

- **Adding Numbers with More Than Three Digits**
- **Checking One-Digit Division**

Adding Numbers with More Than Three Digits

- When writing whole numbers in columns, carefully line-up digits starting with the ones digit in each number.

Example: $467 + 589 + 1060 + 23$

$$\begin{array}{r} 467 \\ 589 \\ 1060 \\ + 23 \\ \hline \end{array}$$

Checking One-Digit Division

- We can check a division answer by multiplying the numbers outside the division box.

Example: $\begin{array}{r} 5 \\ 3 \overline{)15} \end{array}$ Check: $5 \times 3 = 15$

Practice:

Add.

1. $\begin{array}{r} 1234 \\ + 607 \\ \hline \end{array}$

2. $\begin{array}{r} 47,019 \\ + 21,598 \\ \hline \end{array}$

3. $\begin{array}{r} 405,679 \\ + 319,477 \\ \hline \end{array}$

Divide. Check each answer by multiplying.

4. $\begin{array}{r} 3 \overline{)24} \end{array}$ $\begin{array}{r} \square \\ \times 3 \\ \hline \end{array}$

5. $\begin{array}{r} 7 \overline{)49} \end{array}$ $\begin{array}{r} \square \\ \times 7 \\ \hline \end{array}$

6. $\begin{array}{r} 6 \overline{)54} \end{array}$ $\begin{array}{r} \square \\ \times 6 \\ \hline \end{array}$

7. $\begin{array}{r} 9 \overline{)27} \end{array}$ $\begin{array}{r} \square \\ \times 9 \\ \hline \end{array}$

- **Subtracting Numbers with More Than Three Digits**
- **Word Problems About Equal Groups, Part 2**

Subtracting Numbers with More Than Three Digits

- Always start subtracting in the ones column. Then continue subtracting from right to left.

Example: $1157 - 1080$

$$\begin{array}{r}
 1157 \\
 - 1080 \\
 \hline
 7
 \end{array}
 \qquad
 \begin{array}{r}
 \overset{0}{1} \overset{15}{5} 7 \\
 - 1080 \\
 \hline
 77
 \end{array}
 \qquad
 \begin{array}{r}
 \overset{0}{1} \overset{15}{5} 7 \\
 - 1080 \\
 \hline
 077
 \end{array}
 \qquad
 \begin{array}{r}
 \overset{0}{1} \overset{15}{5} 7 \\
 - 1080 \\
 \hline
 0077
 \end{array}$$

Word Problems About Equal Groups

- In word problems, the word “each” usually means an equal-groups problem.
- To find the number in each group, when given the total, we can divide by the number of groups.

$$\begin{array}{r}
 \text{number in each group} \\
 \text{number of groups} \overline{) \text{total}}
 \end{array}$$

Practice:

Subtract.

$$\begin{array}{r}
 1. \quad 1234 \\
 - \quad 607 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 2. \quad 47,019 \\
 - 21,598 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 3. \quad 405,679 \\
 - 319,477 \\
 \hline
 \end{array}$$

4. There are 48 people. There are 6 equal teams. How many people are in each team?

$$\begin{array}{r}
) \quad \underline{\hspace{2cm}} \\
 \hline
 \end{array}
 \quad \text{people in each team}$$

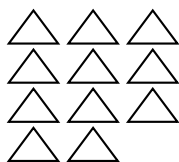
5. Thirty-six students lined up equally on four risers for a chorus recital. How many students were on each riser?

$$\begin{array}{r}
) \quad \underline{\hspace{2cm}} \\
 \hline
 \end{array}
 \quad \text{students on each riser}$$

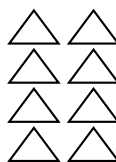
• One-Digit Division with a Remainder

- Sometimes when we try to divide a number of things into **equal groups** we have some things left over.

Example: These 11 triangles cannot be divided into equal groups of four, because there are 3 triangles left over.



11 triangles



2 groups of four triangles



3 triangles left over

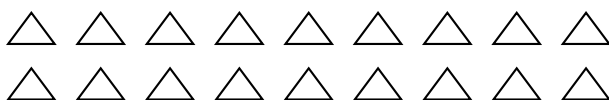
- We call the amount left over the **remainder**. Use the letter R to identify the remainder in an answer.

$$\begin{array}{r} 2 \text{ R}3 \\ 4 \overline{)11} \\ \underline{-8} \\ 3 \end{array}$$

- Any remainder in a division problem must be smaller than the **divisor**.

