $4\overline{)}$6.12  
13. $2\overline{)}$0.98  
14. $3\overline{)}$1.65  
15. $4\overline{)}$0.56  
16. $5\overline{)}$9.85
Divide Money

Estimate. Then divide.

1. $5.65 ÷ 5
2. $4.32 ÷ 2
3. $0.78 ÷ 3
4. $5.16 ÷ 4

5. $8.46 ÷ 6
6. $58 ÷ 2
7. $9.38 ÷ 7
8. $0.96 ÷ 6

9. $7.52 ÷ 4
10. $7.80 ÷ 5
11. $4.28 ÷ 2
12. $8.46 ÷ 6

13. $6.85 ÷ 5
14. $7.36 ÷ 4
15. $0.78 ÷ 3
16. $7.98 ÷ 6

17. $9.75 ÷ 3

A $3.00    C $3.25
B $6.45    D $4.50

18. Mark and his friend paid $8.98 for lunch. They evenly split the lunch bill between them. How much did each pay for lunch?
Bargain Shopping

Edwin has $20 to spend on school supplies. If he has enough money left over after he buys the supplies he needs, he can buy a baseball hat. There are three stores where Edwin can shop. Below is a list of the supplies Edwin needs, advertisements from each of the three stores, and the baseball hat that he wants to buy.

Help Edwin decide at which store he should buy each item so that he spends the least amount of money. Then decide if Edwin has enough money left over to buy the baseball hat.

**Hint:** If a store sells 3 pencils, for $3.00, Edwin can buy 1 pencil at that store for $1.00.

### School Supplies Needed
- 4 pencils
- 2 pens
- 8 markers
- a pack of paper
- 3 notebooks

### Supplies Plus
**The Big 5 Sale!**
- 5 pencils for $3.90
- 5 pens for $6.10
- 5 notebooks for $4.90
- 5 markers for $4.10
- 5 packs of paper for $6.15

### School Store
**BACK TO SCHOOL SALE**
- 8 pencils for $6.48
- 3 pens for $3.36
- 4 notebooks for $4.12
- 3 markers for $2.22
- 4 packs of paper for $5.00

### Paper, Pens, Etc.
**$4 Sale**
- 6 pencils for $4.56
- 4 notebooks for $4.60
- 3 packs of paper for $4.02
- 4 pens for $4.44
- 6 markers for $4.50

1. At which stores should Edwin buy each item?

2. How much will Edwin spend on school supplies?

3. Does Edwin have enough left over to buy the baseball hat? Explain.

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Use with text pages 234–236.
Divide Money

Solve.

1. At the grocery store, Jack bought 3 boxes of cereal for $9.96. If each box cost the same amount, how much did each box of cereal cost?

2. Heidi bought a bag of oranges for $4.69. There were 7 oranges in the bag. How much did each orange cost?

3. A 5-lb bag of potatoes costs $5.65. What is the price per pound for the potatoes?

4. Multistep Gus bought 8 cans of cat food and a cat toy for $8.73. The cat toy cost $2.49. How much did each can of cat food cost?

5. You Decide Which store has the better deal? Explain.

<table>
<thead>
<tr>
<th>Toys and Everything</th>
<th>Sticker Manía</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 stickers for $2.32</td>
<td>6 stickers for $1.62</td>
</tr>
</tbody>
</table>

Show your work.
Divide Money

Divide. Check your answers.

1. \(2 \div 5.12\)  
2. \(3 \div 6.51\)

3. \(5 \div 6.45\)  
4. \(3 \div 5.13\)

5. \(4 \div 6.48\)  
6. \(7 \div 9.38\)

7. \(3 \div 1.65\)  
8. \(6 \div 5.88\)

9. \(3 \div 4.26\)  
10. \(2 \div 8.24\)

11. \(5 \div 95\)  
12. \(4 \div 7.24\)

13. \(5.08 \div 4\)
14. \(1.83 \div 3\)

15. \(2.94 \div 2\)
16. \(5.82 \div 3\)

**Problem Solving**

17. Ramon bought 4 glasses of lemonade for his family. He paid $3.56 for all 4 glasses. What was the price for one glass of lemonade?
Use words from the box to fill the blanks.

<table>
<thead>
<tr>
<th>divide</th>
<th>dollar sign</th>
<th>decimal point</th>
<th>reasonable</th>
<th>estimate</th>
</tr>
</thead>
</table>

Iris and Sari must divide $3.90 evenly.

1. First, they __________ the amount each of them will get.

2. Next, they write the numbers as a division problem.
   They __________ $3.90 by 2.

3. After that, they write a __________ to the left of the quotient.

4. Then they place a __________ above the decimal point in the dividend.

5. Finally, they check the quotient against their estimate to make sure the answer is __________.
Zeros in the Quotient

539 ÷ 5 = □

Divide the hundreds.

<table>
<thead>
<tr>
<th>Divide the hundreds.</th>
<th>Bring down the tens.</th>
<th>Bring down the ones.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10</td>
<td>107 R4 Multiply.</td>
</tr>
<tr>
<td>5)539</td>
<td>1 × 5 = 5</td>
<td>5 × 5 = 35</td>
</tr>
<tr>
<td>−5</td>
<td>10</td>
<td>−5↓</td>
</tr>
<tr>
<td>0</td>
<td>03</td>
<td>03</td>
</tr>
<tr>
<td></td>
<td>−0</td>
<td>−0↓</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

Multiply.

Subtract.

Compare.

0 < 5

107 R4 Multiply.

Subtract.

3 - 0 = 3

Compare.

3 < 5

Write the remainder.

Divide. Check your answers.

1. 7)744
2. 2)615
3. 3)318
4. 8)859

5. 4)813
6. 7)564
7. 2)321
8. 6)624

9. 3)920
10. 2)410
11. 5)548
12. 4)835

13. 6)654
14. 8)723
15. 7)745
16. 3)307

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Zeros in the Quotient

Divide. Check your answers.

1. \(4 \div 812\)  
2. \(2 \div 204\)  
3. \(7 \div 749\)  
4. \(6 \div 421\)

5. \(3 \div 314\)  
6. \(8 \div 824\)  
7. \(7 \div 756\)  
8. \(5 \div 532\)

9. \(7 \div 425\)  
10. \(6 \div 618\)  
11. \(4 \div 835\)  
12. \(2 \div 611\)

13. \(143 \div 7\)  
14. \(543 \div 5\)  
15. \(212 \div 3\)  
16. \(945 \div 9\)

17. \(3 \div 320\)

A 101 R2  
B 106 R2  
C 121  
D 117

18. During one 8-hour period, 824 people visited the whale exhibit. What was the average number of visitors per hour on this day?

Use with text pages 238–239.
Match Game

Match the division problem on the left with the correct quotient on the right.

1. 945 ÷ 9  a. 305 R2
2. 615 ÷ 3  b. 70 R1
3. 415 ÷ 2  c. 104
4. 281 ÷ 4  d. 105
5. 917 ÷ 3  e. 205
6. 562 ÷ 8  f. 407
7. 243 ÷ 6  g. 207 R1
8. 728 ÷ 7  h. 103
9. 824 ÷ 8  i. 70 R2
10. 534 ÷ 5  j. 209
11. 814 ÷ 2  k. 106 R4
12. 627 ÷ 3  l. 40 R3
Zeros in the Quotient

Solve.

1. The fourth-grade class is taking a trip to the aquarium. There are 240 people going on the trip and they are taking 4 buses. How many people are on each bus?

2. For the dolphin show, 612 people sat in each section. If there are 6 rows in each section, how many people sat in each row?

3. Mrs. Garrett purchased 3 photos at the aquarium. She paid a total of $6.15. How much did each photo cost?

4. Mark displayed 850 postcards evenly on 8 racks. He placed the leftover cards on the counter. How many cards are on each rack and how many are on the counter?

5. Reasoning Mr. Laraket bought 6 pencils for $5.28. Without dividing, can you tell if each pencil cost more or less than $1.00? Explain your answer.
Zeros in the Quotient

Divide. Check your answers.

1. \(2 \overline{612}\)
2. \(5 \overline{543}\)
3. \(6 \overline{655}\)
4. \(4 \overline{816}\)
5. \(4 \overline{836}\)
6. \(7 \overline{762}\)
7. \(2 \overline{813}\)
8. \(6 \overline{485}\)
9. \(3 \overline{921}\)
10. \(2 \overline{417}\)
11. \(5 \overline{353}\)
12. \(4 \overline{419}\)
13. \(512 \div 5\)
14. \(735 \div 7\)
15. \(101 \div 2\)
16. \(622 \div 3\)

Problem Solving

17. The sea lion show at the zoo has six shows each day. In one day, 654 people saw the sea lion show. What was the average number of people at each show?
Zeros in the Quotient

Read these definitions.

- **whale watch** a trip to try to see whales
- **tour** a trip to see certain places or things
- **tour manager** a person who organizes tours
- **binoculars** special glasses that let you see things that are far away
- **tourist** a person who travels to a place to see interesting things

Complete the crossword puzzle. Use the words in bold type above.

