



The GED Mathematics Test

Number Sense



Margaret A. Rogers, M.A.
ABE/GED Teacher
Adult School Administrator
Education Consultant

California Distance Learning Project
www.cdlponline.org

GED

Video Partner



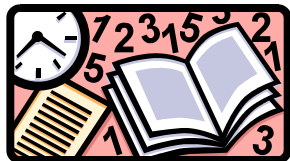
Passing the GED Math Test

The mathematics is not there till we put it there.
Sir Arthur Eddington

Video 28 Focus: how you use numbers and number sense in your daily life.

You Will Learn From Video 28:

- How to use your number sense to solve problems.
- How to write the same number in different ways.
- How to use numbers to count, compare, measure and combine.
- The names of four operations.
- That mathematics is a language of its own.



Words You Need to Know:

While viewing the video, put the letter of the meaning by the correct vocabulary word. Answers are on page 13.

- | | |
|--------------------------|---|
| _____ 1. calculate | a. addition, subtraction, multiplication, and division |
| _____ 2. four operations | b. never ending |
| _____ 3. estimate | c. using what you know to make your best guess for the answer |
| _____ 4. number line | d. using operations to find the exact answer to a math problem |
| _____ 5. infinite | e. a linear way to show any number and to compare it to other numbers |

Points to Remember:

- Math uses 10 digits and four operations.
- You need to know some basic rules of math.
- It is important to use a variety of techniques to solve problems.
- Rely on the way you learn best to solve problems.
- Experience will help build self-confidence and problem-solving skills.



Use brainstorming to list as many ways you can think of that you use numbers and your number sense in your daily life.

Choose one of the activities listed in your brainstorming, and write a paragraph about how you use math in that activity. Give specific examples.

About Math and Life

Now that you have spent some time thinking about how you might use math, see if you can decide how Steven should solve this problem.

Steven has to rent a storage unit to get some of the clutter out of his apartment. He has decided that he needs to rent a unit that is five feet by 10 feet. He has called several companies and made notes on the plans and their prices. He knows he will need the unit six months. Which unit will be the best deal for Steven?

Company	Specials	Monthly Rent	Other Fees
Betty's Bins	First month \$1.00	59.00	\$10.00 administrative fee (non-refundable)
Store With Us	none	55.00	\$6.00 administrative fee (non-refundable)
We Keep It Storage	\$10.00 for the first month and \$25.00 for the second month	70.00	none

Write your answer and explanation here.

Answer and explanation are on page 13.

Number Sense

We all use judgment and, especially, common sense when we use numbers and number sense in our daily lives. We count, compare, measure and estimate each day whether we realize it or not. On the GED Math Test you can use the same skills you use each day along with the skills of computation and calculator use. If you need to learn or brush up on your computation skills, you can practice with these workbooks and also practice with the calculator that you will actually use on the GED Math Test - the Casio fx-260.

As you review the rules of computation, things you learned in school will come back to you as you practice. You may learn new skills that you did not learn in school. Also on some problems on the GED Math Test, you will not need to compute to find the exact answer. On the multiple choice questions, you may be able to estimate and select the correct answer. The question may not ask for the answer but rather for the set up to solve the problem as if you had to compute the answer. Also you may be able to use some test-taking strategies to help you select the correct answer.



Using Operations

It is good to be completely comfortable with using the four operations - addition, subtraction, multiplication, and division - when you take the GED Math Test. You will have scratch paper to use during both parts of the test, and you can use it to set up and solve problems if you need to do so. **It is important to remember that, on the actual GED Test, you cannot write in the test booklet.**



Addition and Subtraction

It is often necessary to use **addition** to find the **sum** of a two or more numbers to help solve a problem. You may also need to use **subtraction** to find the **difference** between two numbers. You may be required to add or subtract whole numbers, fractions, decimals, or percents. Let's begin with a review of addition and subtraction of whole numbers.

32	183	456	643	1563	8711
68	246	398	<u>-377</u>	<u>- 941</u>	<u>-4937</u>
<u>+43</u>	<u>+89</u>	<u>+597</u>			

$68 + 93 + 146 = \underline{\hspace{2cm}}$ $73 + 246 + 1579 = \underline{\hspace{2cm}}$ $43 + 745 - 29 = \underline{\hspace{2cm}}$

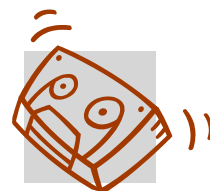
Answers are on page 13.