Practice:

- Circle groups of triangles below to show $18 \div 4$. Write the answer shown by your sketch.



_____ R _____

Divide. Write each answer with a remainder.

2. $2 \overline{)15}^{\text{R}}$

3. $5 \overline{)13}^{\text{R}}$

4. $4 \overline{)21}^{\text{R}}$

5. $17 \div 2 \rightarrow \overline{)17}^{\text{R}}$

6. $27 \div 6 \rightarrow \overline{)27}^{\text{R}}$

7. $20 \div 3 \rightarrow \overline{)20}^{\text{R}}$

- **The Calendar**
- **Rounding Numbers to the Nearest Thousand**

The Calendar

- A **common year** has 365 days.
- A **leap year** has 366 days. The extra day is added to February. A leap year happens every 4 years.
- This will help you remember how many days are in each month:
 Thirty days have September, April, June, and November.
 The other months have 31 days, except February,
 which has 28, or 29 if it is leap year.
- A **decade** is ten years. A **century** is one hundred years.
- To find the amount of time between two years, subtract.

$$\begin{array}{r} 1996 \\ - 1983 \\ \hline 13 \text{ years} \end{array}$$

Rounding Numbers to the Nearest Thousand

- To round a number to the nearest thousand:
 1. Look at the hundreds place.
 2. Ask: Is the digit in the hundreds place 5 or more? (5, 6, 7, 8, 9)
 Yes → Add 1 to the thousands place.
 No → The thousands place stays the same.
 4. Replace the numbers after the thousands place with zeros.

Example: 6259 → 6000

Practice:

Remember to write the units.

1. How often does a leap year occur? _____

2. According to this calendar, what is the date of the third Wednesday of the month?

____ / ____ / ____

3. How many years were there from 1913 to 1958? _____

Round to the nearest thousand.

4. 7901 _____

5. 3399 _____

MAY 2014						
S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

• Prime and Composite Numbers

- Multiples are the numbers we say if we count by a number. For example, the multiples of 4 are: 4, 8, 12, 16, 20, 24, ...
- You can find multiples in a multiplication table.
- To find the **factors** of a whole number:
 1. Start with the number 1.
 2. End with the number given.
 3. Find all the numbers that divide evenly into the given number:
Will 2 divide evenly?
Will 3 divide evenly? (and so on)
 4. Make sure the factors are listed in order.

Example: List the factors of 30. 1, 2, 3, 5, 6, 10, 15, 30

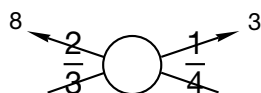
- Counting numbers that have exactly two different factors are **prime numbers**.
- A number with more than two factors is a **composite number**.
- The number 1 has one factor and is not prime or composite.

Practice:

1. Write all the prime numbers less than 12. _____
2. What is the eighth multiple of 3? _____
3. Is the last digit of the multiples of 4 odd or even? _____
4. List the six factors of 12. _____
5. List the factors of 16.
_____, _____, _____, _____, _____
6. Two factors of 20 are 1 and 20. Find four more factors of 20.
_____, _____, _____, _____
7. List the factors of 11. _____, _____
8. List the factors of 24. _____, _____, _____, _____,
_____, _____, _____

• Using Models and Pictures to Compare Fractions

- When we draw pictures to compare fractions, the pictures must have the same shape and equal size. These are called **congruent figures**.
- Another way to compare fractions:
 - Cross multiply.
 - Compare the products.




$$8 > 3, \text{ so } \frac{2}{3} > \frac{1}{4}$$

Practice:

Compare the fractions and shade the rectangles to illustrate each comparison. Use fraction manipulatives for help.


$$\frac{3}{5} \bigcirc \frac{2}{3}$$

1. 

$$\frac{1}{4} \bigcirc \frac{2}{5}$$

2. 

$$\frac{3}{5} \bigcirc \frac{1}{3}$$

3. 


$$\frac{5}{7} \bigcirc \frac{4}{5}$$

4. 

$$\frac{3}{8} \bigcirc \frac{2}{7}$$

5. 

$$\frac{4}{9} \bigcirc \frac{5}{8}$$

6. 