**Across**

3. an instrument used to view faraway things
5. a woman or man who sets up trips to interesting places

**Down**

1. a voyage in search of huge ocean animals
2. someone who goes somewhere to look at the sights
4. a journey to interesting places
Problem-Solving Strategy: Work Backward

Read It  Look for information.

Lisa is thinking of a number. She divides the number by 5, multiplies by 2, subtracts 10, then adds 1. The result is 15. What is Lisa’s number?

Picture It  Work backward to find the number.

<table>
<thead>
<tr>
<th>15</th>
<th>−1</th>
<th>____</th>
<th>+10</th>
<th>____</th>
<th>÷ 2</th>
<th>____</th>
<th>× 5</th>
<th>____</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lisa’s result</td>
<td>Use the inverse of addition.</td>
<td>Use the inverse of subtraction.</td>
<td>Use the inverse of multiplication.</td>
<td>Use the inverse of division.</td>
<td>Lisa’s number</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Solve It  Use the table to solve the problem.

1. Solve each of the steps. Fill in the answers in the table above.

2. _____________ is Lisa’s number.

Try These!  Use the work backward strategy to solve.

3. On the soccer team, there are half as many third-graders as fourth-graders. There are 4 more fifth-graders than fourth-graders. If there are 12 third-graders, how many fifth-graders are there?

4. Emma buys a magazine for $3.75, a drink for $1.25, and a pack of mints for $0.75. If she has $3.25 left over, how much money did she begin with?

5. Jake rode his bike for 15 minutes to the store, 20 minutes to his friend’s house, 25 minutes to school, and 10 minutes back home. If he arrives home at 4:45, at what time did he leave?
**Problem-Solving Strategy:** Work Backward

**Solve.**

1. David is thinking of a number. He subtracts 4, divides by 8, adds 3, and multiplies by 2. The result is 10. What is David’s number?

2. On Sunday, Lars walked three times as far as he did on Saturday. On Monday, Lars walked 3 more miles than on Sunday. On Tuesday, Lars walked 2 less miles than on Monday. Lars walked 7 miles on Tuesday. How many miles did Lars walk on Saturday?

3. On a soccer team there are half as many fourth-graders as fifth-graders. There are 5 fewer sixth-graders than fifth-graders. If there are 9 sixth-graders, how many fourth-graders are there?

4. Louis is buying supplies to play a soccer game in the park. The shin guards cost ten dollars less than the ball does. The soccer ball costs half as much as the shoes do. The shoes cost $66. How much do the shin guards cost?

5. Rachael is thinking of a number. She adds 7, multiplies by 3, subtracts 5, and divides by 2. The result is 29. What is Rachael’s number?

*Show your work.*
Problem-Solving Strategy:
Work Backward

Read each problem and use a problem-solving strategy to answer each question.

**Problem** For the Fourth of July celebration, Balloon Emporium sold red, white, blue, and silver balloons. The store sold 13 more blue balloons than white balloons. The number of silver balloons was half the number of red balloons. One more red balloon was sold than blue balloons. The store sold 38 silver balloons.

1. How many red balloons were sold? Explain how you found your answer.

2. How many blue balloons were sold? Explain how you found your answer.

3. How many white balloons were sold? Explain how you found your answer.

4. **What if?** How would each of the amounts change if the number of silver balloons sold was 46 instead of 38?

**Problem** Rosalyn, Mark, Sylvia, Rick, and Jacob are cousins. Rosalyn is twice the age of Mark. Mark is 2 years older than Sylvia. Rick is 5 years older than Jacob. Sylvia is 6 years younger than Rick.

5. If you know that all the cousins are between the ages of 1 and 17, what are their possible ages? Explain how you found your answer.

6. If Rosalyn is 18 and the oldest of the five cousins, how old is Jacob? Explain how you found your answer.
Problem-Solving Strategy: Work Backward

Problem  Gregory collects animal trading cards. In his collection, he has twice as many cards of dogs as cards of cats. He has 5 more cards of cats than of birds. The number of cards of wild animals is 13 more than the number of cards of dogs in his collection. He has 75 cards of wild animals. How many cards of birds are in Gregory’s collection?

1. What type and quantity of cards do you know from the problem?

______________________________________________________________________________________

2. How can you use the Work Backward strategy to solve the problem?

______________________________________________________________________________________

______________________________________________________________________________________

______________________________________________________________________________________

3. How many cards of birds are in Gregory’s collection?

______________________________________________________________________________________

4. Write About It  How can you check your answer?

______________________________________________________________________________________

______________________________________________________________________________________

______________________________________________________________________________________

______________________________________________________________________________________
Problem-Solving Strategy: Work Backward

Solve.

On Friday Chris drove his car four times as far as he drove on Saturday. On Saturday, he drove 8 fewer miles than on Sunday. On Monday, he drove 3 more miles than on Sunday. Chris drove 12 miles on Monday. How many miles did Chris drive on Friday?

Work backward to solve.

- Monday = 12 miles
- Sunday = 3 fewer than Monday = $12 - 3 = 9$ miles
- Saturday = 8 fewer than Sunday = $9 - 8 = 1$ mile
- Friday = 4 times as far as Saturday = $1 \times 4 = 4$ miles

Chris drove 4 miles on Friday.

1. Julian is thinking of a number. He subtracts 23, divides by 3, adds 4, and multiplies by 2. The result is 14. What is Julian’s number?

   Think: What is the first operation I do to work backward?

   Show your work.

2. Blair bought art supplies. The paints cost four times as much as the brushes, which cost half of what the canvas cost. The canvas cost $36. How much did the paints cost?
Problem-Solving Strategy: Work Backward

Look at the pictures. Read the descriptions.

An aquarium is a place where you can see all kinds of fish.

Tropical fish are fish that live in warm parts of the ocean.

Jellyfish are sea animals with bodies you can see through.

A leafy sea dragon is a small sea animal that is related to sea horses.

A starfish is a star-shaped animal that lives at the edge of the ocean.

An angelfish is a colorful tropical fish.

Solve the riddles. Use the words in bold type above.

1. My name might make you think I am all white, but I am brightly colored. I am an ____________.

2. I never eat anything, but I am full of fish. I am an ____________.

3. We are fish that like nice warm water, but we do not like to take baths.
   We are ____________.

4. The beginning of my name makes me sound like a tree. The end of my name makes me sound like a monster. I look like a plant, but I am a sea animal. I am a ____________.

5. My name makes me sound like you could spread me on toast. I don’t come in a jar, though. I live in the ocean. I am a ____________.

6. My name makes me sound like something you would see in the sky, but the place to find me is at the beach. I am a ____________.
Divide Greater Numbers

3,158 ÷ 4 =

Step 1: Divide thousands if possible. Because 3 < 4, there are not enough thousands.

Step 2: Convert thousands to hundreds. Divide the hundreds.

Step 3: Bring down the tens. Divide the tens.

Step 4: Bring down the ones. Divide the ones.

789 R2

Estimate. Then divide.

1. 5)5,940  2. 2)1,295  3. 5)7,854  4. 3)10,395

5. 4)1,208  6. 7)9,481  7. 2)12,015  8. 6)$6,186

9. 4,532 ÷ 3  10. $5,648 ÷ 2  11. $45.35 ÷ 5  12. 12,728 ÷ 4


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Divide Greater Numbers

Use paper and pencil or a calculator to divide.

1. 4)3,124
2. 2)5,317
3. 3)2,145
4. 5)8,628

5. 2)1,572
6. 6)120.90
7. 8)3,648
8. 7)12,348

9. 9)7,596
10. 3)12,456
11. 5)11,139
12. 2)6,307

13. 56,138 ÷ 6
14. 2,015 ÷ 5
15. $685.16 ÷ 7$
16. 2,506 ÷ 4

Test Prep

17. The cost of 3 airline tickets was $1,035. What was the cost per ticket?

A $310  B $315
C $305  D $345

18. Joel keeps track of the number of miles he jogs. He jogs 4 miles each day that he jogs. At the end of the year Joel had jogged 1,284 miles. How many days did he jog that year?
Greatest Quotient Game

Materials: cards labeled 0–9
paper bag or box

One or more players can play this game.

Rules for 1 Player

• Place the ten digit cards labeled 0–9 in a bag or box.
• On a piece of paper, copy the division problem below.
• Draw a card from the bag. Write this digit as either the
divisor or a digit in the dividend. Once you choose where to
place the digit, it can not be changed.
• Return the card to the bag.
• Continue choosing cards until all the squares in the division
problem are filled.
• Solve the division problem.
• Check to see if you can arrange the digits to give a greater
quotient. If not, you were successful. You got the greatest
quotient!

Rules for 2 or More Players

• Follow the rules for 1 Player.
• Each player takes turns drawing a card from the bag to fill in
his or her division problem.
• The player with the greatest quotient wins.

