

Pre-GED

Connection™



PREVIEW



MATHEMATICS

PROGRAM 21: Problem Solving

Sample pages from the Teacher's Guide
& Workbook Lesson





The GED/Pre-GED Connection™ System

Many students who intend to take the GED Tests come into adult programs with differences in ability levels across the content areas. *The LiteracyLink GED/Pre-GED Connection System* allows instructors to customize the learning experience based on student need and ability.

Pre-GED Connection

Pre-GED Connection videos, workbooks and online activities help build the foundation for adult learners who read at the 6th- to 8th-grade level.

Before these learners can tackle GED-level work, they need to develop basic skills and content-area knowledge at a level that is comfortable for them.

Twenty-six of the original 39 *GED Connection* programs, selected for Pre-GED learners, constitute the *Pre-GED Connection* videos. The programs have been renumbered to correspond with chapters in the companion workbooks and the packaging has been redesigned to make life easier in a Pre-GED level classroom. Teachers already using *GED Connection* in a multi-level classroom can use the crosswalk chart in the teacher's guide to determine which program goes with a Pre-GED workbook chapter.

Pre-GED Connection workbooks cover the five GED Test content areas along with the graphic literacy and thinking skills learners need to master before moving to GED-level work.

- *Reading*
- *Writing*
- *Mathematics*
- *Science*
- *Social Studies*

A *Pre-GED Connection* section in the *LiteracyLink Teacher's Guide* provides a video overview with a time-coded list of segments and a list of major ideas presented in the program; a workbook overview with subtopics and practice tests by page number; and lesson plans with suggestions for discussions and group and individual activities.

In addition to the 26 Pre-GED lesson plans, the teacher's guide includes a GED Locator Test teachers can administer to help learners see whether they would benefit more from GED or Pre-GED work in each of the five content areas.

Interesting related Pre-GED Internet links can be accessed at LiteracyLink online, www.pbs.org/literacy, from the learner's or teacher's home space.

Organizations can purchase an Online Management System to track learners' enrollment and progress, interact with learners in their virtual classroom and generate reports of learner involvement. Statewide licensing is available; call KET at (800) 354-9067 for prices and more information.

Mathematics Programs

- 20. Number Sense
- 21. Problem Solving
- 22. Decimals
- 23. Fractions
- 24. Ratio, Proportion and Percent
- 25. Measurement
- 26. Data Analysis

This print preview contains:

- The *GED/Pre-GED Connection*[™] Crosswalk listing the 39 *GED Connection* videos and showing which 26 make up *Pre-GED Connection*
- Information about the GED Locator Test
- *Pre-GED Connection* Unit 21, *Problem Solving*, from the *LiteracyLink Teacher's Guide*
- The entire *Pre-GED Connection* workbook chapter for *Problem Solving*

PBS LiteracyLink is the product of a partnership initiated by a five-year Star Schools grant from the US Department of Education. PBS Adult Learning Services coordinated development and launch of the project; the National Center on Adult Literacy (NCAL) at the University of Pennsylvania developed online materials for teachers and learners; the Kentucky Department of Workforce Development Office of Adult Education provided curriculum development support, and Kentucky Educational Television (KET) produced the *Workplace Essential Skills*, *Pre-GED* and *GED Connection* video programs, workbooks and teacher's guide. KET distributes and supports the LiteracyLink products and website.

To find out more,
explore **LiteracyLink**
online at
www.pbs.org/literacy.
To request a catalog
or to place an order,
call **KET** at
(800) 354-9067 or
visit **KET** online at
www.ket.org/ged.



GED/Pre-GED Connection Program Crosswalk

Twenty-six of the original 39 *GED Connection* programs make up the *Pre-GED Connection* series. These videos and the *Pre-GED Connection* workbooks, created to accompany the 26 programs, contain material appropriate for learners at the 6th- to 8th-grade reading level.

The chart below provides a listing of the program numbers and titles of corresponding *GED Connection* and *Pre-GED Connection* programs. A blank box under the Pre-GED programs indicates that there is no corresponding video program at that level.

GED Connection Programs	Pre-GED Connection Programs
1. GED Connection Orientation	
2. Passing the GED Writing Test	
3. Getting Ideas on Paper	1. Getting Ideas on Paper
4. The Writing Process	2. The Writing Process
5. Organized Writing	3. Organized Writing
6. Writing Style and Word Choice	
7. Effective Sentences	4. Effective Sentences
8. Grammar and Usage	5. Grammar and Usage
9. Spelling, Punctuation, and Capitalization	6. Spelling, Punctuation, and Capitalization
10. The GED Essay	
11. Passing the GED Reading Test	
12. Nonfiction	7. Nonfiction
13. Fiction	8. Fiction
14. Poetry	9. Poetry
15. Drama	10. Drama
16. Passing the GED Social Studies Test	
17. Themes in U.S. History	11. Themes in U.S. History
18. Themes in World History	12. Themes in World History
19. Economics	13. Economics
20. Civics and Government	14. Civics and Government
21. Geography	15. Geography
22. Passing the GED Science Test	
23. Life Science	16. Life Science
24. Earth and Space Science	17. Earth and Space Science
25. Chemistry	18. Chemistry
26. Physics	19. Physics
27. Passing the GED Math Test	
28. Number Sense	20. Number Sense
29. Problem Solving	21. Problem Solving
30. Decimals	22. Decimals
31. Fractions	23. Fractions
32. Ratio, Proportion, and Percent	24. Ratio, Proportion, and Percent
33. Measurement	25. Measurement
34. Formulas	
35. Geometry	
36. Data Analysis	26. Data Analysis
37. Statistics and Probability	
38. Introduction to Algebra	
39. Special Topics in Algebra and Geometry	

About The Locator

The GED Locator helps teachers evaluate learners' proficiency in each of the five GED subject areas. Results indicate whether a learner is ready for GED level study or needs to first build skills and content area knowledge at the Pre-GED level for each subject.