If you need more practice in reviewing addition and subtraction of whole numbers, ask your teacher or tutor for more exercises. Many GED textbooks are available and provide several pages of practice in addition and subtraction. The more you practice, the more comfortable you will be. On the GED Test a problem using addition and/or subtraction of whole numbers will usually be a word problem.

Try this example:

Nadai walks to the video store several times a week. He walks the 12 blocks from his house to Elm Street and then the 6 blocks from Elm Street to the video store. How many blocks does he walk to and from the video store each trip?

Answer is on page 13. _____



Multiplication and Division

It is often necessary to use **multiplication** to find the **product** of a two or more numbers to help solve a problem. You may also need to use **division** to find the **quotient** between two numbers. You may be required to multiply or divide whole numbers, fractions, decimals, or percents. Let's begin with a review of multiplication and division of whole numbers.

Remember that you will be much more comfortable using the operations of multiplication and division if you have memorized the one-digit facts. Review the times tables and division tables until you have them memorized. Review some multiplication and division problems now:

$$\begin{array}{r} 29 \\ \times 23 \\ \hline \end{array}$$

$$\begin{array}{r} 224 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 4261 \\ \times 8 \\ \hline \end{array}$$

$$112 \times 4 = \underline{\quad}$$

$$\begin{array}{r} 642 \\ \times 389 \\ \hline \end{array}$$

$$\begin{array}{r} 56 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{l} 366/3 = \underline{\quad} \\ 120/4 = \underline{\quad} \end{array}$$

$$1285 \div 5 = \underline{\quad}$$

$$\begin{array}{r} 156 \\ 3 \overline{) \quad} \\ \hline \end{array}$$

$$2795 \div 15 = \underline{\quad}$$

Answers are on page 13.

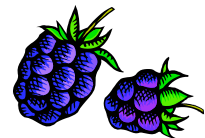
If you need more practice in reviewing multiplication and division of whole numbers, ask your teacher or tutor for more exercises. Many GED textbooks are available and provide several pages of practice in multiplication and division. The more you practice, the more comfortable you will be. On the GED Test, a problem using multiplication or division of whole numbers will usually be a word problem.

Try these examples:

The Hip Hop Record Store has 491 records on sale for the five-day festival event. The records are on special for \$10.00 during the event. How much money will the store make if it sells out?



At the Berry Hill Farms, workers picked 378 containers of boysenberries for the town festival pancake booth. Each container held 65 berries. The first day half of the berries were used. How many containers will need to be refilled for the next day?



Answers are on page 13.

STRATEGY SESSION

Using good test-taking strategies on the GED Math Test will help you to choose the correct answer or record the correct answer on the alternate format grids. In each *Video Partners* workbook you will be able to review a strategy that will be helpful on the GED Math Test. If you are not sure how to go about setting up a problem to get the correct answer or if you have to make an educated guess, use the strategies that you have practiced in your workbooks as well as your common sense and your number sense. Read each question carefully and then think about what you should do and what operation(s) you need to use to select the correct answer.



Use Estimation Whenever Possible to Select the Correct Answer Choice

Look at the following problem.

Phyllis pays \$59 rent each month for her storage unit. How much will she pay for the unit for two years?

1. \$590
2. \$708
3. \$720
4. \$1416
5. \$2416



Think of the rent as \$60 so that you can speed up calculations and possibly work without scratch paper. You have to know that there are 12 months in one year, however you can quickly multiply 60×10 and then add on the other two months. $\$600 + 120 = \720 which can be the *estimate* for one year. Double that and get \$1440 as the *estimate* for two years. It then becomes clear that answer choice number four is the correct choice.

Try using estimation in the following problems to work in your head to select the best answer.

Answers are on page 13.

Andreas worked at a pizza crust bakery where he made \$63.00 each day. If he worked weekends he made an extra \$25.00 a day. If he worked for two straight weeks, how much was his salary?

1. \$1460.00
2. \$982.00
3. \$730.00
4. \$441.00
5. \$400.00



Maria had to make lemonade for the girls and boys of her Campfire group. She knew that the paper cups each held seven ounces. If the 10 members and two leaders each had two cups, estimate how much lemonade she would need?

1. 3 quarts
2. 5 quarts
3. 6 quarts
4. 1 gallon
5. 2 gallons



Use Estimation Whenever Possible to Select the Correct Answer Choice

Measure Up

The problems you just did could be solved completely by estimation. Since both were problems that involved operations with measurements, it should be noted that you will be expected to know common measurements and their equivalents on the GED Test. Knowing these measurements will help you with many things in your daily lives such as cooking, shopping, maintaining a household and automobile, and using public transportation.