1. How should you place the digits to try to have the greatest
quotient? Explain.
Divide Greater Numbers

Solve.

1. An art museum hosted a Van Gogh art exhibition. On one day, 3,762 people attended. If the same number of people attended each hour for 6 hours, how many people attended each hour?

2. Georgina bought 4 photos of paintings by Van Gogh. She spent a total of $95.80. If each photo was the same price, how much did each photo cost?

3. A country produced 49,276 books in one year. If the same number of books was produced every 3 months, how many books were produced every 3 months? (Hint: 1 year = 4 groups of 3 months)

4. Mrs. Kraus bought 7 books at the bookstore. She spent a total of $41.65. If each book was the same price, how much did each book cost?

5. Predict Karl read a book with 1,274 pages in 7 days. At this rate, could he read a 1,432-page book in 8 days? Explain your answer.
Divide Greater Numbers

Use paper and pencil or a calculator to divide.

Remember the steps:
- Divide the thousands, if possible.
- Divide the hundreds.
- Divide the tens.
- Divide the ones.
- Write the remainder.

1. \(2{\overline{3,463}}\)  
2. \(5{\overline{11,243}}\)

3. \(3{\overline{7,120}}\)  
4. \(4{\overline{3,406}}\)

5. \(7{\overline{6,495}}\)  
6. \(2{\overline{5,684}}\)

Mental Math: Compare. Write >, <, or = for each \(\bigcirc\).

7. \(600 \div 3 \bigcirc 800 \div 4\)  
8. \(5,000 \div 5 \bigcirc 100 \times 8\)

Algebra • Equations: Solve for \(n\).

9. \(n \div 9 = 600\)  
10. \(\$54.95 \div 5 = n\)  
11. \(3,200 \div n = 400\)

12. \(8,000 \div 8 = n\)  
13. \(n \div 7 = 30\)  
14. \((3,750 \div 3) - 60 = n\)

Problem Solving

15. Tim bought a new computer for \$1,248. He paid for the computer over 6 months, making equal payments each month. How much did Tim pay each month for his computer?

Show your work.
Divide Greater Numbers

Read the meanings of these terms.

<table>
<thead>
<tr>
<th>Term</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>up to 10 years old</td>
<td>ten years old or less</td>
</tr>
<tr>
<td>at least 10 years old</td>
<td>10 years old or more</td>
</tr>
<tr>
<td>twice the age</td>
<td>the age multiplied by 2</td>
</tr>
<tr>
<td>4 times the age</td>
<td>the age multiplied by 4</td>
</tr>
<tr>
<td>half the age</td>
<td>the age divided by 2</td>
</tr>
<tr>
<td>6 years older than</td>
<td>the age plus 6</td>
</tr>
</tbody>
</table>

Complete the sentences about the children. Use the words in bold type above.

1. Anthony is 5. Bakari is 11.
   Bakari is _________________ Anthony.

2. Carla is 12. Debra is 6.
   Debra is _________________ of Carla.

3. Erric is 8. Fred is 10.
   They could play on a team for boys _________________.

4. Galya is 3. Hal is 12.
   Hal is _________________ of Gayla.

5. Ingrid is 10. Lynn is 13.
   They could play on a team for girls _________________.

6. Kyle is 7. Luisa is 14.
   Luisa is _________________ of Kyle.
Divide. Check your answers.

1. \(4 \div 648\)  
2. \(5 \div 608\)  
3. \(789 \div 7 = \)_____

4. \(6 \div 372\)  
5. \(7 \div 678\)  
6. \(208 \div 4 = \)_____

7. \(4 \div 812\)  
8. \(6 \div 655\)  
9. \(750 \div 7 = \)_____

10. \(3 \div 7,752\)  
11. \(4 \div 3,742\)  
12. \(3,456 \div 9 = \)_____

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Divide. Check your answers.

13. 5\( \overline{6,234} \)
14. 8\( \overline{0.96} \)
15. \( \$14.22 \div 6 = \) _____

16. 9\( \overline{45.54} \)
17. 8\( \overline{231.44} \)
18. \( \$63.45 \div 9 = \) _____

Solve.

19. Megan is thinking of a number. She subtracts 3 from it, then multiplies by 2, then adds 10, and finally multiplies by 3. The result is 66. What number is Megan thinking of?

20. In the choir, there are twice as many altos as tenors. There are 3 more sopranos than tenors. If there are 20 altos, how many sopranos are there?
Chapter Resources
GRADE 4, CHAPTER 9

Contents

Chapter Pretest (3 pages)

Resources for Lessons 9.1 – 9.6 (6 pages/lesson)
- Reteach 9.1 – 9.6
- Practice 9.1 – 9.6
- Enrichment 9.1 – 9.6
- Problem Solving 9.1 – 9.6
- Homework 9.1 – 9.6
- English Learners 9.1 – 9.6

Chapter Test (2 pages)
Are You Ready?

Divide. Check your answers.

1. \(4 \div 72\)  
   \(18 \times 4 = 72\)

2. \(6 \div 45\)  
   \(7 \times 6 = 42\)
   \(42 + 3 = 45\)

3. \(3 \div 70\)  
   \(23 \times 3 = 69\)
   \(69 + 1 = 70\)

4. \(2 \div 56\)  
   \(28\)

5. \(3 \div 13\)  
   \(4 \div 1\)

6. \(6 \div 77\)  
   \(12 \div 5\)

7. \(4 \div 56\)  
   \(14\)

8. \(3 \div 93\)  
   \(31\)

9. \(5 \div 79\)  
   \(15 \div 4\)

Solve.

10. A number is divided by 4. What numbers could the remainder be? 
   
   1, 2, or 3
Check What You Know

Divide. Check your answers.

1. \(3 \div 642\)
   
   \[214 \times 3 = 642\]
   \[117 \times 6 = 702\]
   \[702 + 2 = 704\]
   
   \[597 \div 5 = 119 \text{ R} 2\]
   \[119 \times 5 = 595\]
   \[592 + 2 = 597\]

2. \(6 \div 704\)
   
   \[62 \times 6 = 372\]
   \[96 \times 7 = 672\]
   \[672 + 6 = 678\]
   
   \[208 \div 4 = 52\]
   \[52 \times 4 = 208\]

3. \(7 \div 678\)
   
   \[203 \times 3 = 609\]
   \[103 \times 4 = 412\]
   \[412 + 1 = 413\]
   
   \[545 \div 5 = 109\]
   \[109 \times 5 = 545\]

4. \(8 \div 413\)
   
   \[1,639 \times 6 = 9,834\]
   \[887 \times 3 = 2,661\]
   \[2,661 + 1 = 2,662\]
   
   \[1,234 \div 8 = 154 \text{ R} 2\]
   \[154 \times 8 = 1,232\]
   \[1,232 + 2 = 1,234\]
Divide. Check your answers.

13. \(780 \div 4 = 195\)
   \(780 \times 4 = 3120\)
   \(3120 + 2 = 3122\)

14. \(0.16 \div 6 = 0.0266\)
   \(0.16 \times 6 = 0.96\)

15. \(5.07 \div 3 = 1.69\)
   \(1.69 \times 3 = 5.07\)

16. \(4.08 \div 7 = 0.583\)
   \(4.08 \times 7 = 28.56\)

17. \(38.42 \div 6 = 6.4033\)
   \(38.42 \times 6 = 230.52\)

18. \(65.52 \div 9 = 7.28\)
   \(7.28 \times 9 = 65.52\)

Solve.

19. Mike is thinking of a number. He adds 1 to the number, then divides by 3, then subtracts 2, and finally multiplies by 4. The result is 28. What number is Mike thinking of?

    26

20. In the computer club, there are twice as many fifth-graders as third-graders. There are 5 fewer fourth-graders than fifth-graders. If there are 10 third-graders, how many fourth-graders are there?

    15 fourth-graders
**Three-Digit Quotients**

Find $635 \div 4$.

<table>
<thead>
<tr>
<th>Divide the hundreds.</th>
<th>Divide the tens.</th>
<th>Divide the ones.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1   4)635</td>
<td>15   4)635</td>
<td>158   4)635</td>
</tr>
<tr>
<td>4)635</td>
<td>4)635</td>
<td>4)635</td>
</tr>
<tr>
<td>−4↓</td>
<td>−4</td>
<td>−4</td>
</tr>
<tr>
<td>23</td>
<td>23</td>
<td>23</td>
</tr>
<tr>
<td>Compare 2 and 4.</td>
<td>Compare 3</td>
<td>Compare 3</td>
</tr>
<tr>
<td>Bring down 3.</td>
<td>−20↓</td>
<td>−35</td>
</tr>
</tbody>
</table>

Divide. Check your answers.