Writing

Part I—16 multiple-choice questions on grammar and usage, mechanics, sentence structure, and organization

Part II—3 writing assignments, in increasing levels of difficulty

Reading—16 multiple-choice questions reflecting comprehension, application, analysis, and synthesis skills as applied to fiction, nonfiction, poetry, and drama

Social Studies—16 multiple-choice questions reflecting comprehension, application, analysis, and evaluation skills with prose and graphics about history, economics, geography, and government and civics topics

Science—14 multiple-choice questions reflecting comprehension, application, analysis, and evaluation with prose and graphics about life science, earth and space science, and physical science topics

Mathematics—20 multiple-choice problems based on whole numbers, decimals, fractions, ratio and proportion, statistics and probability, algebra, and measurement and geometry

The *LiteracyLink Teacher's Guide* includes reproducible masters to make one test packet for each student or make individual packets for each test:

- GED Locator Tests Study Planner
- Directions for LiteracyLink GED Locator Tests
- Each of the five Locator tests
- GED Locator Tests Answer Sheet

Using the Locator Tests will help teachers place learners at the GED level, the Pre-GED level or a combination of the two.

Excerpts from the Teacher's Guide

“Before you distribute the tests, explain that the LiteracyLink GED materials have two different levels. Pre-GED Connection builds the foundation students need to effectively study for the GED, while GED Connection prepares them for the test itself. Use an analogy, such as pouring a foundation for a house and then building the house, to explain the importance of developing a strong foundation for GED-level study. Explain that students will take five short tests to help you to determine which level of material is the best starting place for them.”

“To ensure that students are not overwhelmed, administer no more than two tests at a sitting. These are not timed tests, but students should not spend more than 30 minutes for most tests (although Writing may take longer because of the writing assignments). One possible scenario is: one test session for Writing, Parts I and II; one session for Social Studies and Mathematics; and one session for Reading and Science.”

“Urge students to try to answer every question but not to spend too much time on any one. If you see that a student looks frustrated or upset, you can stop the student and discuss it with him or her. You can then make a decision to either let the student finish that test or to discontinue it and place the student in Pre-GED material for that subject area.”

“Evaluate the student's work and discuss which level seems the most appropriate for him or her. In any case, monitor their comfort with material as the students work through the LiteracyLink GED Preparation System. Because this is a multi-level system, you can adjust a student to easier or more challenging work, per subject area, based on his or her individual performance or need.”

LESSON OBJECTIVES

1. Add and subtract whole numbers
2. Multiply and divide whole numbers
3. Estimate amounts

MATHEMATICS

Problem Solving



VIDEO OVERVIEW

Program Segments
with approximate time codes

- 2:10** **Problem solving is a process with five steps.** Professor Zalman Usiskin explains that Step One is “understanding the question you are trying to answer.”
- 8:45** **Step Two is gathering the information you need.** Credit managers explain how to solve problems about car loans and interest.
- 12:09** **In Step Three, you must set up the problem using correct operations.** Teachers explain how to translate words into mathematical expressions.
- 16:00** **Do the operations in Step Four.** Decide whether to use a calculator, mental math, or pencil and paper. Examples for each are shown.
- 18:50** **Sometimes the order in which you do the operations matters.** Professor Keith Devlin and others explain the rules of the order of operations.
- 23:42** **In Step Five, check your answer.** Ask, “Does my answer make sense?” Host Kim Leigh Smith reviews the five steps of problem solving.

Major Ideas in the Video Program

- **The Problem-Solving Process**—The five-step process can help you break down a problem into manageable steps. The steps are:
 - Understand the question.
 - Find the facts you need.
 - Set up the problem with correct operations.
 - Do the calculations.
 - Make sure your answer is reasonable.
- **How to Set Up a Problem**—Once you know the correct operations to use, you can write a mathematical expression to solve the problem.
- **The Order of Operations**—When you calculate the value of an expression, you must perform operations in a certain order.
- **The Role of Number Sense in Problem-Solving**—Always ask whether your answer seems reasonable. Think: Is this number approximately the right size?



WORKBOOK OVERVIEW

Program 21, Problem Solving, pp. 40–59

Before You Watch/After You Watch, pp. 40–41
 Adding and Subtracting, pp. 42–45
 Multiplying and Dividing, pp. 46–49
 Estimation, pp. 50–53
 GED Problem Solving: Decide Which Operation to Use, pp. 54–55

GED Math Connection: Calculator Operations and Grid Basics, pp. 56–57
 GED Math Review, pp. 58–59

Extra Practice

- Adding and Subtracting Whole Numbers, p. 164
- Multiplying and Dividing Whole Numbers, p. 165
- Estimating, p. 166
- Calculator Operations and Grid Basics, p. 167

Before You Watch, p. 40

Preview *Lesson Goals* on page 40.

Go over *Think About the Topic* and *Prepare to Watch the Video*. Encourage students to read and answer the questions to help them think about the topic of the program before they watch it.

Have students read *Preview the Questions* on page 41 and go over the *Terms* in the right-hand column.

**Show Program 21****After You Watch, p. 41**

Have students read the *Think About the Program* questions on page 41 and jot down their answers. Discuss the questions and their answers with the students.

Read the *Make the Connection* prompt to the students. You can use this as a discussion prompt or as a writing assignment.

**Lesson Notes**

Adding and Subtracting, pp. 42–45. Most mental math strategies involve breaking a problem into parts and then putting it back together to find the answer.

Ask, *How would you solve these problems mentally: $57 + 25$ and $92 - 46$?* Discuss strategies.

- Extra practice—*Adding and Subtracting Whole Numbers*, p. 164

Multiplying and Dividing, pp. 46–49. Ask, *How do you recognize when you should multiply to solve a problem? To divide?* Discuss students' ideas and strategies.

- Extra practice—*Multiplying and Dividing Whole Numbers*, p. 165

Estimation, pp. 50–53. Ask, *Which method of estimation produced estimates that were closest to the exact answers?* Discuss students' responses. Point out that students should choose a method based on the situation and how close an estimate they need.

- Extra practice—*Estimating*, p. 166

Decide Which Operation to Use, pp. 54–55. Review the example at the bottom of page 54. Point out that there is often more than one way to solve a problem. Have students suggest another way to solve this problem. One way: $785 - 300 - 340$. Point out that this method gives the same answer as $785 - (300 + 340)$.

Calculator Operations and Grid Basics, pp. 56–57.

Ask, *Calculators give an exact answer and grid problems require an exact answer, so why is it important to estimate an answer to these problems?* Discuss the importance of using estimation to make sure an answer makes sense.

- Extra practice—*Calculator Operations and Grid Basics*, p. 167

GED Math Review, pp. 58–59. Help students improve their understanding of mathematical expressions by having them explain the steps for each setup in questions 4 and 9. Example: If the setup reads $35 - (4 + 9)$, a student might say: first add 4 and 9; then subtract the sum from 35.

