

SPECTRUM[®]

GRADE

7

Word Problems



Focused Practice for Word Problem Mastery

- Real world applications
- Multi-step word problems
- Fractions, decimals, and percents
- Ratio and proportion
- Metric and customary measurement
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- Perimeter, area, and volume
- Variables, expressions, and equations



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Check What You Know

Whole Numbers

Read the problem carefully and solve. Show your work under each question.

Parville has a population of 8,124 children and 32,492 adults, for a total population of 40,616 people. Somerset has a total population of 358,412 people.

1. What is the difference between the number of adults and the number of children in Parville?
_____ people
2. What is the total population of Parville and Somerset?
_____ people
3. There is an average of 5 school textbooks per child in Parville. How many textbooks are there in total?
_____ textbooks
4. Parville surveys every 15th person in the town to see if there is support for a new library. How many people are surveyed?
_____ people
5. In Parville, every 4th child plays a sport. How many children play a sport?
_____ children
6. A new company moves into Parville, which brings 1,945 new residents. Assuming no one moves out, what is the total population of Parville now?
_____ people

Lesson 1.1 Adding and Subtracting through 6 Digits

Read the problem carefully and solve. Show your work under each question.

A national appliance store chain keeps track of the appliances it sells each year. Last year, the store sold 102,039 microwave ovens, 87,382 stoves, 45,392 refrigerators, 128,905 toaster ovens, and 72,682 blenders.

Helpful Hint

When two digits add up to more than 10, rename the digits and carry, if necessary. For example:

$$\begin{array}{r} 1 \\ 37 \\ + 65 \\ \hline 2 \end{array}$$

$$7 + 5 = 12$$

Rename 12 as "1 ten and 2 ones."

3. How many of the appliances sold were not microwave ovens?

_____ appliances sold were not microwave ovens

1. What is the total number of toaster ovens and blenders sold last year?

_____ toaster ovens and blenders

4. What is the total number of stoves and refrigerators the appliance store sold last year?

_____ stoves and refrigerators

2. How many more microwave ovens were sold than refrigerators?

_____ more microwaves were sold

5. How many more toaster ovens were sold than stoves?

_____ more toaster ovens were sold

Lesson 1.2 Multiplying through 4 Digits

Read the problem carefully and solve. Show your work under each question.

José manages the shipping department of a calculator manufacturing company. He ships calculators in 3 different types of boxes. A small box can hold 46 calculators, a medium box can hold 354 calculators, and a large box can hold 1,178 calculators.

Helpful Hint

When multiplying by a two-digit number (the bottom number), remember to put a zero in the ones place before you multiply the digit in the tens place of the bottom number by each digit in the top number.

1. If José ships 32 small boxes of calculators, how many calculators does he ship altogether?
_____ calculators
2. José ships 54 large boxes of calculators in one month. What is the total number of calculators shipped in that month?
_____ calculators
3. In another month, José ships 67 medium boxes of calculators. How many calculators does he ship in that month?
_____ calculators
4. A large school district orders 112 medium boxes of calculators. How many calculators will the school district receive?
_____ calculators
5. José receives an order for 125 large boxes of calculators to be shipped overseas. How many individual calculators will that order contain?
_____ calculators

Lesson 1.3 Dividing by 1 and 2 Digits

Read the problem carefully and solve. Show your work under each question.

A school district has 325 administrators, 2,462 teachers, and 43,920 students.

Helpful Hint

When dividing with whole numbers, you may find that the numbers do not divide evenly. The amount left is called a **remainder**.

1. The school superintendent decides to send every 4th teacher to a professional development workshop. How many teachers go to the workshop? What is the remainder?

_____ teachers
remainder _____
2. During an administrative meeting, the district administrators are divided into groups of 5. How many administrators are in each group?

_____ administrators
3. The school district has an event that includes every student in the district. The students take buses to this event and each bus holds 60 students. Assuming no students are absent, how many buses will be used to bus the students to the event?

_____ buses
4. During a professional development day for the teachers, the teachers are placed into groups of 40. Next, any remaining teachers will be added to a group. How many groups are there and how many remaining teachers need to be added to a group?

_____ group
_____ teachers need to be added to a group
5. If 30 students are in each class, at any given time during the school day, how many classes are in session in the district?

_____ classes



Check What You Learned

Whole Numbers

Read the problem carefully and solve. Show your work under each question.

Students from five different high schools collected cans of food to donate to a food bank. The table below shows the number of cans of food collected in one year at each school.

School	Kent	Midway	Rockville	Langley	Roxbury
# of Cans	9,058	28,250	36,424	100,264	94,550

- What is the total number of cans collected at Midway and Roxbury schools?
_____ cans
- What is the difference between the number of cans collected at Rockville High School and at Midway High School?
_____ cans
- What is the total number of cans collected at Langley and Roxbury high schools?
_____ cans
- If Kent High School collects 3 times as many cans of food next year than listed in the table, how many cans will that total?
_____ cans
- The cans collected at Midway High School are put into boxes with 25 cans in each box. How many boxes are used?
_____ boxes
- Half of the cans collected at Kent High School are cans of vegetables. How many cans of vegetables are there altogether?
_____ cans of vegetables



Check What You Know

Fractions

Read the problem carefully and solve. Show your work under each question.

Carlos is redesigning his dining room. The room measures $8\frac{1}{4}$ feet by $10\frac{1}{2}$ feet. He has several pieces of furniture that he plans to put in the room.