1. $121 \div 3 = 363$
2. $157 \div 4 = 628$
3. $163 \div 2 = 327$
4. $156 \div 3 = 470$
5. $142 \div 3 = 427$
6. $134 \div 5 = 674$
7. $164 \div 2 = 329$
8. $115 \div 5 = 578$
9. $153 \div 3 = 459$
10. $267 \div 2 = 535$
11. $129 \div 5 = 649$
12. $271 \div 3 = 814$
13. $217 \div 2 = 434$
14. $133 \div 4 = 535$
15. $137 \div 5 = 686$
16. $133 \div 6 = 802$
Three-Digit Quotients

Divide. Check your answers.

1. \(6 \div 692\) \(\overline{115 \text{ R}2}\)
2. \(4 \div 498\) \(\overline{124 \text{ R}2}\)
3. \(2 \div 783\) \(\overline{391 \text{ R}1}\)
4. \(7 \div 801\) \(\overline{114 \text{ R}3}\)
5. \(3 \div 642\) \(\overline{214}\)
6. \(5 \div 712\) \(\overline{142 \text{ R}2}\)
7. \(3 \div 858\) \(\overline{286}\)
8. \(2 \div 793\) \(\overline{396 \text{ R}1}\)
9. \(5 \div 758\) \(\overline{151 \text{ R}3}\)
10. \(6 \div 728\) \(\overline{121 \text{ R}2}\)
11. \(4 \div 549\) \(\overline{137 \text{ R}1}\)
12. \(3 \div 735\) \(\overline{245}\)
13. \(428 \div 3\) \(\overline{142 \text{ R}2}\)
14. \(543 \div 4\) \(\overline{135 \text{ R}3}\)
15. \(945 \div 5\) \(\overline{189}\)
16. \(674 \div 6\) \(\overline{112 \text{ R}2}\)

Test Prep

17. \(3 \div 538\) \(\boxed{D}\)
   A 112  C 172 R2
   B 119  D 179 R1

18. Anna used 635 beads to make 5 bracelets. She put the same number of beads on each bracelet. How many beads did each bracelet have?
   \(\boxed{127 \text{ beads}}\)
Division Jokester

Solve each division problem. Use the letter for each answer to complete the joke.

1. \(626 \div 2 = \boxed{313}\)  
   \(\text{A}\)

2. \(854 \div 7 = \boxed{122}\)  
   \(\text{O}\)

3. \(784 \div 4 = \boxed{196}\)  
   \(\text{C}\)

4. \(833 \div 7 = \boxed{119}\)  
   \(\text{S}\)

5. \(744 \div 3 = \boxed{248}\)  
   \(\text{E}\)

6. \(864 \div 6 = \boxed{144}\)  
   \(\text{T}\)

7. \(852 \div 2 = \boxed{426}\)  
   \(\text{L}\)

8. \(471 \div 3 = \boxed{157}\)  
   \(\text{U}\)

9. \(813 \div 3 = \boxed{271}\)  
   \(\text{M}\)

10. \(846 \div 3 = \boxed{282}\)  
    \(\text{W}\)

11. \(648 \div 4 = \boxed{162}\)  
    \(\text{N}\)

12. \(565 \div 5 = \boxed{113}\)  
    \(\text{Y}\)

What did the one calculator say to the other calculator?

\[
\begin{array}{cccccccc}
\text{Y} & \text{O} & \text{U} & \text{C} & \text{A} & \text{N} \\
113 & 122 & 157 & 196 & 313 & 162 \\
\text{A} & \text{L} & \text{W} & \text{A} & \text{Y} & \text{S} \\
313 & 426 & 282 & 313 & 113 & 119 \\
\text{C} & \text{O} & \text{U} & \text{N} & \text{T} & \text{O} & \text{N} \\
196 & 122 & 157 & 162 & 144 & 122 & 162 \\
\text{M} & \text{E} \\
271 & 248
\end{array}
\]
Three-Digit Quotients

Solve.

1. Joy has 665 photos in an album. There are 5 photos on each page. How many pages are in Joy’s photo album?
   
   133 pages

2. Carmella has 338 photos to put into an album. How many pages will she fill if she places 3 photos on each page? How many photos will she have left over?
   
   112 pages; 2 photos left over

3. Mr. Clark has 408 feet of string. He evenly divides the string into 4-foot pieces. How many pieces will he make? How much string will he have left over?
   
   102 pieces; no string left over

4. In art class, the students made beaded necklaces. They used 884 beads and had 12 beads left over. The teacher had bought 8 packs of beads. How many beads were in each pack?
   
   112 beads

5. Write About It The Gerard family drove 920 miles in 3 days. They drove the same number of miles the first 2 days and then drove 50 miles the third day. Explain how to find the number of miles they drove each day. To find the number of miles they drove each of the first two days, subtract 50 miles from the total number of miles, 920 miles (920 − 50 = 870). Then divide 870 by 2.
Three-Digit Quotients

Divide. Check your answers.

1. \( \underline{2)636} \) \( \boxed{318} \)
2. \( \underline{4)507} \) \( \boxed{126 \; R3} \)
3. \( \underline{6)735} \) \( \boxed{122 \; R3} \)
4. \( \underline{5)619} \) \( \boxed{123 \; R4} \)
5. \( \underline{3)428} \) \( \boxed{142 \; R2} \)
6. \( \underline{3)515} \) \( \boxed{171 \; R2} \)
7. \( \underline{5)842} \) \( \boxed{168 \; R2} \)
8. \( \underline{6)815} \) \( \boxed{135 \; R5} \)
9. \( \underline{3)705} \) \( \boxed{235} \)
10. \( \underline{8)942} \) \( \boxed{117 \; R6} \)
11. \( \underline{8)987} \) \( \boxed{123 \; R3} \)
12. \( \underline{7)945} \) \( \boxed{135} \)
13. \( \underline{4)738} \) \( \boxed{184 \; R2} \)
14. \( \underline{6)874} \) \( \boxed{145 \; R4} \)
15. \( \underline{3)672} \) \( \boxed{224} \)
16. \( \underline{2)735} \) \( \boxed{367 \; R1} \)

Problem Solving

17. Mary has 456 baseball cards in her collection. She can fit 4 cards on a page. How many pages will she fill in her album?

114 pages
Three-Digit Quotients

In English, some words sound the same but are spelled differently and have different meanings. Read the dictionary entries below.

fair **adjective** 1. pleasant to look at: a *fair maiden*. 2. free of clouds or storms: a *fair sky*. 3. showing honesty: a *fair judgment*. 4. neither good nor bad: *The movie was only fair*.

fair **noun** 1. a gathering for buying and selling things. 2. a large exhibition, often with games and rides.

fare **noun** 1. the money a passenger pays. 2. food and drink.

Write *fair* or *fare* to complete each sentence.

1. The rules were not ____________, so Rick stopped playing the game.

2. The ____________ at the hotel was very tasty.

3. Nina paid the ____________ to the driver and then found a seat on the bus.

4. Nori won a prize for his strawberries at the county ____________.

5. Alma painted a picture of a brave warrior and a ____________ maiden.

6. The judge made a ____________ decision.

7. The ballplayers had hoped for ____________ skies, but instead a storm came in.

8. Sari is a good soccer player but only a ____________ basketball player.
Place the First Digit of the Quotient

\[336 \div 4 = \text{[Blank]}\]

**Step 1:** Check the hundreds.
Because 3 < 4, there are not enough hundreds.

**Step 2:** Check the tens.
Because 33 > 4, place first digit in tens place. Divide the tens.

\[
\begin{align*}
4 & \overline{)336} \\
\underline{4} & \\
8 & \\
4 & \overline{)336} \\
-32 & \\
1 &
\end{align*}
\]

**Step 3:** Divide the ones.

\[
\begin{align*}
84 & \\
4 & \overline{)336} \\
-32 & \\
16 & \\
-16 & \\
0 &
\end{align*}
\]

Divide. Check your answers.

1. \(4)376\) 2. \(3)269\) 3. \(5)436\) 4. \(3)283\)

5. \(5)418\) 6. \(7)518\) 7. \(2)189\) 8. \(6)583\)

9. \(197 \div 4\) 10. \(132 \div 6\) 11. \(483 \div 5\) 12. \(326 \div 4\)

94 \(R1\) 89 \(R2\) 87 \(R1\) 94 \(R1\)

83 \(R3\) 74 \(R1\) 94 \(R1\) 97 \(R1\)

49 \(R1\) 22 \(R1\) 96 \(R3\) 81 \(R2\)

13. \(234 \div 3\) 14. \(357 \div 4\) 15. \(475 \div 5\) 16. \(538 \div 6\)

78 \(R1\) 89 \(R1\) 95 \(R1\) 89 \(R4\)
Place the First Digit of the Quotient

Divide. Check your answers.