Extension Activities

Individual Have students write about a time when they have used estimation during the past week. Students may find that they often use estimation without realizing it.



Group Bring several newspapers to class. Have students work in small groups to clip out an advertisement and write four word problems based on the information in the ad. Have groups exchange problems and solve.



Online Have students go on LiteracyLink to the Pre-GED section and click *Mathematics: Problem Solving*. This link allows students to work on their rounding and estimating skills.



Problem Solving

LESSON GOALS



MATH SKILLS

- Add and subtract whole numbers
- Multiply and divide whole numbers
- Estimate amounts



GED PROBLEM SOLVING

- Decide which operation to use



GED MATH CONNECTION

- Calculator operations and grid basics



GED REVIEW

EXTRA PRACTICE PP. 164–167

- Adding and Subtracting Whole Numbers
- Multiplying and Dividing Whole Numbers
- Estimating
- Calculator Operations

1. Think About the Topic

The program that you are going to watch is about *Problem Solving*. The video will describe strategies that you can use for approaching and solving different types of math problems.

2. Prepare to Watch the Video

As you watch the program, think about how you can use the strategies. For example, do you know when to estimate and when to find an exact answer?

A candidate wants to talk about the growing population in her district. Would she need an exact answer or an estimate?

An *estimate* would give a good enough idea of the population.

At a wedding reception, how many people will be at the sit-down dinner? Do you need an estimate or an exact answer?

An *exact answer* is needed so that there are enough dinners for everyone without the hosts paying for extra meals.

Deciding when you can estimate and when you need to find an exact answer is an important skill—in life and on the GED.

3. Preview the Questions

Read the questions under *Think About the Program* on the next page and keep them in mind as you watch the program. You will be reviewing them after you watch.

4. Study the Vocabulary

Review the terms to the right. Understanding the meaning of math vocabulary will help you understand the video and the rest of this lesson.

WATCH THE PROGRAM

As you watch the program, pay special attention to the host who introduces or summarizes major ideas that you need to learn about. The host may also tell you important information about the GED Math Test.

AFTER YOU WATCH



1. Think About the Program

What are the basic steps in the problem-solving process?

How would you approach a real-life problem that is different from any that you have seen before?

What are some of the different strategies you could use to help you understand a math problem?

The program talks about the order of operations. What is it? Why do you think a set order of operations is needed?

2. Make the Connection

The program talked about figuring interest and finding the real cost of an item, including the interest payment. Is there something that you would like to buy on credit? What information would you need to find the total cost, including interest? How would you get that information?

compatible numbers—numbers that work well together

difference—the solution to a subtraction problem

estimation—finding an approximate amount

front-end estimation—using the first digits of numbers to estimate

partial products—the answers to the steps in a multi-step multiplication problem

product—the answer to a multiplication problem

quotient—the answer to a division problem

remainder—any leftover amount after finding the whole number part of the answer to a division problem

rounding—estimating to a certain place value

set-up problem—a multiple-choice problem with options that show *how* a problem could be solved

sum—the answer to an addition problem



“Doing well in math often means choosing the right operation.”

Adding and Subtracting

Addition

Adding is combining like objects or numbers to find the total, or **sum**. Addition problems are written in rows or columns using the plus sign (+). Write the numbers in a column before you add, lining up like place-value columns.

EXAMPLE: Find the total of 243, 62, and 157.

Step 1. Write the numbers in a column. Line up the place-value columns.

$$\begin{array}{r} 243 \\ 62 \\ + 157 \\ \hline \end{array} \quad \begin{array}{r} | \\ 243 \\ 62 \\ + 157 \\ \hline 2 \end{array} \quad \begin{array}{r} | | \\ 243 \\ 62 \\ + 157 \\ \hline 462 \end{array}$$

Step 2. Work from right to left. Add the ones column.

If the total of any column is 10 or more, **regroup**, or carry. When you regroup, you write the ones value of the column total under the column and write the tens value in the next column on the left.

Step 3. Add the tens and the hundreds columns.

A special property of addition can make your work easier. You can add numbers in any order, and the answer will be the same.

Tip: When adding digits, look for digits that will combine to make ten.

EXAMPLE: Add: $4 + 8 + 3 + 2 + 6 + 5 + 7$.

There are three pairs of numbers that equal 10: 4 and 6, 8 and 2, and 7 and 3.

Rewrite the order of the numbers: $(4 + 6) + (8 + 2) + (3 + 7) + 5$

Add the 10s and the remaining digit: $10 + 10 + 10 + 5 = 35$

Mental Math

Mental math is solving a problem or even part of a problem in your head. If you compute math without pencil and paper or calculator, your math skills will improve. Take time to practice the mental math strategies you will find in this book. They can save you valuable time when you are taking a test.

To add mentally, start on the left to combine place values.

EXAMPLE: Add 47 and 35.

Think: Add the tens: $40 + 30 = 70$

Add the ones: $7 + 5 = 12$

Combine: $70 + 12 = 82$



A. Solve.

1.
$$\begin{array}{r} 34 \\ + 25 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 465 \\ + 92 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 1,238 \\ + 4,057 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 16 \\ 62 \\ + 155 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 159 \\ + 37 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 1,039 \\ + 2,634 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 3,054 \\ 85 \\ + 648 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 238 \\ 446 \\ + 572 \\ \hline \end{array}$$

B. Rewrite each problem in a column and solve.

9. $168 + 84 + 302$

11. $75 + 149 + 16$

10. $1,073 + 748 + 1,947$

12. $350 + 928 + 415$

C. Solve each problem using mental math.

13. $36 + 49$

16. $18 + 96$

14. $57 + 85$

17. $14 + 36$

15. $94 + 65$

18. $76 + 53$

D. Solve.

19. Maria’s grades for four tests are shown below:

- Test 1: 78 points
- Test 2: 92 points
- Test 3: 86 points
- Test 4: 105 points

How many points did she earn in all for the tests?

20. The Lighthouse Theater spent \$1,568 to build the sets for a play. The costumes for the play cost \$827. What was the total amount spent on sets and costumes?

Questions 21 and 22 refer to the following ad.



21. Karleen bought the desktop computer and the scanner shown in the ad. How much did she spend?

22. Craig bought a laptop computer for \$1,385 and the printer in the advertisement. What was his total bill?

Answers and explanations start on page 201.

