

SPECTRUM[®]

Word Problems

GRADE

6



Focused Practice for Word Problem Mastery

- Real world applications
- Multi-step word problems
- Fractions, decimals, and percents
- Metric and customary measurement
- Graphs, probability, and statistics
- Geometry
- Preparing for algebra



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Check What You Know

Adding and Subtracting through 6 Digits

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

A traffic engineering company performed a survey of the vehicles using a section of a highway. During the survey period, the engineers counted 34,780 cars, 12,679 small commercial vehicles, 2,410 medium trucks, 14,397 large trucks, and 876 other vehicles.

- What is the total number of medium and large trucks that used the highway during the survey?

_____ trucks
- Out of all the vehicles classified as other vehicles, 664 of them were motorcycles. How many of the other vehicles were not motorcycles?

_____ were not motorcycles
- How many of the vehicles that were counted in the survey were not classified as cars?

_____ vehicles were not cars
- About how many small commercial vehicles and medium trucks used the highway during the survey?

about _____ commercial vehicles and medium trucks
- What is the difference between the number of large trucks and the number of medium trucks counted in the survey?

_____ trucks
- What is the total number of vehicles that passed the survey point during the counting period?

_____ vehicles

Lesson 1.1 Adding and Subtracting 2 and 3 Digits

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

Lee bought a bag of 500 marbles. He sorted the marbles by color. He had 163 red marbles, 175 green marbles, 98 yellow marbles, and 64 blue marbles.

Helpful Hint

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

$$\begin{array}{r} | \\ | \ 8 \\ + | \ 9 \\ \hline 3 \ 7 \end{array}$$

17 is renamed as 1 ten and 7 ones.

- Lee placed all of the red marbles and the yellow marbles in one bag. How many marbles were in the bag in total?
_____ marbles
- Lee placed the blue and green marbles in another bag. How many marbles altogether were in that bag?
_____ marbles
- Of the 500 marbles, how many were not green?
_____ marbles
- There were two sizes of red marbles. If 18 of the red marbles were large, how many small red marbles were in the bag?
_____ red marbles
- If Lee gave 128 of the marbles to his friend Anna, how many marbles did he still have?
_____ marbles

Lesson 1.2 Adding and Subtracting Large Numbers and Estimating

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

Taro is researching the population of Alaska. He finds that the largest cities in Alaska are Anchorage, Fairbanks, and Juneau. He learns that in 2006, the population of Anchorage was 278,700 people. The city of Fairbanks had a population of 31,142 people, and Juneau had a population of 30,737 people.

Helpful Hint

To estimate a sum or difference, round each number to the highest place value they have in common, and then add or subtract.

If the digit to the right of the place value is equal to or greater than 5, round to the next higher number.

- In 2006, about how many people lived in Fairbanks and Juneau combined?
about _____ people
- In 2006, about how many people lived in Anchorage and Juneau combined?
about _____ people
- Based on the 2006 census, what was the exact population of Anchorage and Juneau combined?
_____ people
- If the total population of Alaska in 2006 was 670,053, how many people in Alaska did not live in Anchorage?
_____ people
- If 5,350 visitors came to Juneau for a festival in 2006, about how many people were in the city during the festival?
about _____ people

Lesson 1.3 Adding 3 or More Numbers (3 through 6 digits)

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

There are five CD stores in an area. The chart below shows the number of CDs sold at each store in January.

Store A	Store B	Store C	Store D	Store E
4,569	8,822	16,725	6,224	42,480

Helpful Hint

When adding numbers with different amounts of digits, be sure to line the numbers up correctly by place value before adding.

- Store A, Store B, and Store C are owned by the same company. How many CDs altogether did that company sell in January?
_____ CDs
- Store B, Store C, and Store D are located in the same shopping center. How many CDs were sold in that shopping center in all?
_____ CDs
- All of the sales at Store E were made online and all of the sales at the other stores were made in person. How many of the CDs were sold in person?
_____ CDs
- In addition to CDs, Store E sells t-shirts and posters. If there were 1,219 t-shirts and 367 posters sold in January, what was the total number of products sold by Store E during this month?
_____ products
- How many CDs altogether were sold at the area stores in January?
_____ CDs

**Check What You Learned****Adding and Subtracting through 6 Digits**

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

Students from the middle schools in the city collected pennies for a charity fundraising event. The table below shows the number of pennies collected at each school.

School	Eastwood	Central	Highlands	Lincoln	Riverside
Pennies	958	14,657	32,287	4,321	32,116

- What was the total number of pennies collected at Central and Lincoln?
_____ pennies
- At Eastwood School, the sixth graders collected 561 pennies. How many pennies were collected by the other grades?
_____ pennies
- How many pennies were collected by schools other than Riverside?
_____ pennies
- About how many pennies altogether were collected by students at Central and Highlands?
about _____ pennies
- How many more pennies did the students at Riverside collect than the students at Central?
_____ pennies
- How many pennies were collected by all of the schools combined?
_____ pennies

**Check What You Know****Multiplying and Dividing Whole Numbers**

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

Shawna will read 8 books during the summer. There are 2,325 total pages in her 8 books. Jake will read 7 books during the summer. There are 2,047 total pages in his 7 books. Shawna will read the same number of pages each day. Jake will also read the same number of pages each day.