1. \(5 \div 428\) \hspace{1cm} 2. \(4 \div 326\) \hspace{1cm} 3. \(3 \div 238\) \hspace{1cm} 4. \(7 \div 645\)

5. \(3 \div 165\) \hspace{1cm} 6. \(4 \div 239\) \hspace{1cm} 7. \(5 \div 485\) \hspace{1cm} 8. \(7 \div 538\)

9. \(6 \div 589\) \hspace{1cm} 10. \(2 \div 186\) \hspace{1cm} 11. \(4 \div 288\) \hspace{1cm} 12. \(8 \div 649\)

13. \(275 \div 3\) \hspace{1cm} 14. \(492 \div 5\) \hspace{1cm} 15. \(598 \div 6\) \hspace{1cm} 16. \(276 \div 4\)

17. \(5 \div 458\) \hspace{1cm} B

A 90 R2 \hspace{1cm} C 114 \hspace{1cm} D 89

18. Jake took a total of 144 pictures of insects with 6 rolls of film. Each roll contained the same number of pictures. How many pictures did Jake take with each roll?

24 pictures
Code Breaker

Detective Divide has asked your help on a secret mission. He was given these math problems that are in some secret code. He knows that in the division problems, each letter stands for a digit. The same letter stands for the same digit in every problem. Your job is to solve each division problem and break the code. When you are finished, read the letters in order from 0–9 to find a secret message. Good Luck!

Hints: The letter R means remainder and is not part of the code. Zeros can be found where a letter is subtracted from itself, and at the bottom of the subtraction when there is no remainder. The letter M stands for 1, the letter I stands for 2, and the letter L stands for 3.

<table>
<thead>
<tr>
<th>S</th>
<th>M</th>
<th>I</th>
<th>L</th>
<th>E</th>
<th>T</th>
<th>O</th>
<th>D</th>
<th>A</th>
<th>Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
</tr>
</tbody>
</table>

1. \[ \begin{array}{c}
D L \\
L)I M Y \\
- I M \\
\hline
Y \\
- Y \\
\hline
S
\end{array} \]

2. \[ \begin{array}{c}
D M \\
O)E I O \\
- E I \\
\hline
O \\
- O \\
\hline
S
\end{array} \]

3. \[ \begin{array}{c}
M M I R I \\
T)T O I \\
- T \\
\hline
O \\
- T \\
\hline
I
\end{array} \]

4. \[ \begin{array}{c}
M M Y R L \\
D)A L O \\
- D \\
\hline
M L \\
- D \\
\hline
0 O \\
- O L \\
\hline
L
\end{array} \]

5. \[ \begin{array}{c}
M D A R I \\
E)D M E \\
- E \\
\hline
L M \\
- I A \\
\hline
L E \\
- L I \\
\hline
O
\end{array} \]

6. \[ \begin{array}{c}
E I L \\
I)A E O \\
- A \\
\hline
E \\
- E \\
\hline
O \\
- O \\
\hline
S
\end{array} \]

219 ÷ 3 = 73

426 ÷ 6 = 71

562 ÷ 5 = 112 R2

836 ÷ 7 = 119 R3

714 ÷ 4 = 178 R2

846 ÷ 2 = 423
Place the First Digit of the Quotient

Use the data in the table for Problems 1–4.

1. In the video store, there are 4 rows of shelves for horror movies. If there are the same number of movies in each row, how many horror movies are in each row?

   **98 horror movies**

2. Half of the action movies are on DVD and the other half are on VHS. How many action DVDs does the video store have?

   **228 action DVDs**

3. How many shelves are needed for the New Releases if each shelf holds 8 videos?

   **54 shelves**

4. Allen sorts the comedy movies into 6 equal sections. How many movies does he have left over?

   **2 comedy movies**

5. **Reasoning** A three-digit number is divided by a one-digit number. The quotient is a two-digit number. What can you say about the dividend and divisor? Give an example of this situation.

   **The hundreds digit of the dividend is less than the divisor. 510 ÷ 6 = 85.**
Place the First Digit of the Quotient

Divide. Check your answers.

1. 2)158
2. 5)375
3. 3)164
4. 9)125
5. 4)185
6. 6)560
7. 2)143
8. 6)416
9. 3)184
10. 2)179
11. 5)348
12. 4)326

13. 215 ÷ 5
14. 138 ÷ 3
15. 163 ÷ 2
16. 275 ÷ 3

17. Carlos bought a large pack of 176 stickers. There are 8 sheets of stickers in the pack. Each sheet contains the same number of stickers. How many stickers are on each sheet?

22 stickers
Place the First Digit of the Quotient

The word left is the form of leave used to talk about the past. Left is used in several expressions with special meanings. Read these definitions.

| left over | not used; remaining |
| left out  | not included        |
| left behind | not taken on a trip |
| left alone | not bothered       |

Write an expression from the box to complete each sentence.

1. Reyna told her noisy little brother that she wanted to be left alone.
2. After giving everyone an orange, Wilson had 3 oranges left over.
3. Cammie cared for 2 cats left behind by a family that moved to Ohio.
4. A child left out of a game usually feels sad.
5. Jan discovered that she had the sunglasses she left behind for her vacation.
6. The sentence did not make sense because a word had been left out.
7. Khalid likes to be left alone when he does his math homework.
8. When Penny put her photos into 5 groups of the same size, she had 3 photos left over.
# Divide Money

**Find $6.95 ÷ 5.**

<table>
<thead>
<tr>
<th>Divide the dollars.</th>
<th>Divide the dimes.</th>
<th>Divide the pennies.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 [\overline{6.95}]</td>
<td>1 3 [\overline{6.95}]</td>
<td>$1.39 [\overline{6.95}]</td>
</tr>
<tr>
<td>5 [\overline{\text{5}}]</td>
<td>5 [\overline{\text{5}}]</td>
<td>5 [\overline{\text{5}}]</td>
</tr>
<tr>
<td>10</td>
<td>19</td>
<td>19</td>
</tr>
<tr>
<td>5</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>1</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

Place the dollar sign and the decimal point in the quotient.

**Estimate. Then divide.**

<table>
<thead>
<tr>
<th>1. [\text{3} \overline{\text{6.42}}]</th>
<th>2. [\text{2} \overline{\text{5.32}}]</th>
<th>3. [\text{5} \overline{\text{3.80}}]</th>
<th>4. [\text{3} \overline{\text{8.34}}]</th>
</tr>
</thead>
<tbody>
<tr>
<td>[\text{2.14}]</td>
<td>[\text{2.66}]</td>
<td>[\text{0.76}]</td>
<td>[\text{2.78}]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5. [\text{4} \overline{\text{5.40}}]</th>
<th>6. [\text{7} \overline{\text{9.73}}]</th>
<th>7. [\text{2} \overline{\text{5.38}}]</th>
<th>8. [\text{6} \overline{\text{7.68}}]</th>
</tr>
</thead>
<tbody>
<tr>
<td>[\text{1.35}]</td>
<td>[\text{1.39}]</td>
<td>[\text{2.69}]</td>
<td>[\text{1.28}]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>9. [\text{3} \overline{\text{1.32}}]</th>
<th>10. [\text{2} \overline{\text{6.58}}]</th>
<th>11. [\text{5} \overline{\text{85}}]</th>
<th>12. [\text{4} \overline{\text{6.12}}]</th>
</tr>
</thead>
<tbody>
<tr>
<td>[\text{0.44}]</td>
<td>[\text{3.29}]</td>
<td>[\text{17}]</td>
<td>[\text{1.53}]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>13. [\text{2} \overline{\text{0.98}}]</th>
<th>14. [\text{3} \overline{\text{1.65}}]</th>
<th>15. [\text{4} \overline{\text{0.56}}]</th>
<th>16. [\text{5} \overline{\text{9.85}}]</th>
</tr>
</thead>
<tbody>
<tr>
<td>[\text{0.49}]</td>
<td>[\text{0.55}]</td>
<td>[\text{0.14}]</td>
<td>[\text{1.97}]</td>
</tr>
</tbody>
</table>
Divide Money

Estimate. Then divide.

1. \(5 \div \$5.65\)  
2. \(2 \div \$4.32\)  
3. \(3 \div \$0.78\)  
4. \(4 \div \$5.16\)  

5. \(6 \div \$8.46\)  
6. \(2 \div \$58\)  
7. \(7 \div \$9.38\)  
8. \(6 \div \$0.96\)  

9. \(4 \div \$7.52\)  
10. \(5 \div \$7.80\)  
11. \(2 \div \$4.28\)  
12. \(6 \div \$8.46\)  

13. \$6.85 \div 5\)  
14. \$7.36 \div 4\)  
15. \$0.78 \div 3\)  
16. \$7.98 \div 6\)  

17. \(3 \div \$9.75\)  
A \$3.00  
B \$6.45  
C \$3.25  
D \$4.50  

18. Mark and his friend paid $8.98 for lunch. They evenly split the lunch bill between them. How much did each pay for lunch?

\$4.49
Bargain Shopping

Edwin has $20 to spend on school supplies. If he has enough money left over after he buys the supplies he needs, he can buy a baseball hat. There are three stores where Edwin can shop. Below is a list of the supplies Edwin needs, advertisements from each of the three stores, and the baseball hat that he wants to buy.