• Rate Word Problems

Example: If a cyclist rides 15 miles per hour, how far will he ride in 6 hours?

1. Name the two things the problem is about:

miles

hours

2. Fill in what you know and what you are looking for: $\frac{\text{miles}}{\text{hour}} \frac{15}{1} = \frac{?}{6}$

3. Draw a loop around the numbers that are diagonally opposite.

The loop should never include the question mark.

$$\begin{array}{l} \text{miles} \\ \text{hour} \end{array} \quad \frac{15}{1} = \frac{?}{6}$$

4. Multiply the numbers inside the loop and divide by the number outside the loop if it is not 1: $6 \times 15 = 90$ miles

Practice:

1. Maya drove 65 miles in one hour. At that rate, how far can she drive in 7 hours?

Multiply the loop.

$$\begin{array}{l} \text{miles} \\ \text{hours} \end{array} \quad \frac{65}{1} = \frac{?}{7}$$

_____ miles

2. Kirby could type 42 words in 3 minutes. At that rate, how many words could he type in 30 minutes?

Multiply the loop.

$$\begin{array}{l} \text{words} \\ \text{minutes} \end{array} \quad \frac{42}{3} = \frac{?}{30}$$

_____ words

3. Emma is the fastest runner in her class. She can run 2 miles in 15 minutes. At that rate, how many minutes would it take her to run a 6-mile race?

Multiply the loop.

$$\begin{array}{l} \text{miles} \\ \text{minutes} \end{array} \quad \frac{2}{15} = \frac{?}{6}$$

_____ minutes

• Multiplying Three-Digit Numbers

- We can multiply three-digit numbers the same way we multiplied two-digit numbers: one digit at a time.

Example 1:

Multiply the ones digit. Multiply the tens digit. Multiply the hundreds digit.

$$\begin{array}{r}
 \downarrow \\
 \begin{array}{r} 23\overline{)4} \\ \times \quad 2 \\ \hline 8 \end{array}
 \end{array}
 \rightarrow
 \begin{array}{r}
 \downarrow \\
 \begin{array}{r} 23\overline{)4} \\ \times \quad 2 \\ \hline 68 \end{array}
 \end{array}
 \rightarrow
 \begin{array}{r}
 \downarrow \\
 \begin{array}{r} 23\overline{)4} \\ \times \quad 2 \\ \hline 468 \end{array}
 \end{array}$$

- Try to use mental math to carry tens.

Example 2:

Multiply the ones digit. Multiply the tens digit. Multiply the hundreds digit.
Carry the 4. Add the 4.

$$\begin{array}{r}
 \downarrow \\
 \begin{array}{r} 50\overline{)9} \\ \times \quad 5 \\ \hline 5 \end{array}
 \end{array}
 \rightarrow
 \begin{array}{r}
 \downarrow \\
 \begin{array}{r} 50\overline{)9} \\ \times \quad 5 \\ \hline 45 \end{array}
 \end{array}
 \rightarrow
 \begin{array}{r}
 \downarrow \\
 \begin{array}{r} 50\overline{)9} \\ \times \quad 5 \\ \hline 2545 \end{array}
 \end{array}$$

Practice:

Multiply. Remember to write the dollar sign in money problems.

1. $\begin{array}{r} 248 \\ \times \quad 4 \\ \hline \end{array}$

2. $\begin{array}{r} \$618 \\ \times \quad 5 \\ \hline \end{array}$

3. $\begin{array}{r} \$3.87 \\ \times \quad 7 \\ \hline \end{array}$

4. $\begin{array}{r} 501 \\ \times \quad 6 \\ \hline \end{array}$

5. $\begin{array}{r} \$117 \\ \times \quad 9 \\ \hline \end{array}$

6. $\begin{array}{r} \$8.34 \\ \times \quad 3 \\ \hline \end{array}$

7. $\begin{array}{r} \$4.39 \\ \times \quad 7 \\ \hline \end{array}$

8. $\begin{array}{r} 723 \\ \times \quad 8 \\ \hline \end{array}$

9. $\begin{array}{r} 916 \\ \times \quad 4 \\ \hline \end{array}$

• Estimating Arithmetic Answers

- To estimate an answer we often round numbers first.
- When we estimate, we find an answer that is “close to” the exact number.
- Estimating can help you see whether your exact answers make sense.