Here is a list of common U.S. Standard measurements and equivalents. Study this list and try to learn the basics of measurement.

Length	Capacity
12 inches = 1 foot 3 feet = 1 yard 1 mile = 5,280 feet	8 ounces = 1 cup 2 cups = 1 pint 2 pints = 1 quart 4 quarts = 1 gallon
Weight	Time
16 ounces = 1 pound 1 ton = 2,000 pounds	60 seconds = 1 minute 60 minutes = 1 hour 24 hours = 1 day 7 days = 1 week 52 weeks = 1 year 1 year = 365 days

Using the chart and your memory, complete the following exercise of English measurements and their equivalents.

Answers are on page 13.

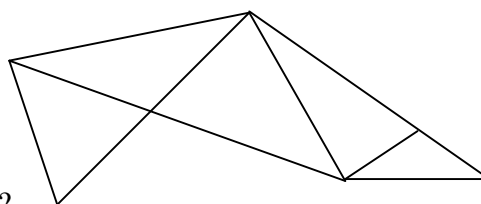
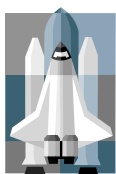
- | | | |
|------------------------|-------------------------|---------------------------|
| 3 feet = _____ inches | 1 yard = _____ inches | 1 quart = _____ ounces |
| 1 mile = _____ yards | 8 weeks = _____ days | 3 days = _____ hours |
| 1/2 ton = _____ pounds | 6 pounds = _____ ounces | 1 gallon = _____ cups |
| 2 weeks = _____ days | 3 cups = _____ ounces | 3 minutes = _____ seconds |



Make a short list of all of the ways you have used measurement in the last week.

There will be more discussion of measurement in future workbooks. Both the English system of measurement and the metric system of measurement will be found on the GED tests, but you will not be asked to make conversions from one system to the other system on the GED Math Test.

Out into Space



How many triangles?

What is the name for the plane figure made by the outside border?

Answers are on page 13.

Mixed Practice

$36 + 15 + 587 = \underline{\hspace{2cm}}$

$1000/25 = \underline{\hspace{2cm}}$

$$\begin{array}{r} 7,962 \\ - 2,998 \\ \hline \end{array}$$

$56 \times 30 = \underline{\hspace{2cm}}$

$39 \div 3 = \underline{\hspace{2cm}}$

$$\begin{array}{r} 546 \\ \times 32 \\ \hline \end{array}$$

$456 + 34 - 16 = \underline{\hspace{2cm}}$

$10,600 - 999 = \underline{\hspace{2cm}}$

$1,267 \times 8 = \underline{\hspace{2cm}}$

$3654/2 = \underline{\hspace{2cm}}$

$12 \times 78 \times 5 = \underline{\hspace{2cm}}$

$$\begin{array}{r} 5000 \\ \hline 100 \end{array}$$

$80 - 80 = \underline{\hspace{2cm}}$

$459 \times 7 = \underline{\hspace{2cm}}$

Monday, Louie took his 1994 Toyota Celica to the garage. Every morning he had a hard time starting it. The mechanic said that he would be able to repair it and gave the estimate that it would take three hours and that the parts would cost \$178.97. If the garage charges an hourly rate of \$60.00, what was the estimate to repair the car?

Expressing Numbers in Different Ways

Numbers can be expressed in different ways. For example, the number 10 can be expressed as the Roman numeral X, $20/2$, one third of 30, 2×5 and many other ways. List as many ways as you can to express the number 25. Be creative. Remember that good thinking skills are really important on the GED Tests



Practice showing numbers in different ways:

Answers are on page 14.

- a. $10 = 10 \times$ _____ b. Use tally marks to show five. _____ c. $15 = 45 /$ _____
d. $16 = 20 -$ _____ e. The Roman numeral for four is _____ f. $1/2 = .$ _____
g. $1/2 =$ _____ % h. The number of faces on a cube is _____ i. $3 \times 2 \times 5 =$ _____

All of the ways to express the numbers listed above are ways that you will learn more about as you prepare for the GED Math Test. You will practice expressing numbers as fractions, decimals, percents, and as unknown quantities in algebra. You will discover that the more ways you can express numbers increases your understanding of mathematics and allows you to feel confident as you decide the method(s) you will use to solve each problem.

