Whole Numbers

MATH CONTENT TOPICS: Q.6.c
MATH PRACTICES: MP.1.a, MP.1.b, MP.1.e, MP.2.c, MP.5.c

1 Learn the Skill

Whole numbers are written with the digits 0 through 9. The value of a digit in a whole number depends on its place. The value of a whole number is the sum of the values of its digits. When you write a whole number, place commas every three digits counting from the right.

Write a whole number in words just like you read it (for example, *two hundred twelve* would be written numerically as *212*). To compare and order whole numbers, compare digits that have the same place value. In some problems, you may need to round whole numbers to a certain place value.

2 Practice the Skill

To successfully solve problems on the GED® Mathematical Reasoning Test, you must understand place value, how to read and write whole numbers, how to compare and order whole numbers, and how to round whole numbers. Read the example and strategies below. Then answer the question that follows.

a Tables make information easier to compare by organizing it in labeled rows and columns. Most tables, including this one, present information from left to right and from top to bottom.

Millions			Thousands			Units		
hundreds	tens	ones	hundreds	tens	ones	hundreds	tens	ones
				4 (b)	3	0	6	2

b The value of a whole number is the sum of the values of its digits. For example, the value of the *4* is actually *40,000* because it is in the ten thousands place.

$$\begin{aligned} 4 \times 10{,}000 &= 40{,}000 \\ 3 \times 1{,}000 &= 3{,}000 \\ 0 \times 100 &= 000 \\ 6 \times 10 &= 60 \\ 2 \times 1 &= 2 \\ &= \mathbf{43{,}062} \end{aligned}$$

c When you compare whole numbers, the number with the most digits is greater. If two numbers have the same number of digits, compare the digits from left to right. Understanding these symbols will aid in comparing whole numbers:
= means *equals*
> means *is greater than*
< means *is less than*

43,062 > 43,041

The number *43,062* is read and written in words as **forty-three thousand, sixty-two.** When rounded to the hundreds place, 43,062 is **43,100.**

1. Carrie needs to round her income to the thousands place. What is $56,832 rounded to the thousands place?

   A. $56,000
   B. $56,800
   C. $56,900
   D. $57,000

TEST-TAKING TIPS

Circle the digit you want to round. If the digit to the right of the circled digit is 5 or more, add 1 to the circled digit. If it is less than 5, do not change the circled digit.

3 Apply the Skill

DIRECTIONS: Read each question, and choose the **best** answer.

2. Meredith wrote a check for $182 to pay a bill. How is 182 written in words?

   A. one hundred eight-two
   B. one hundred eighty-two
   C. one hundred and eighteen-two
   D. one-hundred eighty and two

3. Mr. Murphy rounds his students' test scores to the tens place. Jonathan's test score is 86. What is his test score rounded to the tens place?

   A. 80
   B. 86
   C. 90
   D. 100

4. Each book in a historical library is given a number. The books are arranged on shelves according to their numbers. The range of numbers for shelves I through L is shown below.

   Shelf I 1337–1420
   Shelf J 1421–1499
   Shelf K 1500–1622
   Shelf L 1623–1708

   On which shelf would you find a book numbered 1384?

   A. Shelf I
   B. Shelf J
   C. Shelf K
   D. Shelf L

5. Michael swam 2,450 yards on Monday, 2,700 yards on Tuesday, and 2,250 yards on Wednesday. What is the order of his daily swim yardage from least to greatest?

   A. 2,450; 2,700; 2,250
   B. 2,250; 2,700; 2,450
   C. 2,250; 2,450; 2,700
   D. 2,700; 2,450; 2,250

6. Michael swam an additional 2,500 yards on Thursday. Place his swim yardages in order by day from greatest to least.

   A. Monday, Tuesday, Wednesday, Thursday
   B. Tuesday, Thursday, Monday, Wednesday
   C. Wednesday, Monday, Thursday, Tuesday
   D. Tuesday, Thursday, Wednesday, Monday

7. A professional cyclist bicycled 22,755 miles in 2005; 20,564 miles in 2006; and 23,804 miles in 2007. If the three years are listed in order of the miles bicycled, from least to greatest, how would the years be listed?

   A. 2006, 2005, 2007
   B. 2006, 2007, 2005
   C. 2005, 2007, 2006
   D. 2007, 2005, 2006

DIRECTIONS: Study the information and table, read each question, and choose the **best** answer.

The table below shows a sporting goods store's monthly sales for the first six months of the year.

Monthly Sales	
January	$155,987
February	$150,403
March	$139,605
April	$144,299
May	$149,355
June	$148,260

8. Based on the table, in which month did the store have its highest sales?

   A. January
   B. February
   C. March
   D. May

9. In which month might the store want to run a special sale?

   A. March
   B. April
   C. May
   D. June

10. Based on the table, what sales trend can you determine?

    A. People purchased the most sporting goods equipment during early spring.
    B. Sales were at their highest in winter months.
    C. Monthly sales remained the same from January through June.
    D. People purchased more sporting goods as summer approached.