$$\begin{array}{r} 486 \\ + 319 \\ \hline \end{array} \rightarrow \begin{array}{r} 500 \\ + 300 \\ \hline 800 \end{array} \quad \begin{array}{r} 64 \\ \times 4 \\ \hline \end{array} \rightarrow \begin{array}{r} 60 \\ \times 4 \\ \hline 240 \end{array} \quad 53 \div 5 \rightarrow \begin{array}{r} 10 \\ 5 \overline{)50} \end{array}$$

Practice:

1. Estimate Exact

$$\begin{array}{r} 61 \\ 68 \\ + \quad + 47 \\ \hline \end{array}$$

2. Estimate Exact

$$\begin{array}{r} 519 \\ + 354 \\ \hline \end{array}$$

3. Estimate Exact

$$\begin{array}{r} 473 \\ - 250 \\ \hline \end{array}$$

4. Estimate Exact

$$\begin{array}{r} 72 \\ - 67 \\ \hline \end{array}$$

5. Estimate Exact

$$\begin{array}{r} 39 \\ \times 7 \\ \hline \end{array}$$

6. Estimate Exact

$$\begin{array}{r} 465 \\ \times 8 \\ \hline \end{array}$$

7. Estimate Exact

$$\begin{array}{r}) \quad 4 \overline{)63} \end{array}$$

8. Estimate Exact

$$\begin{array}{r}) \quad 6 \overline{)55} \end{array}$$

9. Carlos estimated the product of 6 and 6384 by multiplying 6 by 6000. Was Carlos' estimate more than, equal to, or less than the actual product? Why?

Carlos' estimate was _____ the actual product because
he rounded 6384 down to _____ before multiplying.

• Rate Problems with a Given Total

- Rate problems are equal-group problems. To find a missing number in an equal-groups problem (when the total is given), we can divide.

Example: Marquez can read 4 pages in 1 minute. How long will it take him to read 32 pages?

$$\begin{array}{r} \text{missing number} \\ \text{known number } \overline{) \text{ total}} \end{array} \qquad \begin{array}{r} 8 \text{ minutes} \\ 4 \text{ pages } \overline{) 32 \text{ pages}} \end{array}$$

8 minutes to read 32 pages

Practice:

- Samantha can sign 15 thank-you cards in 1 minute. How long will it take Samantha to sign cards for the 45 people in her dance troop?

$$\overline{) \quad \quad \quad} \text{ minutes}$$

- Farley went skiing with his family. If he travels at 6 feet per second, how long will it take him to travel 48 feet?

$$\overline{) \quad \quad \quad} \text{ seconds}$$

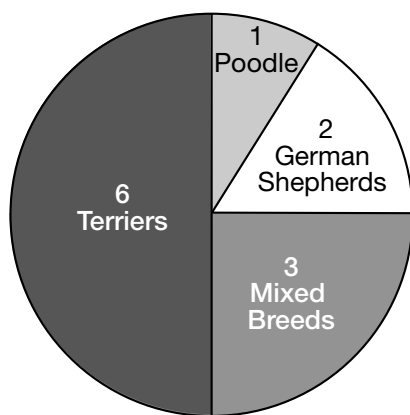
- Destiny makes \$7 an hour working at the animal shelter. If her paycheck at the end of the day is \$42, how many hours did she work?

$$\overline{) \quad \quad \quad} \text{ hours}$$

• Displaying Data Using Graphs

- A **survey** is an effort to gather specific information about a group, or a population.
- A **pictograph** uses pictures to display information.
- A **bar graph** displays numerical information with shaded rectangles or bars.
- A **line graph** displays numerical information as points connected by line segments. Line graphs are often used to show information that changes over time.
- **Circle graphs** or pie graphs are often used to display information about parts of a whole.
- A **legend** is often shown on a graph to describe the meaning of symbols.

Example: Type of Dogs at the Dog Park



Practice:

Use the circle graph in the example to answer problems 1–3.

1. How many German Shepherds and Poodles are at the Dog Park? _____
2. What is the total number of dogs represented by the circle graph? _____
3. Which type of dog does the largest slice of the graph represent? _____
4. Create a bar graph to represent the same information as the circle graph.

5. Is it easier to read the results from the bar graph or the circle graph?
Explain why.