For more practice adding whole numbers, see page 164.



Subtraction

Subtraction is the opposite of addition. Addition combines amounts to find a sum. Subtraction takes away an amount to find what amount is left. The answer to a subtraction problem is called the **difference**. The minus sign ($-$) tells you to subtract.

Subtraction is used to compare numbers. When you compare numbers by subtracting, you are trying to find the difference between the numbers. In other words, you want to know how much more or less one number is than another.

To subtract, write the numbers so that the larger number is on top. Line up the place-value columns. Then start on the right in the ones place. You must regroup, or borrow, any time the digit you are subtracting is larger than the digit above it.

EXAMPLE: Subtract 58 from 182.

Step 1. Line up the place-value columns. You must write the smaller number on the bottom.

$$\begin{array}{r} 182 \\ - 58 \\ \hline \end{array} \quad \begin{array}{r} 712 \\ 182 \\ - 58 \\ \hline \end{array} \quad \begin{array}{r} 712 \\ 182 \\ - 58 \\ \hline 124 \end{array}$$

Step 2. Start in the ones column. Since 8 is greater than 2, you must regroup one 10 from the tens column.

Step 3. Subtract each column, working from right to left.

You can use addition to check the answer to a subtraction problem. Add your answer to the number you subtracted. The sum should be the number that you started with.

$$\begin{array}{r} \text{Check:} \\ 124 \\ + 58 \\ \hline 182 \end{array}$$

You may need to regroup more than once in a problem.

EXAMPLE: Subtract: $504 - 236$

Step 1. Line up the place-value columns.

Step 2. You must regroup to subtract the ones column. Since the tens column has a zero, regroup ten 10s from the hundreds column. Then regroup one 10 from the tens column.

$$\begin{array}{r} 504 \\ - 236 \\ \hline \end{array} \quad \begin{array}{r} 410 \\ 504 \\ - 236 \\ \hline \end{array} \quad \begin{array}{r} 914 \\ 410 \\ 504 \\ - 236 \\ \hline 268 \end{array}$$

Step 3. Subtract each column, working from right to left.

Check: $268 + 236 = 504$

Mental Math

Don't try to regroup when you subtract in your head. Instead, break the smaller number into parts, and subtract one part at a time.

EXAMPLE: Subtract: $85 - 47$.

Think: I can break 47 into two parts: 40 and 7.

$$85 - 40 = 45 \text{ and } 45 - 7 = 38$$



A. Solve.

$$\begin{array}{r} 1. \quad 59 \\ - 23 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 62 \\ - 46 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 4,038 \\ - 2,197 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 924 \\ - 179 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 786 \\ - 156 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 348 \\ - 175 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 600 \\ - 274 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 5,382 \\ - 3,275 \\ \hline \end{array}$$

B. Rewrite each problem in a column and solve. Check by using addition.

9. $562 - 89 =$

11. $90 - 38 =$

10. $951 - 148 =$

12. $1,005 - 194 =$

C. Solve each problem using mental math.

13. $94 - 12 =$

16. $85 - 36 =$

14. $76 - 28 =$

17. $57 - 15 =$

15. $106 - 45 =$

18. $123 - 85 =$

D. Solve.

Questions 19 and 20 refer to the following information.

**Proposition C
Election Results**

Yes: 3,475

No: 1,592

19. How many more people voted yes than voted no?

20. Only 2,315 people voted yes on Proposition D. How many more voted yes on Proposition C than on D?

21. David has driven 318 miles of a 600-mile trip. How many miles does he have left to drive?

22. Right now, Kira earns \$1,926 per month. When she finishes school, she will qualify to work as a manager, which pays \$2,620 per month. How much more per month will she earn if she gets the manager job?

23. Lamar has \$2,564 in the bank. If he writes a check for \$395, how much money will he have left in the bank?

Answers and explanations start on page 201.

For more practice subtracting whole numbers, see page 164.



“Take your time and write out each step. Scratch paper is cheap.”

Multiplying and Dividing

Multiplication

Multiplying is a way of adding the same number many times. For instance, when you multiply 2 by 5, you are adding 2 five times: $2 + 2 + 2 + 2 + 2 = 10$ and $2 \times 5 = 10$. In the equation $2 \times 5 = 10$, the symbol (\times) is the times sign, and the answer is called the **product**. You can say that the product of 2 and 5 is 10.

To multiply numbers with more than one digit, multiply each digit in the top number by each digit in the bottom number.

EXAMPLE: Find the product of 135 and 7.

- Step 1.** Write the number with more digits on top.
- Step 2.** Multiply each digit in the top number, starting in the ones column, by the bottom number. If the product of a column is 10 or more, regroup.
- Step 3.** After multiplying the next column, add the regrouped value.

$$\begin{array}{r} 135 \\ \times 7 \\ \hline \end{array} \qquad \begin{array}{r} 3 \\ 135 \\ \times 7 \\ \hline 5 \end{array} \qquad \begin{array}{r} 23 \\ 135 \\ \times 7 \\ \hline 945 \end{array}$$

When the number on the bottom has more than one digit, you must do the problem in stages. Working from right to left, multiply the top number by a digit in the bottom number. Then add these **partial products**. In the next example, the regrouping marks are not shown. As you gain experience, you may choose to regroup mentally.

EXAMPLE: Multiply: 368×124

- Step 1.** Write the number with more digits on top. Multiply the top number by 4. Write the partial product.
- Step 2.** Multiply the top number by 2. Since the 2 actually represents 2 tens, or 20, write a zero in the ones place of the partial product.
- Step 3.** Multiply the top number by 1. Since the 1 represents 100, write two zeros in the partial product. Finally, add the partial products.

$$\begin{array}{r} 368 \\ \times 124 \\ \hline 1472 \\ 7360 \\ 36800 \\ \hline 45,632 \end{array}$$

Working with Zeros

When a number ends in zero, you can use a shortcut to make your work easier. Look for a pattern in these examples.

$$\begin{array}{r} 43 \\ \times 2 \\ \hline 86 \end{array} \qquad \begin{array}{r} 43 \\ \times 20 \\ \hline 860 \\ \text{one zero} \end{array} \qquad \begin{array}{r} 43 \\ \times 200 \\ \hline 8,600 \\ \text{two zeros} \end{array}$$

To multiply by a number ending in zero, write the total number of zeros in the product, and then multiply by the nonzero digit.