- Carlos has two buffet tables. One table is $\frac{2}{3}$ yard wide and the other is $\frac{3}{4}$ yard wide. He wants to add the lengths of tables, so he finds the LCM for the denominators. What is the LCM of 3 and 4?

- Use the least common multiple to compare the widths of the buffet tables. What is the width of the wider table?

_____ yard
- If he places the two buffet tables side-by-side along the wall, what will be the total length of the tables? Show your answer in simplest form.

_____ yards
- Carlos's dining table measures $6\frac{1}{2}$ feet in length, including a $1\frac{3}{4}$ -foot leaf. If he removes the leaf, how long will the table be?

_____ feet
- Carlos wants to know the area of the dining room. What is the total area in square feet?

_____ square feet
- Carlos uses $2\frac{1}{2}$ cups of cleaning fluid to clean 6 chairs. If he uses the same amount of fluid on each chair, how much cleaning fluid is used on each chair?

_____ cup

Lesson 2.1 Reducing to Simplest Form

Read the problem carefully and solve. Show your work under each question.

The Fun Wheel at a carnival is divided into 60 equal sections. Five of the sections are green, 8 are blue, 9 are purple, 16 are orange, and 22 are yellow. Players choose a color and then spin the wheel. If the wheel stops on the color chosen, they win a prize based on that color.

Helpful Hint

To reduce a fraction to **simplest form**, divide both the numerator and denominator by their greatest common factor.

1. Lamont chooses yellow and there is a $\frac{22}{60}$ chance that the Fun Wheel will stop on yellow. Write $\frac{22}{60}$ in simplest form.

2. Anton chooses blue. There is an $\frac{8}{60}$ chance that the Fun Wheel will stop on blue. Write $\frac{8}{60}$ in simplest form.

3. Amira thinks that there is a $1\frac{9}{60}$ chance that the Fun Wheel will stop on purple. Explain why this is impossible.

4. Connor does not know what the likelihood is that the Fun Wheel will stop on orange. What is the likelihood that the wheel will stop on orange? Write your answer in simplest form.

5. Robert wants the Fun Wheel to stop on green. What is the probability that the wheel will stop on green? Write your answer in simplest form.

Lesson 2.2 Finding Common Denominators

Read the problem carefully and solve. Show your work under each question.

Mr. Johnston gives each student the same puzzle. He records how long it takes each student to complete the puzzle in fractions of an hour.

Marlene	Kareem	Bianca	Paul
$\frac{5}{6}$ hour	$\frac{2}{3}$ hour	$\frac{5}{12}$ hour	$\frac{5}{8}$ hour

Helpful Hint

To find a common denominator for two or more fractions, find the **least common multiple (LCM)** of the denominators. The least common multiple is the smallest multiple of both numbers.

- Mr. Johnston wants to compare the time it took Marlene and Bianca to complete the puzzle. Rename their times using the least common multiple for the denominator.
Marlene _____
Bianca _____
- Who completed the puzzle faster, Paul or Kareem?

- Use the least common multiple to compare Marlene and Paul's times for completing the puzzle. Use $>$, $<$, or $=$.

- Mr. Johnston wants to compare all four students' times for completing the puzzle. What is the least common multiple of all the fractions in the table?

- Which student completed the puzzle with the second fastest time?

Lesson 2.3 Renaming Fractions and Mixed Numerals

Read the problem carefully and solve. Show your work under each question.

Natalie and Inez play a game. They each write three improper fractions and three mixed numerals on a piece of paper. They switch papers and rename the improper fractions as mixed numerals and the mixed numerals as improper fractions. They each get a point for every fraction and mixed numeral they rename correctly.

Helpful Hint

To rename a mixed numeral, multiply the whole number by the denominator and add the numerator to the product. This is the numerator of the renamed fraction. The denominator stays the same.

- Inez has to rename $\frac{25}{7}$ as a mixed numeral. Write the correct mixed numeral.

- Natalie rewrites $\frac{15}{4}$ as a mixed numeral. What is the mixed numeral she writes?

- Inez has to rename the mixed numeral $4\frac{5}{8}$. Write the correct improper fraction on the line below.

- Natalie writes $2\frac{2}{9}$ as an improper fraction. What fraction does she write?

- Inez has to rename the mixed numeral $6\frac{3}{5}$. Write the correct improper fraction on the line below.

Lesson 2.4 Adding and Subtracting Fractions and Mixed Numerals

Read the problem carefully and solve. Show your work under each question.

Jared buys food for a party. He buys $\frac{5}{8}$ pound of roast beef, $\frac{6}{7}$ pound of ham, $\frac{3}{4}$ pound of chicken salad, $2\frac{2}{5}$ pounds of corned beef, $3\frac{2}{3}$ pounds of turkey, $1\frac{3}{4}$ pounds of havarti cheese, and $1\frac{1}{3}$ pounds of cheddar cheese.

Helpful Hint

To rename a mixed numeral, multiply the whole number by the denominator and add the numerator to the product. This is the numerator of the renamed fraction. The denominator stays the same.

- How many pounds of roast beef and ham did Jared buy altogether?
_____ pounds
- What is the difference between the amount of chicken salad Jared bought and the amount of roast beef he bought?
_____ pound
- How many more pounds of turkey than corned beef did Jared buy?
_____ pounds
- How many total pounds of ham and corned beef did Jared buy?
_____ pounds
- How many more pounds of havarti cheese than cheddar cheese did Jared buy?
_____ pound