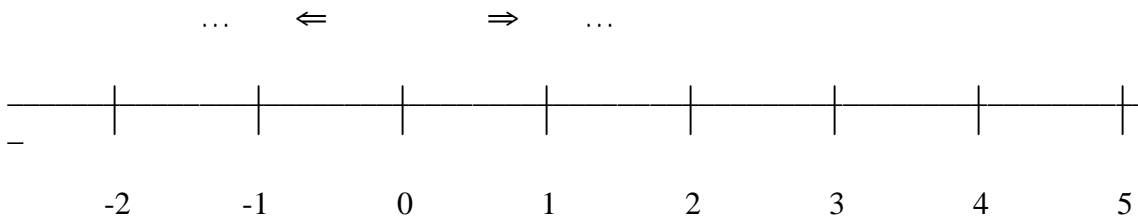
One way to increase your understanding of numbers is to work with number lines. As you understand how numbers relate to other numbers, you will have more tools to help you with problem solving.

Number Line

A number line is a way to show any number and its relationship to other numbers. Theoretically, all numbers, no matter how they are expressed, sit on the proper position on the number line. Of course, we are limited by the size of the paper as to how many numbers we can write in one illustration. However, an important part of mathematical understanding is to be able to imagine all of the numbers that are there but not shown.

It is also important to know that the number line extends infinitely on both sides of zero. In each picture, we can only show a small piece on the number line. There are no ends to it!

Look at this simple example:



Now practice imagining some other numbers that have places on this number line. See if you can see the places for:

- a. 6 b. $\frac{1}{2}$ c. -3 d. $4\frac{1}{3}$ e. $-\frac{3}{4}$ f. 1.5

Now write each number on the line where it belongs. Answers on page 14.

Then add five numbers of your own in the proper places. Have your teacher or tutor check these answers.

The number line illustrates that each number, no matter how large or how small, has its place relative to all other numbers. As you prepare for the GED Math Test, it is important to have a good understanding of numbers and number sense. Mathematics is numerical and spatial. Both parts are important to understanding math in your daily life at home, at work, and in the community.

Calculator Permitted

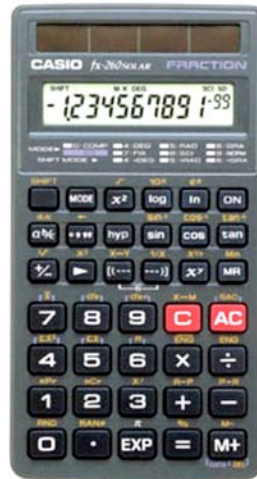
Part Two of the GED math test allows the use of a calculator to solve the problems. The official calculator is the Casio fx-260. It will be given to you to use at the test site when you receive the booklet for Part Two of the Math Test. Before you take the Math Test, you will watch a short video presentation on this calculator and how to use it. You will also see a large chart with a picture of the calculator on it. You do not have to use the calculator if you don't want to, but you should take the calculator from the examiner just in case you want to use it for some of the problems.

The problems on Part Two could have large numbers and will be more time-consuming to do on scratch paper. They are more of a test of problem solving than of your ability to use operations and algorithms (methods). You can use all of the skills you practiced -- rounding, estimation, problem solving -- and also have the help of the calculator if you need it.

The best way to feel comfortable and prepared for the GED Math Test is to practice with the Casio fx-260 as part of your routine preparation before you take the test as part of

your routine preparation. If you want to buy your own calculator, you can find the Casio fx-260 at places like Office Depot, Target, Wal*Mart, or Costco. It should be available for under \$12.00. You can also look at the calculator on the Casio website at www.Casio.com Here you can see the official calculator and read all about it. You can also purchase it for \$9.99.

Here is a picture of the official calculator - the Casio fx-260.



There are some important things to know about this calculator:

- it is a scientific calculator
- it knows order of operations, which is important for algebra
- it can do much more than is needed for the GED math test
- it will do some things that **are needed** on the GED test and would take time to do by hand such as:
 1. use exponents to find powers of base numbers
 2. find square roots
 3. perform operations with fractions and mixed numbers
 4. reduce fractions to lowest terms
 5. perform operations with decimals

As you watch the *GED Connection* videos, you will review numbers and operations for whole numbers, fractions, and decimals. In all cases, you will be able to practice computing and solving problems using the official calculator. For half of the problems on the GED Math Test, you will be able to use the calculator if you want to. You will learn how to use the calculator in these workbooks.

Look at the picture above and fill in the blanks below. Answers are on page 14.

The button on the far right of the top row is used to turn the calculator _____. The button of the far left of the top row is labeled _____.