Help Edwin decide at which store he should buy each item so that he spends the least amount of money. Then decide if Edwin has enough money left over to buy the baseball hat.

**Hint:** If a store sells 3 pencils, for $3.00, Edwin can buy 1 pencil at that store for $1.00.

### School Supplies Needed
- 4 pencils
- 2 pens
- 8 markers
- a pack of paper
- 3 notebooks

### Supplies Plus
**The Big 5 Sale!**
- 5 pencils for $3.90
- 5 pens for $6.10
- 5 notebooks for $4.90
- 5 markers for $4.10
- 5 packs of paper for $6.15

### School Store
**BACK TO SCHOOL SALE**
- 8 pencils for $6.48
- 3 pens for $3.36
- 4 notebooks for $4.12
- 3 markers for $2.22
- 4 packs of paper for $5.00

### Paper, Pens, Etc.
**$4 Sale**
- 6 pencils for $4.56
- 4 notebooks for $4.60
- 3 packs of paper for $4.02
- 4 pens for $4.44
- 6 markers for $4.50

1. At which stores should Edwin buy each item? **For the best bargain, he should buy pencils and pens at Paper, Pens, Etc., notebooks and paper at Supplies Plus, and markers at the school store.**

2. How much will Edwin spend on school supplies? **$15.35**

3. Does Edwin have enough left over to buy the baseball hat? Explain. **Yes; he has $4.65 left over.**
Divide Money

Solve.

1. At the grocery store, Jack bought 3 boxes of cereal for $9.96. If each box cost the same amount, how much did each box of cereal cost?
   
   $3.32

2. Heidi bought a bag of oranges for $4.69. There were 7 oranges in the bag. How much did each orange cost?
   
   $0.67

3. A 5-lb bag of potatoes costs $5.65. What is the price per pound for the potatoes?
   
   $1.13

4. **Multistep** Gus bought 8 cans of cat food and a cat toy for $8.73. The cat toy cost $2.49. How much did each can of cat food cost?
   
   $0.78

5. **You Decide** Which store has the better deal? Explain.

<table>
<thead>
<tr>
<th><strong>Toys and Everything</strong></th>
<th><strong>Sticker Mania</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>8 stickers for $2.32</td>
<td>6 stickers for $1.62</td>
</tr>
</tbody>
</table>

**Sticker Mania; The cost for 1 sticker at Toys and Everything is $0.29. The cost for 1 sticker at Sticker Mania is $0.27. $0.27 is less than $0.29.**
Divide Money

Divide. Check your answers.  

1. $2.56  
   2) $5.12  

2. $2.17  
   3) $6.51  

3. $1.29  
   5) $6.45  

4. $1.71  
   3) $5.13  

5. $1.62  
   4) $6.48  

6. $1.34  
   7) $9.38  

7. $0.55  
   3) $1.65  

8. $0.98  
   6) $5.88  

9. $1.42  
   3) $4.26  

10. $4.12  
    2) $8.24  

11. $19  
    5) $95  

12. $1.81  
    4) $7.24  

13. $5.08 \div 4  
    $1.27  

14. $1.83 \div 3  
    $0.61  

15. $2.94 \div 2  
    $1.47  

16. $5.82 \div 3  
    $1.94  

Problem Solving

17. Ramon bought 4 glasses of lemonade for his family. He paid $3.56 for all 4 glasses. What was the price for one glass of lemonade?

$0.89
Divide Money

Read this information.

Jorge and Scott must divide $1.80 evenly.

First they **estimate** the answer. $1.80 is close to $2.00. $2.00 divided by 2 equals $1.00. Each boy will get about one dollar.

Next, they **divide** as if they were dividing whole numbers.

\[
\begin{array}{c}
\text{90} \\
2 \overline{)1.80}
\end{array}
\]

Then they write the **dollar sign** to the left of the answer, and put a **decimal point** above the decimal point in the dividend.

\[
\begin{array}{c}
\text{.90} \\
2 \overline{)1.80}
\end{array}
\]

The answer is 90 cents. That is close to the estimate of 1 dollar, so it is a **reasonable** answer.

Use words from the box to fill the blanks.

<table>
<thead>
<tr>
<th>divide</th>
<th>dollar sign</th>
<th>decimal point</th>
<th>reasonable</th>
<th>estimate</th>
</tr>
</thead>
</table>

Iris and Sari must divide $3.90 evenly.

1. First, they **estimate** the amount each of them will get.

2. Next, they write the numbers as a division problem.

   They **divide** $3.90 by 2.

3. After that, they write a **dollar sign** to the left of the quotient.

4. Then they place a **decimal point** above the decimal point in the dividend.

5. Finally, they check the quotient against their estimate to make sure the answer is **reasonable**.
Zeros in the Quotient

\[
539 \div 5 = \underline{\phantom{0000}}
\]

Divide the hundreds. Bring down the tens. Divide the tens. Bring down the ones. Divide the ones.

\[
\begin{array}{c|c|c}
\hline
& \text{Multiply.} & \text{Multiply.} \\
1 & 1 & 10 \\
5 \overline{)539} & 5 \overline{)539} & 5 \overline{)539} \\
\hline
\text{1} & \times 5 = 5 & 0 \times 5 = 0 \\
\text{Subtract.} & 5 \overline{)539} & 5 \overline{)539} \\
\text{5 – 5 = 0} & \underline{5} & \underline{5} \\
\text{Compare.} & 0 & 3 \\
\text{0 < 5} & \underline{3} & \underline{3} \leq 5 \\
\hline
\end{array}
\]


\[
\begin{array}{c|c|c|c}
\hline
\hline
& \text{Multiply.} & \text{Multiply.} & \text{Write the remainder.} \\
107 & 7 \times 5 = 35 & 7 \times 5 = 35 \\
5 \overline{)539} & 5 \overline{)539} & 5 \overline{)539} \\
\hline
\text{5} & \underline{5} & \underline{5} & 39 – 35 = 4 \\
\text{Subtract.} & \underline{3} & \underline{3} \leq 5 \\
3 & 3 \leq 5 & 4 \leq 5 \\
\hline
\end{array}
\]

Divide. Check your answers.

1. \(7 \overline{)744}\) 2. \(2 \overline{)615}\) 3. \(3 \overline{)318}\) 4. \(8 \overline{)859}\)

5. \(4 \overline{)813}\) 6. \(7 \overline{)564}\) 7. \(2 \overline{)321}\) 8. \(6 \overline{)624}\)

9. \(3 \overline{)920}\) 10. \(2 \overline{)410}\) 11. \(5 \overline{)548}\) 12. \(4 \overline{)835}\)

13. \(6 \overline{)654}\) 14. \(8 \overline{)723}\) 15. \(7 \overline{)745}\) 16. \(3 \overline{)307}\)

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Zeros in the Quotient

Divide. Check your answers.

1. $4 \div 812 = 102$  
2. $2 \div 204 = 107$  
3. $6 \div 421 = 70 \text{ R}1$

4. $3 \div 314 = 104 \text{ R}2$
5. $8 \div 824 = 103$
6. $7 \div 756 = 108$
7. $5 \div 532 = 106 \text{ R}2$

8. $7 \div 425 = 60 \text{ R}5$
9. $6 \div 618 = 103$
10. $4 \div 835 = 208 \text{ R}3$
11. $2 \div 611 = 305 \text{ R}1$

12. $143 \div 7 = 20 \text{ R}3$
13. $543 \div 5 = 108 \text{ R}3$
14. $212 \div 3 = 70 \text{ R}2$
15. $945 \div 9 = 105$

16. During one 8-hour period, 824 people visited the whale exhibit. What was the average number of visitors per hour on this day?

103 visitors

---

Test Prep

17. $3 \div 320$

A. 101 R2  
B. 106 R2  
C. 121  
D. 117

B

18. During one 8-hour period, 824 people visited the whale exhibit. What was the average number of visitors per hour on this day?

103 visitors
Match the division problem on the left with the correct quotient on the right.

1. $945 \div 9$ \hspace{1cm} d \hspace{1cm} a. $305 \text{ R}2$

2. $615 \div 3$ \hspace{1cm} e \hspace{1cm} b. $70 \text{ R}1$

3. $415 \div 2$ \hspace{1cm} g \hspace{1cm} c. $104$

4. $281 \div 4$ \hspace{1cm} b \hspace{1cm} d. $105$

5. $917 \div 3$ \hspace{1cm} a \hspace{1cm} e. $205$

6. $562 \div 8$ \hspace{1cm} i \hspace{1cm} f. $407$

7. $243 \div 6$ \hspace{1cm} l \hspace{1cm} g. $207 \text{ R}1$

8. $728 \div 7$ \hspace{1cm} c \hspace{1cm} h. $103$

9. $824 \div 8$ \hspace{1cm} h \hspace{1cm} i. $70 \text{ R}2$

10. $534 \div 5$ \hspace{1cm} k \hspace{1cm} j. $209$

11. $814 \div 2$ \hspace{1cm} f \hspace{1cm} k. $106 \text{ R}4$

12. $627 \div 3$ \hspace{1cm} j \hspace{1cm} l. $40 \text{ R}3$
Zeros in the Quotient

Solve.