A. Solve.

1.
$$\begin{array}{r} 16 \\ \times 8 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 168 \\ \times 7 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 245 \\ \times 14 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 25 \\ \times 9 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 193 \\ \times 8 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 708 \\ \times 29 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 72 \\ \times 5 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 724 \\ \times 5 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 546 \\ \times 20 \\ \hline \end{array}$$

B. Rewrite each problem in a column and solve.

10. $123 \times 50 =$

13. $451 \times 60 =$

11. $26 \times 54 =$

14. $913 \times 42 =$

12. $208 \times 300 =$

15. $625 \times 200 =$

C. Solve.

16. Max pays \$345 for rent each month. How much does he spend on rent in one year? (1 year = 12 months)

17. A computer can print 120 labels in 1 minute. How many labels can it print in 30 minutes?

18. Candice shot 5 rolls of film on her vacation. If each roll had 24 pictures, how many pictures did she take?

19. Jennifer's employer deducts \$12 for health insurance from her weekly paycheck. After 42 weeks of work, how much has been deducted for health insurance?

Questions 20 and 21 refer to the table below.

CALORIES IN FOODS	
Food	Calories
Skim milk (1 cup)	85
Apple (medium)	80
Cheese pizza (1 slice)	145
Oat breakfast cereal (1 cup)	120

20. Nita drinks three cups of skim milk per day. How many calories does she get from skim milk in seven days?

21. Frank had cheese pizza for lunch. If he ate three slices, how many calories did he consume?

Answers and explanations start on page 202.

For more practice multiplying whole numbers, see page 165.



Division

Division is finding how many times one number can be subtracted from another number. Another way to look at division is to think how many times one number “goes into” another number. The answer to a division problem is called the **quotient**.

The long-division process is actually a shortcut. Instead of dividing a large number, we break it into smaller parts and divide only a few digits at a time.

EXAMPLE: Divide 1,416 by 6.

Step 1. Write the number to be divided inside the bracket. Since 6 is larger than 1, divide 6 into 14. Write 2 above the 4 in 14. Then multiply: $6 \times 2 = 12$. Subtract 12 from 14.

$$\begin{array}{r} 2 \\ 6 \overline{)1,416} \\ \underline{12} \\ 2 \end{array}$$

$$\begin{array}{r} 23 \\ 6 \overline{)1,416} \\ \underline{12} \\ 21 \\ \underline{18} \\ 3 \end{array}$$

$$\begin{array}{r} 236 \\ 6 \overline{)1,416} \\ \underline{12} \\ 21 \\ \underline{18} \\ 36 \\ \underline{36} \\ 0 \end{array}$$

Step 2. Bring down the next digit, 1. Divide 6 into 21. Write 3 above the 1. Multiply $3 \times 6 = 18$, and subtract.

Step 3. Bring down the next digit, 6. Divide 6 into 36. Write the 6 above the 6. Multiply $6 \times 6 = 36$, and subtract. Since the result is 0, the division is finished and there is no **remainder**.

Division is the opposite of multiplication, so you can check division by multiplying. Multiply the quotient by the number you divided by. Add any remainder. The result should be the number you started with. *Check:* $236 \times 6 = 1,416$.

Dividing by more than one digit works the same way.

EXAMPLE: Divide 2,872 by 14.

Step 1. Since 14 is greater than 2, start with the first two digits. Divide 14 into 28. Write 2 above the 8 in 28. Multiply: $14 \times 2 = 28$, and subtract.

$$\begin{array}{r} 2 \\ 14 \overline{)2,872} \\ \underline{28} \\ 0 \end{array}$$

$$\begin{array}{r} 20 \\ 14 \overline{)2,872} \\ \underline{28} \\ 07 \end{array}$$

$$\begin{array}{r} 205 \\ 14 \overline{)2,872} \\ \underline{28} \\ 072 \\ \underline{70} \\ 2 \end{array}$$

Step 2. Although the difference is 0, the division is not finished. Bring down the next digit, 7. How many times does 14 divide into 7? Write the 0 above the 7 and bring down the next digit, 2.

Step 3. Divide 14 into 72. The answer is 5. Multiply: $5 \times 14 = 70$, and subtract. There is a remainder of 2.

Answer: The quotient is **205 r2**. The letter *r* means remainder.

Check: Multiply: $205 \times 14 = 2,870$. Add the remainder: $2,870 + 2 = 2,872$.

**A. Solve. Check by using multiplication.**

1. $5 \overline{) 810}$

4. $13 \overline{) 3,679}$

7. $4 \overline{) 615}$

2. $9 \overline{) 567}$

5. $19 \overline{) 1,349}$

8. $12 \overline{) 5,913}$

3. $7 \overline{) 2,212}$

6. $28 \overline{) 14,112}$

9. $32 \overline{) 19,424}$

B. Rewrite each problem using a division bracket, and solve. Check by using multiplication.

10. $5,056 \div 6$

12. $1,701 \div 27$

11. $2,210 \div 23$

13. $5,376 \div 34$

C. Solve.

14. The library committee raised \$584 by selling tickets to a play. If the tickets were \$4 each, how many were sold?

15. A bookstore paid \$2,162 for an order of 94 copies of a new book. How much did the store pay for each book?

16. A factory assembly line can make 75 products per hour. Yesterday the assembly line completed 1,125 products. For how many hours did the assembly line run?

17. A sign at a car lot says:



Jeff wants to pay for the car in 24 equal monthly payments. Before any interest is added, how much would Jeff owe each month?

18. Millie has to read a 960-page book in 6 weeks. How many pages will she have to read each week to finish on time?

Answers and explanations start on page 202.
For more practice dividing whole numbers, see page 165.



“A good process can help you break a problem into manageable steps.”

Estimation

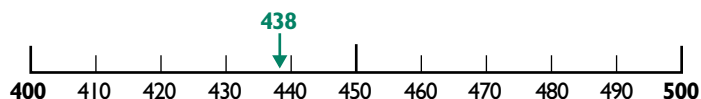
Rounding

In life we often use estimation to solve problems. **Estimation** means using approximate amounts instead of exact amounts to do calculations. **Rounding** is one way to estimate. When you round numbers, you make them simpler and easier to work with.

One way to round numbers is to use a number line.

EXAMPLE: Round 438 to the nearest hundred.

Is 438 closer to 400 or 500? As you can see, the number 450 is halfway



between 400 and 500. Any number less than 450 is closer to 400.