Find the number keys on the left side and the operations keys on the right. The operations keys are _____, _____, _____, and _____.

GED Exercise

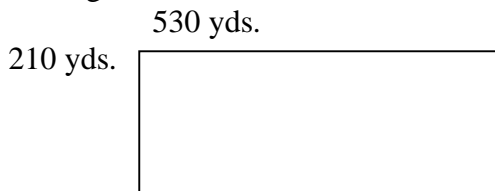
When you do the problems in this exercise, you may use a calculator, **but** you do not have to use a calculator if you don't want to. Before you take the GED math test you may want to practice with the Casio fx-260 that you will use on the test.

1. Samantha is planning a long road trip and hopes to average 425 miles a day. About how far will she travel in two weeks?
 - 1) 5,000 miles
 - 2) 5,500 miles
 - 3) 4,250 miles
 - 4) 6,000 miles
 - 5) 6,500 miles
2. Hal's diner serves a popular three-bean salad. Each day Hal mixes the beans with the special house dressing. Hal uses twice as many kidney beans as green beans. Garbanzo beans are always one-fourth of the mixture. If Hal uses 16 quarts of kidney beans every day, how many quarts of green beans does he need each day?
 - 1) 32 quarts
 - 2) 8 quarts
 - 3) 5 quarts
 - 4) 2 1/2 quarts
 - 5) 7 pints
3. To the nearest hundred yards how many yards of fencing does Barry need to fence the property during construction?
 - 1) 1,000 yds.
 - 2) 2,000 yds.
 - 3) 1,400 yds.
 - 4) 1,500 yds.
 - 5) 1,600 yds.
4. Barry hires a backhoe to move dirt at the site. The backhoe operator makes \$15.00 an hour after a set-up fee of \$50.00 to bring in the equipment on a trailer. How much will it cost for eight hours of work?
 - 1) \$107.00
 - 2) \$117.00
 - 3) \$120.00
 - 4) \$150.00
 - 5) \$170.00
5. Barry planted trees along the northern length of the property. If he could plant one tree every 20 yards, how many trees did he plant?
 - 1) 78
 - 2) 52
 - 3) 40
 - 4) 26
 - 5) 20



Problems 3-5 refer to the following information.

Barry bought a parcel of land just outside the city shaped like a rectangle.



Answers and Explanations

Words You Need to Know

page 1

- d.
- a.
- c.
- e.
- b.

Steven's Storage

page 3

Betty's Bins is the best deal for Steven. With the first month only a dollar, it will be a total of \$306.00 for six months. Store With Us would be \$336.00 and We Keep It Storage would be \$315.00.

Addition and Subtraction

page 4

143 518 1,451 266 622 3,774
307 1,898 759
36 blocks

Multiplication and Division

page 5

667 448 34,088 448 249,738 448
122 257 52 186.33 or 186 R5 or 186 $\frac{1}{3}$ 30
\$4,910.00
189 containers

Strategy Session

pages 6 and 7

- 2. \$982.00
- 3. 5 quarts

Measure Up

page 7

36 36 32
1,760 56 72
1,000 96 16
14 24 180

Out Into Space

page 8

8 triangles
hexagon

Mixed Practice

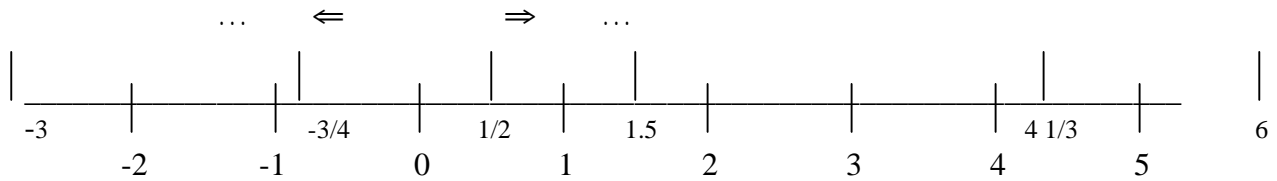
page 8

638 40 4,964 1,680
13 17,472 474
9,601 10,136 1,827
4,680 50 0 3.213
\$358.97

Answers will vary. Possible answers include: 5x5 100/4 XXV 1/2 of 50

- a. 1 b. c. 3
- d. 4 e. IV f. .5
- g. 50 h. 6 i. 30

Number Line



Calculator

ON
SHIFT

x ÷ + -

GED Exercises

- 1. 4)
- 2. 2)
- 3. 4)
- 4. 5)
- 5. 4)