1. The fourth-grade class is taking a trip to the aquarium. There are 240 people going on the trip and they are taking 4 buses. How many people are on each bus?

   **60 people**

2. For the dolphin show, 612 people sat in each section. If there are 6 rows in each section, how many people sat in each row?

   **102 people**

3. Mrs. Garrett purchased 3 photos at the aquarium. She paid a total of $6.15. How much did each photo cost?

   **$2.05**

4. Mark displayed 850 postcards evenly on 8 racks. He placed the leftover cards on the counter. How many cards are on each rack and how many are on the counter?

   **106 postcards on each rack; 2 cards on the counter**

5. **Reasoning** Mr. Laraket bought 6 pencils for $5.28. Without dividing, can you tell if each pencil cost more or less than $1.00? Explain your answer.

   **Less than $1.00. You can tell by looking at the first digit: 6 is greater than 5, so the first digit will be placed in the tenths place and the answer will be less than $1.00.**
Zeros in the Quotient

Divide. Check your answers.

1. \(2 \div 612\) \(306\) \(108\) \(R3\)
2. \(5 \div 543\)
3. \(6 \div 655\) \(109\) \(R1\)
4. \(4 \div 816\) \(204\)
5. \(4 \div 836\) \(209\)
6. \(7 \div 762\) \(108\) \(R6\)
7. \(2 \div 813\) \(406\) \(R1\)
8. \(6 \div 485\) \(80\) \(R5\)
9. \(3 \div 921\) \(307\)
10. \(2 \div 417\) \(208\) \(R1\)
11. \(5 \div 353\) \(70\) \(R3\)
12. \(4 \div 419\) \(104\) \(R3\)
13. \(512 \div 5\) \(102\) \(R2\)
14. \(735 \div 7\) \(105\)
15. \(101 \div 2\) \(50\) \(R1\)
16. \(622 \div 3\) \(207\) \(R1\)

Problem Solving

17. The sea lion show at the zoo has six shows each day. In one day, 654 people saw the sea lion show. What was the average number of people at each show?

109 people
Zeros in the Quotient

Read these definitions.

<table>
<thead>
<tr>
<th>Word</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>whale watch</td>
<td>a trip to try to see whales</td>
</tr>
<tr>
<td>tour</td>
<td>a trip to see certain places or things</td>
</tr>
<tr>
<td>tour manager</td>
<td>a person who organizes tours</td>
</tr>
<tr>
<td>binoculars</td>
<td>special glasses that let you see things that are far away</td>
</tr>
<tr>
<td>tourist</td>
<td>a person who travels to a place to see interesting things</td>
</tr>
</tbody>
</table>

Complete the crossword puzzle. Use the words in bold type above.

Across

3. an instrument used to view faraway things
5. a woman or man who sets up trips to interesting places

Down

1. a voyage in search of huge ocean animals
2. someone who goes somewhere to look at the sights
4. a journey to interesting places
Problem-Solving Strategy:
Work Backward

Read It Look for information.
Lisa is thinking of a number. She divides the number by 5, multiplies by 2, subtracts 10, then adds 1. The result is 15. What is Lisa’s number?

Picture It Work backward to find the number.

<table>
<thead>
<tr>
<th>15</th>
<th>−1</th>
<th>14</th>
<th>+10</th>
<th>24</th>
<th>÷ 2</th>
<th>12</th>
<th>× 5</th>
<th>60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lisa’s result</td>
<td>Use the inverse of addition.</td>
<td>Use the inverse of subtraction.</td>
<td>Use the inverse of multiplication.</td>
<td>Use the inverse of division.</td>
<td>Lisa’s number</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Solve It Use the table to solve the problem.

1. Solve each of the steps. Fill in the answers in the table above.
2. __________ is Lisa’s number.

Try These! Use the work backward strategy to solve.

3. On the soccer team, there are half as many third-graders as fourth-graders. There are 4 more fifth-graders than fourth-graders. If there are 12 third-graders, how many fifth-graders are there?

4. Emma buys a magazine for $3.75, a drink for $1.25, and a pack of mints for $0.75. If she has $3.25 left over, how much money did she begin with?

5. Jake rode his bike for 15 minutes to the store, 20 minutes to his friend’s house, 25 minutes to school, and 10 minutes back home. If he arrives home at 4:45, at what time did he leave?

Show your work.

28 fifth-graders

$9.00

3:35
Problem-Solving Strategy: Work Backward

Solve.

1. David is thinking of a number. He subtracts 4, divides by 8, adds 3, and multiplies by 2. The result is 10. What is David’s number?

2. On Sunday, Lars walked three times as far as he did on Saturday. On Monday, Lars walked 3 more miles than on Sunday. On Tuesday, Lars walked 2 less miles than on Monday. Lars walked 7 miles on Tuesday. How many miles did Lars walk on Saturday?

3. On a soccer team there are half as many fourth-graders as fifth-graders. There are 5 fewer sixth-graders than fifth-graders. If there are 9 sixth-graders, how many fourth-graders are there?

4. Louis is buying supplies to play a soccer game in the park. The shin guards cost ten dollars less than the ball does. The soccer ball costs half as much as the shoes do. The shoes cost $66. How much do the shin guards cost?

5. Rachael is thinking of a number. She adds 7, multiplies by 3, subtracts 5, and divides by 2. The result is 29. What is Rachael’s number?
Problem-Solving Strategy:
Work Backward

Read each problem and use a problem-solving strategy to answer each question. Explanations may vary.

Problem For the Fourth of July celebration, Balloon Emporium sold red, white, blue, and silver balloons. The store sold 13 more blue balloons than white balloons. The number of silver balloons was half the number of red balloons. One more red balloon was sold than blue balloons. The store sold 38 silver balloons.

1. How many red balloons were sold? Explain how you found your answer.
   76 red balloons; I found 38 \( \times 2 \).

2. How many blue balloons were sold? Explain how you found your answer.
   75 blue balloons; I found 76 – 1.

3. How many white balloons were sold? Explain how you found your answer.
   62 white balloons; I found 75 – 13.

4. What if? How would each of the amounts change if the number of silver balloons sold was 46 instead of 38?
   There would be 92 red, 78 white, 91 blue, and 46 silver balloons.

Problem Rosalyn, Mark, Sylvia, Rick, and Jacob are cousins. Rosalyn is twice the age of Mark. Mark is 2 years older than Sylvia. Rick is 5 years older than Jacob. Sylvia is 6 years younger than Rick.

5. If you know that all the cousins are between the ages of 1 and 17, what are their possible ages? Explain how you found your answer.
   Rosalyn 16, Mark 8, Sylvia 6, Jacob 7, Rick 12

6. If Rosalyn is 18 and the oldest of the five cousins, how old is Jacob? Explain how you found your answer.
   8 years old; Explanations may vary.
Problem-Solving Strategy: Work Backward

Problem Gregory collects animal trading cards. In his collection, he has twice as many cards of dogs as cards of cats. He has 5 more cards of cats than of birds. The number of cards of wild animals is 13 more than the number of cards of dogs in his collection. He has 75 cards of wild animals. How many cards of birds are in Gregory’s collection?

1. What type and quantity of cards do you know from the problem?
   75 cards of wild animals

2. How can you use the Work Backward strategy to solve the problem?
   Begin with the number of cards of wild animals and use inverse operations to find the number of cards of birds.

3. How many cards of birds are in Gregory’s collection?
   26 cards of birds

4. Write About It How can you check your answer?
   Possible answer: Work forward from the number of cards of birds and see if the number of cards of wild animals equals 75.
Problem-Solving Strategy: Work Backward

Solve.

On Friday Chris drove his car four times as far as he drove on Saturday. On Saturday, he drove 8 fewer miles than on Sunday. On Monday, he drove 3 more miles than on Sunday. Chris drove 12 miles on Monday. How many miles did Chris drive on Friday?

Work backward to solve.

- Monday = 12 miles
- Sunday = 3 fewer than Monday = 12 – 3 = 9 miles
- Saturday = 8 fewer than Sunday = 9 – 8 = 1 mile
- Friday = 4 times as far as Saturday = 1 × 4 = 4 miles

Chris drove 4 miles on Friday.

1. Julian is thinking of a number. He subtracts 23, divides by 3, adds 4, and multiplies by 2. The result is 14. What is Julian’s number?

   **Think:** What is the first operation I do to work backward?

   **32**

2. Blair bought art supplies. The paints cost four times as much as the brushes, which cost half of what the canvas cost. The canvas cost $36. How much did the paints cost?

   **$72**
Problem-Solving Strategy: 
Work Backward

Look at the pictures. Read the descriptions.