Answer: 438 rounds to **400**.

You can also round by using your understanding of place value.

Step 1. Choose the place value to which you want to round.

Step 2. Look at the place value to the right.

Step 3. If that digit is 5 or more, round up to the next larger number. If it is less than 5, round down to the smaller number.

EXAMPLES: Round 56,480 to the place values shown below.

Ten thousands place

56,480 rounds up to 60,000

Thousands place

56,480 rounds down to 56,000

Hundreds place

56,480 rounds up to 56,500

Estimation is an important tool in problem solving. When you start a new problem, first estimate an answer. Then solve the problem using the exact numbers. Once you have an answer, compare it to your estimate. The two numbers should be reasonably close. If they aren't close, rework the problem or check your work some other way.

EXAMPLE: Lois earns \$85 per day at her job. She is scheduled to work 21 days in June. How much will she earn in June?

Step 1. Estimate an answer: \$85 rounds up to \$90, and 21 rounds down to 20 days.

Multiply the rounded numbers: $\$90 \times 20 = \$1,800$.

Step 2. Multiply the actual numbers: $\$85 \times 21 = \$1,785$.

Step 3. Compare the actual answer to the estimate: \$1,785 is close to \$1,800.

Answer: Lois will earn **\$1,785** in June.



A. Round each number as directed.

Example: Round 845 to the nearest hundred. 800

1. Round 756 to the nearest ten. _____
2. Round 2,530 to the nearest thousand. _____
3. Round 19,615 to the nearest hundred. _____
4. Round 6,290,755 to the nearest million. _____
5. Round 14,935 to the nearest hundred. _____

B. Use rounding to estimate each answer. Then find the exact answer.

Example: $5,820 + 3,219$ estimate: 9,000 exact answer: 9,039

6. $394 + 225 + 179$ estimate: _____ exact answer: _____
7. $5,346 - 1,592$ estimate: _____ exact answer: _____
8. 840×18 estimate: _____ exact answer: _____
9. $6,264 \div 12$ estimate: _____ exact answer: _____

C. Use rounding to estimate each answer. Then find each exact answer.

10. Kenneth bought new dining room furniture for \$1,032. He plans to pay for the furniture in 12 monthly payments. How much will he pay each month?
11. The land area of Minnesota is 79,617 square miles. The area covered by water is 7,326 square miles. What is the total area in square miles of Minnesota?
12. Bob ordered 280 Los Angeles Lakers caps to sell in his store. Each cap cost Bob \$17. How much did Bob pay for the caps?
13. A school needs \$28,000 to put in a new library. So far this year, the parents have raised \$17,642. How much more do they need for the library?
14. An electronics store sold 48 of the DVD players shown below at the sale price.



How much did the store take in on the sale of the DVD players?

Answers and explanations start on page 202.
For more practice with estimation, see page 166.



Front-End Estimation

When you look at any number, the first digit gives you the most information about the size of the number. For instance, look at the number 5,238. The 5 represents 5 thousand. From this digit alone, you know that this number is at least 5,000 and less than 6,000.

Front-end estimation means using the values of the first digits of numbers to estimate the answer to a problem.

EXAMPLE: Find the sum of 942, 538, and 235.

Add the values of the first digits of each number.	$\begin{array}{r} 942 \rightarrow 900 \\ 538 \rightarrow 500 \\ + 235 \rightarrow + 200 \\ \hline 1,600 \end{array}$	Compare to the exact answer. The estimate and exact answer are close.	$\begin{array}{r} 942 \\ 538 \\ + 235 \\ \hline 1,715 \end{array}$
--	--	---	--

When using the first digit alone doesn't give a good estimate, use the first two digits.

EXAMPLE: Marcy's high score in a video game was 18,655. Phillip's high score was 11,302. About how many more points did Marcy score than Phillip?

Using the first digit to estimate gives us $10,000 - 10,000 = 0$. This is not a useful estimate. Try the first two digits of both numbers: $18,000 - 11,000 = 7,000$. Marcy scored **about 7,000 more points** than Phillip.

Compatible Numbers

Compatible numbers are numbers that work well together. For instance, you may know that $25 + 75 = 100$. Now suppose you need to add 24 and 73. Since 24 is almost 25 and 73 is close to 75, you could estimate that the sum of 24 and 73 is about 100.

Compatible numbers are very helpful when you need to estimate a quotient.

EXAMPLE: Divide 2,324 by 83.

Use compatible numbers. Think: 2,324 is close to 2,400, and 83 is close to 80.	Estimate: $80 \overline{) 2,400}$	Exact answer: $83 \overline{) 2,324}$
	$\begin{array}{r} 30 \\ 80 \overline{) 2,400} \\ \underline{2,400} \\ 0 \end{array}$	$\begin{array}{r} 28 \\ 83 \overline{) 2,324} \\ \underline{2,324} \\ 0 \end{array}$

You have learned three methods of estimation: rounding, front-end estimating, and using compatible numbers. In each situation, use the method that works best for you. Remember, many problems in life and on tests can be solved with a good estimate. Estimating can save you time, and it is one of the best ways to check your work.



A. Show how you would solve the problem by using front-end estimation. Then find the exact answer.

	Estimate	Exact Answer
Example: $854 + 549 + 167$	$800 + 500 + 100 = 1,400$	<u>1,570</u>
1. $\$24 + \$67 + \$12$	_____	_____
2. $44,914 - 12,350$	_____	_____
3. 520×23	_____	_____
4. $1,243 \div 11$	_____	_____

B. Show how you would solve the problem by using compatible numbers. Then find the exact answer.

	Estimate	Exact Answer
Example: $7,440 \div 24$	$7,500 \div 25 = 300$	<u>310</u>
5. $177 \div 59$	_____	_____
6. $3,528 \div 42$	_____	_____
7. $2,226 \div 53$	_____	_____

C. Estimate an answer to each question using the method that is best for you. Then find the exact answer.

8. Rafi will make 12 payments of \$39 to pay for a washing machine. How much will he pay in all for his purchase?

11. Nine co-workers bought a winning lottery ticket worth \$2,025,000. How much is each person's share?

9. A concert hall has three sections. There are 356 seats in the center, 278 seats on the sides, and 186 seats in the balcony. How many seats are there in all?