LESSON 2

Operations

MATH CONTENT TOPICS: Q.1.b, Q.2.a, Q.2.e, Q.7.a
MATH PRACTICES: MP.1.a, MP.1.b, MP.2.c, MP.3.a, MP.4.a, MP.5.c

UNIT 1

1 Learn the Skill

The four basic math operations are addition, subtraction, multiplication, and division. Add quantities to find a **sum**, or total. Subtract to find the **difference** between two quantities.

Multiply quantities to find a **product** when you need to add a number many times. Divide when separating a quantity into equal groups. The **dividend** is the initial quantity. The **divisor** is the number by which you divide. The **quotient** is the answer.

Factors are numbers that can be multiplied together to get another number. Factors of a whole number refer to other whole numbers, excluding 1, that divide into the original whole number with no remainder.

2 Practice the Skill

To successfully solve problems on the GED® Mathematical Reasoning Test, you must determine the correct operation(s) to perform and the proper order in which to perform them. Read the examples and strategies below. Then answer the question that follows.

a Add the numbers in each column, working from right to left. If the sum of a column of digits is greater than 9, regroup to the next column on the left.

b To subtract, align digits by place value. Subtract the numbers in each column, working from right to left. When a digit in the bottom number is greater than the digit in the top number, regroup.

a Addition

$$\begin{array}{r} {\scriptstyle 1} \\ 482 \\ +\ 208 \\ \hline 690 \end{array}$$

c Multiplication

$$\begin{array}{r} {\scriptstyle 2} \\ {\scriptstyle 3}482 \\ \times\ 34 \\ \hline {\scriptstyle 1}1{,}928 \\ \times\ 14{,}460 \\ \hline 16{,}388 \end{array}$$

c Multiply the ones digit of the bottom number by all the digits in the top number. Align each result, or partial product, under the digit by which you multiplied. Use zeros as placeholders. After you've multiplied digits in the top number by all the digits in the bottom number, add the partial products.

b Subtraction

$$\begin{array}{r} {\scriptstyle 7\,12} \\ 4\cancel{8}\cancel{2} \\ -\ 208 \\ \hline 274 \end{array}$$

d Division

$$\begin{array}{r} 517\text{ R}12 \\ 14\overline{)7250} \\ -70 \\ \hline 25 \\ -14 \\ \hline 110 \\ -98 \\ \hline 12 \end{array}$$

d

$$\begin{array}{r} 517\text{ R}12 \\ 14\overline{)7250} \\ 14 \times 5 = -70\downarrow \\ \hline 25\downarrow \\ 14 \times 1 = -14\downarrow \\ \hline 110\downarrow \\ 14 \times 7 = -98 \\ \hline 12 \end{array}$$

TEST-TAKING TECH

Computer-based tests require mousing, clicking, and keyboarding skills. Fill-in items require placing the cursor in the answer box, clicking to activate, and then typing in the answer.

1. Shirley has $1,256 in her bank account. She withdraws $340. How much money is left in her bank account?

   A. $816
   B. $916
   C. $926
   D. $996

Spotlighted Item: FILL-IN-THE-BLANK

DIRECTIONS: Read each question. Then fill in your answers in the boxes below.

2. Alex drove from Denver, Colorado, to Chicago, Illinois, in two days. The first day he drove 467 miles. The second day he drove 583 miles. What is the total distance that Alex drove?

3. During a word game, Alicia had 307 points. She was unable to use all of her letters, so she had to subtract 19 points at the end of the game. What was Alicia's final score?

4. Juan works 40 h per week. He earns $9 per h. How much does Juan earn in one week?

5. Carl pays $45 per month for car insurance. How much does he spend on car insurance in 1 year?

6. Four friends went out for pizza. The total cost for appetizers, pizza, and drinks was $64. If the friends split the cost equally, how much did each friend pay?

7. Not including 1 and 60, how many whole numbers are factors of the number 60?

8. Each month, Anna pays $630 in rent. How much rent does she pay over the course of 18 months?

9. The quarterback on Scott's favorite football team is closing in on a 4,000-yard passing season. He has thrown for 3,518 yards with two games remaining. How many yards would the quarterback need to average over the final two games to reach his goal of 4,000 yards?

10. Which whole number is the largest common factor of both the numbers 36 and 20?

11. Not including 1, what is the smallest whole number that has both 6 and 9 as factors?

DIRECTIONS: Study the diagram. Then fill in your answer in the box below.

504 sq ft

12. Claire is purchasing bags of mulch to cover her vegetable garden. One bag of mulch will cover 12 square feet. How many bags of mulch will Claire need?