1. There are 89 days of summer break. How many pages will Shawna read each day? How many pages will she have left?
_____ pages _____ pages left
2. How many pages will Jake read each day during the 89 days of summer break? How many pages will he have left?
_____ pages _____ pages left
3. One of Jake's books has 24 chapters. If each chapter has exactly 15 pages, how long is the book?
_____ pages
4. Shawna reads 25 pages per hour. How many hours will she spend reading the 8 books?
_____ hours
5. Jake reads 23 pages per hour. How many hours will he spend reading the 7 books?
_____ hours
6. If each page has an average of 212 words, about how many words will Shawna read during the summer?
about _____ words

Lesson 2.1 Multiplying 2, 3, and 4 Digits by 1 and 2 Digits

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

A charter bus company owns 232 buses. Each bus can carry 42 passengers plus their luggage. The company also owns 28 vans. Each van can carry 13 passengers.

Helpful Hint

To multiply by a two-digit number, first multiply the top number by each of the digits in the bottom number. Then, add the two products to find the solution.

1. A school requests 6 buses for a field trip. How many passengers altogether can fit on 6 buses?
_____ passengers
2. What is the maximum number of passengers that could travel in the company's buses?
_____ passengers
3. An after-school program needs 5 vans for a field trip. How many passengers in all can 5 vans hold?
_____ passengers
4. On one particular trip, there are 38 passengers riding on a bus. If each passenger is allowed to bring 122 pounds of luggage, what is the most that the luggage could weigh?
_____ pounds
5. What is the total number of passengers that could ride in the company's vans?
_____ passengers
6. The company plans to purchase 4 new tires for each of its buses and vans. How many total tires will it need?
_____ tires

Lesson 2.2 Multiplying 3 and 4 Digits by 3 Digits

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

Peter starts a job at an electronics store. He learns that the image on a computer or television screen is made by lighting up small dots, called *pixels*, that are lined up in rows and columns. He can find the total number of pixels on a screen by multiplying the number of rows by the number of columns. Peter decides to investigate the total number of pixels on different equipment.

Helpful Hint

Remember to add zeros at the end of the second and third products to show that you are multiplying 433 by 2 tens and 3 hundreds:

$$\begin{array}{r}
 433 \\
 \times 321 \\
 \hline
 433 \\
 8660 \\
 + 129900 \\
 \hline
 138993
 \end{array}$$

2. How many pixels are there on a computer screen that has 768 rows with 1,024 pixels in each row?

_____ pixels

1. Peter found a television screen that has 576 columns with 720 pixels in each column. How many pixels does this screen have?

_____ pixels

3. Peter learns that a digital camera uses pixels in rows and columns to make a photograph. How many pixels are there in a digital photograph that is 960 by 1,344 pixels?

_____ pixels

Lesson 2.3 Dividing 2, 3, and 4 Digits by 1 Digit

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

A small manufacturing company produces picture frames sold at craft stores. The frames are sold in packages containing 4, 5, or 8 frames per package.

Helpful Hint

Remember to write the first digit of the quotient in the correct spot.

$$\begin{array}{r} 58 \\ 6 \overline{)348} \end{array}$$

Since $100 \times 6 = 600$ and 600 is greater than 348, there is no hundreds digit in the quotient.

1. During one hour at the factory, workers assembled 95 frames. If all the frames were placed in packages of 5 frames each, how many packages were produced? How many frames were left over?

_____ packages

_____ frames left
2. During one shift, the factory produced only packages containing 8 frames each. If the total number of frames was 730, how many full packages were assembled? How many frames were left over?

_____ packages

_____ frames left
3. The company received an order for 250 frames. The boss does not want any frames left over. How many frames should be in each package so there are no frames left over? How many packages will there be in total?

_____ frames in a package

_____ packages
4. For one order, the factory made frames for packages containing 4 frames each. If a total of 4,127 frames were built, how many full packages could be shipped? How many frames would be left?

_____ packages

_____ frames left
5. The company made 389 frames for another order. Each package needed to contain 8 frames. How many packages were produced? How many frames were left over?

_____ packages

_____ frames left

Lesson 2.4 Dividing 2 through 5 Digits by 2 Digits

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

During a political campaign, volunteers call voters to give them information about a candidate. Each volunteer receives a list of names and phone numbers. The names are always divided evenly between all the volunteers.

Helpful Hint

When dividing, make sure the numbers are positioned correctly with each step:

$$\begin{array}{r} 19 \text{ R } 1 \\ 17 \overline{)324} \\ \underline{17} \\ 154 \\ \underline{153} \\ 1 \end{array}$$

- On the first day of the campaign, 22 volunteers came to the call center. If there were 1,012 voters in the district, how many names were on each volunteer's list?
_____ names
- Before any calls were made, 3 more volunteers came. The 1,012 voter names were divided again. How many names were on each volunteer's list? How many names were left?
_____ names
_____ names left
- In the second week of the campaign, there were 58 volunteers. 13,075 voters were divided evenly among them. Their supervisor called the remaining people. How many calls did each volunteer make?
_____ calls
- During the second week, the 58 volunteers called an additional 2,430 voters. Again, each volunteer called the same number of voters. Their supervisor called the remaining people. How many additional calls did each volunteer make that week?
_____ additional calls
- On the day of the election, follow-up calls were made to 575 voters. If there were 18 volunteers in the office, how many calls did each person make? How many names were left?
_____ calls
_____ names left