12. Teresa kept track of the ticket sales for the first four showings of a new film.

Ticket Sales by Time	
2:30 show	152 tickets
5:00 show	385 tickets
7:30 show	246 tickets

10. A city budgeted \$614,500 for school improvements. The actual cost of the improvements was \$869,430. How far over budget was the city?

How many more tickets were sold for the 7:30 show than for the 2:30 show?

Answers and explanations start on page 202.
For more practice with estimation, see page 166.



Decide Which Operation to Use

In the video program, many people use a process for solving complex problems. Once you understand the question and the given information, you can set up how you would solve the problem. This requires thinking about and deciding which operation to use.

Deciding which operation to use means that you need to figure out whether to add, subtract, multiply, or divide to solve a math problem. Here are two different problems that show how to decide which operation is needed.

EXAMPLE 1: Samantha wants to buy four shirts that cost \$12 each. How much will the four shirts cost?

Since the cost of all four shirts is the same, use multiplication to solve:
 $4 \times \$12$.

EXAMPLE 2: There are 15 yards of wire on a spool. If you cut off 9 yards, how many yards are left?

To find the difference between the length of wire you start with and the number of yards cut off, subtract: $15 - 9$.

Problems with Two or More Operations

When using more than one operation to solve a problem, be sure to use the correct order of operations. The **order of operations** tells the order in which to perform calculations, working from left to right.

Order of operations

1. any operations within parentheses
2. powers or roots
3. multiplication and division
4. addition and subtraction

EXAMPLE: Mark drove 300 miles on the first day of his trip and 340 miles on the second day. If he needs to drive a total of 785 miles, how many more miles does he need to travel?

Think about the question: How many more miles does he need to travel?

Find the needed information: How far does he need to go? 785 miles
How far has he driven? 300 miles and 340 miles

Set up the problem: Decide which operations to use.

Step 1. Add the number of miles driven: $300 + 340$.

Step 2. Subtract the sum from the total number of miles: 785.

Answer: Since you need to subtract the total number of miles driven so far, group the amounts in parentheses so that their sum will be subtracted: $785 - (300 + 340)$.



Set-up Problems

On the GED Math Test, a **set-up problem** will ask you to choose the solution that shows how a problem could be solved. You are not required to find the answer.

EXAMPLE: Jane needs 2 batteries for her remote control, 6 for a flashlight, and 4 for a clock. If Jane buys 2 packages of 8 batteries each, which expression can be used to find how many batteries she will have left?

- (1) $2 + 6 + 4$
- (2) 2×8
- (3) $2 \times 8 - (2 + 6 + 4)$
- (4) $2 \times 8 + (2 - 6 - 4)$
- (5) $8 - (2 + 6 + 4)$

The correct answer is (3). This choice shows to first add the numbers in parentheses (the number of batteries needed). Then multiply to find the total number of batteries in the packages. Last, subtract to find the number of batteries left.



GED MATH PRACTICE

DECIDE WHICH OPERATION TO USE

Choose the one best way to solve each problem. You do not have to find the answer.

1. Eric has 4 bookshelves that hold about 40 books each. About how many books in all can Eric keep on his shelves?

- (1) Multiply 4 by 40.
- (2) Divide 40 by 4.

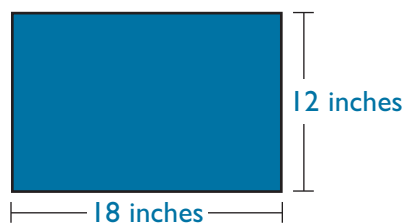
2. Marta bought 4 cans of soup for \$2. How much did each can of soup cost?

- (1) Multiply 4 by \$2.
- (2) Divide \$2 by 4.

3. Mike earned \$62 in tips on Saturday and \$55 in tips on Sunday. He earned twice that much last weekend. Which expression can be used to find how much he earned in tips last weekend?

- (1) $62 - 55$
- (2) $2 \times 62 \times 55$
- (3) $2 \times 62 + 55$
- (4) $2 \times (62 + 55)$
- (5) $\frac{62}{55}$

Questions 4 and 5 refer to the drawing.



4. How much longer is the picture's length than its width?

- (1) Add: 12 plus 18.
- (2) Subtract: 18 minus 12.

5. Which expression could be used to find the total distance around the edge of the picture?

- (1) $18 + 12$
- (2) $18 - 12$
- (3) 4×12
- (4) $2 \times 12 + 2 \times 18$
- (5) $2 \times 18 - 12$

Answers and explanations start on page 202.

For more practice with estimation, see page 166.



Calculator Operations and Grid Basics

Calculators perform the four basic operations: addition, subtraction, multiplication, and division. The calculator has many more uses, including finding exponents, roots, and solving problems with fractions. These functions will be shown later in this book.

Calculator Operations

On the GED, you will use the Casio *fx-260* calculator that is shown here. Use the four basic operation keys on this calculator to add, subtract, multiply, and divide. For problems with parentheses, you may want to use the parentheses keys.

Enter each example below on your calculator. Compare your answer to the display shown. Be sure to clear the calculator display before starting a new problem.

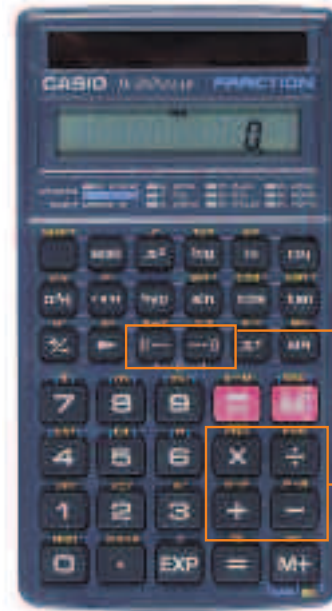
EXAMPLES

$$173 \boxed{+} 246 \boxed{=} \boxed{419.}$$

$$890 \boxed{-} 369 \boxed{=} \boxed{521.}$$

$$24 \boxed{\times} 57 \boxed{=} \boxed{1368.}$$

$$1032 \boxed{\div} 6 \boxed{=} \boxed{172.}$$



Parentheses keys used to group amounts and operations

Operation keys used to add, subtract, multiply, and divide

The examples below show two or more operations. The Casio *fx-260* and most other calculators will automatically perform the operations in the correct order.

Enter each example below on your calculator. Compare your answer to the display.