<table>
<thead>
<tr>
<th><strong>An aquarium</strong> is a place where you can see all kinds of fish.</th>
<th><strong>Tropical fish</strong> are fish that live in warm parts of the ocean.</th>
<th><strong>Jellyfish</strong> are sea animals with bodies you can see through.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A leafy sea dragon</strong> is a small sea animal that is related to sea horses.</td>
<td><strong>A starfish</strong> is a star-shaped animal that lives at the edge of the ocean.</td>
<td><strong>An angelfish</strong> is a colorful tropical fish.</td>
</tr>
</tbody>
</table>

Solve the riddles. Use the words in bold type above.

1. My name might make you think I am all white, but I am brightly colored. I am an **angelfish**.

2. I never eat anything, but I am full of fish. I am an **aquarium**.

3. We are fish that like nice warm water, but we do not like to take baths. We are **tropical fish**.

4. The beginning of my name makes me sound like a tree. The end of my name makes me sound like a monster. I look like a plant, but I am a sea animal. I am a **leafy sea dragon**.

5. My name makes me sound like you could spread me on toast. I don’t come in a jar, though. I live in the ocean. I am a **jellyfish**.

6. My name makes me sound like something you would see in the sky, but the place to find me is at the beach. I am a **starfish**.
Divide Greater Numbers

3,158 ÷ 4 =

Step 1: Divide thousands if possible. Because 3 < 4, there are not enough thousands.

Step 2: Convert thousands to hundreds. Divide the hundreds.

Step 3: Bring down the tens. Divide the tens.

Step 4: Bring down the ones. Divide the ones.

Estimate. Then divide.

1. 1,200; 1,188  2. 500; 647 R1  3. 1,600; 1,570 R4  4. 3,500; 3,465
   5)5,940  2)1,295  5)7,854  3)10,395

5. 300; 302  6. 1,400; 1,354 R3  7. 6,000; 6,007 R1  8. $1,000; $1,031
   4)1,208  7)9,481  2)12,015  6)$6,186

9. 4,532 ÷ 3  10. $5,648 ÷ 2  11. $45.35 ÷ 5  12. 12,728 ÷ 4
   1,500; 1,510 R2  $3,000; $2,824  $9; $9.07  3,000; 3,182

   600; 610  600; 674  1,000; 1,253  7,000; 6,669

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Divide Greater Numbers

Use paper and pencil or a calculator to divide.

1. 4)3,124  2. 2)5,317  3. 3)2,145  4. 5)8,628
   781  2,658 R1  $715  1,725 R3

5. 2)1,572  6. 6)$120.90  7. 8)3,648  8. 7)$12,348
   786  $20.15  456  $1,764

9. 9)7,596  10. 3)12,456  11. 5)11,139  12. 2)6,307
   844  4,152  2227 R4  3153 R1

13. 56,138 ÷ 6  14. 2,015 ÷ 5  15. $685.16 ÷ 7  16. 2,506 ÷ 4
   9,356 R2  403  $97.88  626 R2

Test Prep

17. The cost of 3 airline tickets was $1,035. What was the cost per ticket?

A $310  B $315  C $305  D $345

18. Joel keeps track of the number of miles he jogs. He jogs 4 miles each day that he jogs. At the end of the year Joel had jogged 1,284 miles. How many days did he jog that year?

321 days
Greatest Quotient Game

Materials: cards labeled 0–9
paper bag or box

One or more players can play this game.

Rules for 1 Player

• Place the ten digit cards labeled 0–9 in a bag or box.
• On a piece of paper, copy the division problem below.
• Draw a card from the bag. Write this digit as either the divisor or a digit in the dividend. Once you choose where to place the digit, it can not be changed.
• Return the card to the bag.
• Continue choosing cards until all the squares in the division problem are filled.
• Solve the division problem.
• Check to see if you can arrange the digits to give a greater quotient. If not, you were successful. You got the greatest quotient!

Rules for 2 or More Players

• Follow the rules for 1 Player.
• Each player takes turns drawing a card from the bag to fill in his or her division problem.
• The player with the greatest quotient wins.

1. How should you place the digits to try to have the greatest quotient? Explain.

   Possible explanation: You should place the lowest digit in the divisor and the greatest digit in the thousands place of the dividend.
Divide Greater Numbers

Solve.

1. An art museum hosted a Van Gogh art exhibition. On one day, 3,762 people attended. If the same number of people attended each hour for 6 hours, how many people attended each hour?

   \[ \text{627 people} \]

2. Georgina bought 4 photos of paintings by Van Gogh. She spent a total of $95.80. If each photo was the same price, how much did each photo cost?

   \[ \text{\$23.95} \]

3. A country produced 49,276 books in one year. If the same number of books was produced every 3 months, how many books were produced every 3 months? (Hint: 1 year = 4 groups of 3 months)

   \[ \text{12,319 books} \]

4. Mrs. Kraus bought 7 books at the bookstore. She spent a total of $41.65. If each book was the same price, how much did each book cost?

   \[ \text{\$5.95} \]

5. **Predict** Karl read a book with 1,274 pages in 7 days. At this rate, could he read a 1,432-page book in 8 days? Explain your answer.

   **Yes; With the 1,274-page book, he read 182 pages a day. To read 1,432 pages in 8 days, he would have to read 179 pages a day. 179 is less than 182.**
Divide Greater Numbers

Use paper and pencil or a calculator to divide.

**Problem Solving**

15. Tim bought a new computer for $1,248. He paid for the computer over 6 months, making equal payments each month. How much did Tim pay each month for his computer?

$208 each month
Divide Greater Numbers

Read the meanings of these terms.

<table>
<thead>
<tr>
<th>Term</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>up to 10 years old</td>
<td>ten years old or less</td>
</tr>
<tr>
<td>at least 10 years old</td>
<td>10 years old or more</td>
</tr>
<tr>
<td>twice the age</td>
<td>the age multiplied by 2</td>
</tr>
<tr>
<td>4 times the age</td>
<td>the age multiplied by 4</td>
</tr>
<tr>
<td>half the age</td>
<td>the age divided by 2</td>
</tr>
<tr>
<td>6 years older than</td>
<td>the age plus 6</td>
</tr>
</tbody>
</table>

Complete the sentences about the children.
Use the words in bold type above.

1. Anthony is 5. Bakari is 11.
   Bakari is ___________ Anthony.

2. Carla is 12. Debra is 6.
   Debra is ___________ of Carla.

3. Erric is 8. Fred is 10.
   They could play on a team for boys ___________.

4. Galya is 3. Hal is 12.
   Hal is ___________ of Gayla.

5. Ingrid is 10. Lynn is 13.
   They could play on a team for girls ___________.

6. Kyle is 7. Luisa is 14.
   Luisa is ___________ of Kyle.
Divide. Check your answers.

1. \(48 \div 3 = 16\)
   \[162 \times 4 = 648\]
2. \(60 \div 5 = 12\)
   \[121 \times 5 = 605\]
3. \(789 \div 7 = 112\) \(\text{R}5\)
   \[112 \times 7 = 784\]
   \[605 + 3 = 608\]
   \[784 + 5 = 789\]

4. \(372 \div 6 = 62\)
   \[62 \times 6 = 372\]
5. \(678 \div 7 = 96\) \(\text{R}6\)
   \[96 \times 7 = 672\]
   \[672 + 6 = 678\]
6. \(208 \div 4 = 52\)
   \[52 \times 4 = 208\]

7. \(812 \div 4 = 203\)
   \[203 \times 4 = 812\]
8. \(655 \div 6 = 109\) \(\text{R}1\)
   \[109 \times 6 = 654\]
   \[654 + 1 = 655\]
   \[749 + 1 = 750\]
9. \(750 \div 7 = 107\) \(\text{R}1\)
   \[107 \times 7 = 749\]

10. \(7,752 \div 3 = 2,584\)
    \[2,584 \times 3 = 7,752\]
11. \(3,740 \div 4 = 935\) \(\text{R}2\)
    \[935 \times 4 = 3,740\]
    \[3,740 + 2 = 3,742\]
12. \(3,456 \div 9 = 384\)
    \[384 \times 9 = 3,456\]
Divide. Check your answers.

13. \( \frac{5}{6234} \)
   \[ \frac{1246}{135} = \text{R}4 \]

14. \( \frac{8}{0.96} \)
   \[ \frac{0.12}{14} = \]

15. \( \frac{14.22}{6} = \frac{2.37}{15} \)

16. \( \frac{9}{45.54} \)
   \[ \frac{5.06}{16} = \]

17. \( \frac{8}{231.44} \)
   \[ \frac{28.93}{17} = \]

18. \( \frac{63.45}{9} = \frac{7.05}{18} \)

Solve.

19. Megan is thinking of a number. She subtracts 3 from it, then multiplies by 2, then adds 10, and finally multiplies by 3. The result is 66. What number is Megan thinking of?

20. In the choir, there are twice as many altos as tenors. There are 3 more sopranos than tenors. If there are 20 altos, how many sopranos are there?