EXAMPLES

$$8 \boxed{+} 15 \boxed{\times} 7 \boxed{=} \boxed{113.}$$

$$90 \boxed{\div} 5 \boxed{-} 3 \boxed{\times} 4 \boxed{=} \boxed{6.}$$

These examples show problems with parentheses. For these problems, you must do the operation in parentheses first or use the parentheses keys on your calculator. Try each problem using both methods. Which one is easier for you?

Enter each example below on your calculator. Compare your answer to the display.

EXAMPLES

$$(11 \boxed{+} 19) \boxed{\times} 5 \boxed{=} \boxed{150.}$$

$$169 \boxed{\div} (16 \boxed{-} 3) \boxed{\times} 4 \boxed{=} \boxed{52.}$$



Grid Basics

Some problems on the GED Math Test require you to fill in your answer on a grid. You may begin in any column as long as your answer will fit. You might want to get in the habit of always starting your answer in the left column. Write your answer in the boxes on the top row. Fill in the one correct bubble below each number. Leave any unused columns blank.

EXAMPLE:

A concert ticket costs \$20. If 4 friends buy tickets together, what is the total cost?

Answer: $\$20 \times 4 = \80 The answer is shown on the grid.

			8	0
/	/	/		
•	•	•	•	•
0	0	0	0	0
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9



GED MATH PRACTICE

CALCULATOR OPERATIONS AND GRID BASICS

Use your calculator to solve each problem.

- $356 + 234 =$
- $9,450 \div 50 =$
- $8,200 \times 7 =$
- $111 - 93 =$
- $34 + 18 \times 5 =$
- $(64 - 8) \div 7 =$
- Pat jogged 45 minutes each day for 3 days. Then she jogged 30 minutes each day for 2 days. How many minutes in all did Pat jog for the 5 days?
 (1) 60 (4) 225
 (2) 135 (5) 330
 (3) 195

Mark your answer on the grid provided. You may use a calculator.

Questions 8 and 9 refer to the table below.

TODAY'S SPECIALS				
Strawberries: 2-pound box for \$5				
Kiwis: 5 for \$1				
Cherries: \$3 per pound				

- Rolando wants to buy 2 pounds of cherries, 5 kiwis, and 3 boxes of strawberries for a party. How much will he spend in all?
- How much more do 4 pounds of cherries cost than 4 pounds of strawberries?

8.

	/	/	/	
•	•	•	•	•
0	0	0	0	0
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9

9.

	/	/	/	
•	•	•	•	•
0	0	0	0	0
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9

Answers and explanations start on page 202.

For more practice with calculator operations, see page 167.

GED Review: Problem Solving

Part I: Choose the one best answer to each question below. You may use your calculator.

1. A road crew wants to place a marker every 120 feet along a one-mile stretch of road. If there are 5,280 feet in a mile, how many markers will they need?

- (1) 5,400
- (2) 5,160
- (3) 4,080
- (4) 440
- (5) 44

2. Shau Mei has \$250 in her checking account. Her utility bill is \$45, and her telephone bill is \$37. If she pays her bills and spends another \$60 on food, how much will she have left?

- (1) \$82
- (2) \$108
- (3) \$142
- (4) \$190
- (5) \$392

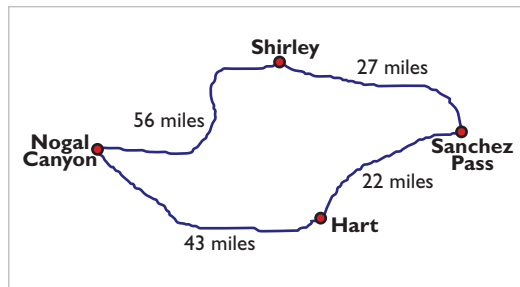
3. Kevin charges \$40 per hour labor plus materials for a service call. If he worked 3 hours on a job and spent \$187 for materials, what was the total charge?

- (1) \$307
- (2) \$227
- (3) \$147
- (4) \$130
- (5) \$120

4. Jason sold 35 adults' tickets for \$5 each and 62 children's tickets for \$3 each. Which expression could be used to find out how much money he collected?

- (1) $35 + 5 + 62 + 3$
- (2) $35 \times 5 - 62 \times 3$
- (3) $35 \times 5 + 62 \times 3$
- (4) $35 + 62 - (5 \times 3)$
- (5) $35 + 62 \div (5 + 3)$

Questions 5 and 6 refer to the map below.



5. How much farther is it from Nogal Canyon to Sanchez Pass through Shirley than through Hart?

	/	/	/	
.
0	0	0	0	0
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9

6. Janet works for a delivery company in Hart. What is the shortest distance she can travel to make deliveries in Sanchez Pass, Shirley, and Nogal Canyon and return to Hart?

	/	/	/	
.
0	0	0	0	0
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9

Part II: Choose the one best answer to each question. You may not use your calculator.

Questions 7 and 8 refer to the chart below.

Day	Videos Rented
Monday	57
Tuesday	55
Wednesday	109
Thursday	151
Friday	352
Saturday	566
Sunday	206

7. How many videos were rented for Friday, Saturday, and Sunday?
- (1) 566
(2) 772
(3) 918
(4) 1,124
(5) 1,496
8. If videos rent for \$3 each, how much money did the video store make in all on the two largest rental days?
- (1) \$1,698
(2) \$2,316
(3) \$2,754
(4) \$3,372
(5) \$4,488
-
9. Susan ordered 2 black ink cartridges at \$30 each and 1 color cartridge for \$35 for her printer. If the shipping cost is \$4, which expression could be used to find the total amount of her order?
- (1) $30 + 35 + 4$
(2) $30 \times 2 + 35 + 4$
(3) $30 \times 2 + 35 \times 4$
(4) $(30 + 35) \times 2$
(5) $(30 + 35) \div 2$
10. Sam's job pays \$1,600 per month. He is applying for a job that pays \$21,000 a year. How much more will he make EACH MONTH if he gets the new job?
- (1) \$150
(2) \$175
(3) \$210
(4) \$1,750
(5) \$1,800
11. If the average shower uses about 35 gallons of water, how many gallons will a family of four use in a week if all family members take a shower every day?
- (1) 140
(2) 245
(3) 385
(4) 700
(5) 980
12. Rich is putting a new roof on his house. The roof measures 1,200 square feet. One package of shingles covers 100 square feet. If Rich buys two extra packages for breakage, how many packages of shingles will he need?
- (1) 10
(2) 11
(3) 12
(4) 13
(5) 14

Answers and explanations start on page 203.

