

USE MATH TO SAVE MONEY

Putting Your Skills to Work: Use Math to Save Money

CHOOSING A CELL PHONE PLAN

Everyone wants to comparison shop in order to save money. Finding the best cell phone plan is one place where comparison shopping can really help, especially when you're trying to work within a budget. Consider the story of Jake.



Jake is interested in purchasing a new cell phone plan. He would like to call his family, friends, and co-workers, as well as send/receive text and picture messages. He hopes he can afford to access the Internet, too, so he can check his e-mail with his phone. He wants to find a cell phone plan that would allow him to do these things for between \$69 and \$89 per month.

Analyzing the Options

He did some research and he is considering these cell phone plans:

Calling Plan A: 300 minutes per month, \$0.20 each additional

Calling Plan B: each additional

Calling Plan C: each additional

Calling Plan D: each additional

Which calling plan

1. Jake plans to talk

2. Jake plans to talk

3. Jake plans to talk

4. Jake plans to talk for 550 minutes per month?

5. Jake plans to talk for 11 hours per month?

6. Jake plans to talk for 16 hours, 40 minutes per month?

Making the Best Choice to Save Money

Jake expects he will talk between 500 and 750 minutes per month, and is therefore considering

Calling Plan C or Call

Jake would like to send

messages. He'd also like

the Internet with his ph

shows that "message bu

additional charge to the

Bundle A: 200 messa

and 1M) per mont

message: **\$5.00 per**

Bundle B: 1500 mess

and 1M) per mont

message: **\$15.00 per**

Bundle C: Unlimited

IM messages per m

Bundle D: Unlimited

text, picture, video

month: **\$35.00 per m**

Bundle D is the only t

Jake with web access

dition to messaging. I

cost of his cell phone

\$89 per month, deter

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ADJUST THE THERMOSTAT

Some Helpful Information

According to the U.S. Department of Energy, 45% of a typical home utility bill is for heating and/or cooling. We may not have any control over how fuel efficient our home was constructed, but we can control the setting on the thermostat. Consumer Reports suggests that every 1° change in our thermostat setting has a 2% impact on our utility bill. Consider the story of Maria and Josef.



Making Personal Applications to Your Own Life

4. Where do you have your thermostat set?

5. How much could you save on your utility bill by adjusting the settings either up or down?

HOME HEATING OIL PRICES

In parts of the United States where the climate turns cold during the winter, many homes are heated by oil. Mark lives just outside of Boston in a house heated by oil. During the winter of 2007, Mark paid \$2.95 per gallon for home heating oil. The price of home heating oil has since increased to \$4.45 per gallon. Looking ahead to the winter of 2008, Mark wants to budget enough money for his oil bills.

6. The oil company will only deliver 100 gallons of heating oil or more. Determine the cost of 100 gallons of home heating oil in December 2007 and November 2008. What is the difference in cost?

7. Mark knows he will need a 100-gallon oil delivery every month during the winter (November and December 2008, and January, February, and March 2009). What can Mark expect to pay in home heating oil costs for the five months of winter from November 2008 through March 2009?

8. Mark typically keeps his thermostat set at 72° during the winter months. How much money would Mark save on his heating oil costs if he lowers his thermostat to 68° for the entire winter?

9. How much money would Mark save if he sets his thermostat to 64° during the winter?

10. How low would Mark need to set his thermostat for the winter in order to save one month's worth of heating costs (\$445)?

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GAS PRICES

It's July 2008 in Stockton, California, and Sam needs to put gas in his car. He is on a street that has an ARCO gas station and a SHELL station. Sam will use his debit/credit card to pay for the gas. The ARCO station is charging \$4.43 per gallon of gas while the SHELL station is charging \$4.55 per gallon.

If Sam's goal is to save money it would seem obvious that he should go to ARCO, right? But Sam knows from experience it's not that simple.



He knows that ARCO will charge an extra \$0.45 as an "ATM Transaction Fee" in addition to the gas he buys.

1. If Sam plans on buying just **one gallon** of gas, which gas station should he choose?
2. If Sam plans on buying **three gallons** of gas, which gas station should he choose?
3. If Sam plans on buying **four gallons** of gas, which gas station should he choose?
4. If Sam plans on buying **ten gallons** of gas, which gas station should he choose?
5. How many gallons of gas would Sam need to buy for the cost to be **exactly the same** at the two gas stations? Consider the results of Question 2 and Question 3 when formulating your answer.
6. Does the station where you normally get gas charge the same for cash or credit?
7. Do you know if the station charges an "ATM transaction fee"?
8. Has the increase in gas prices caused you to change your driving habits? If so, please explain.

WITH YOU EVERY STEP OF THE WAY

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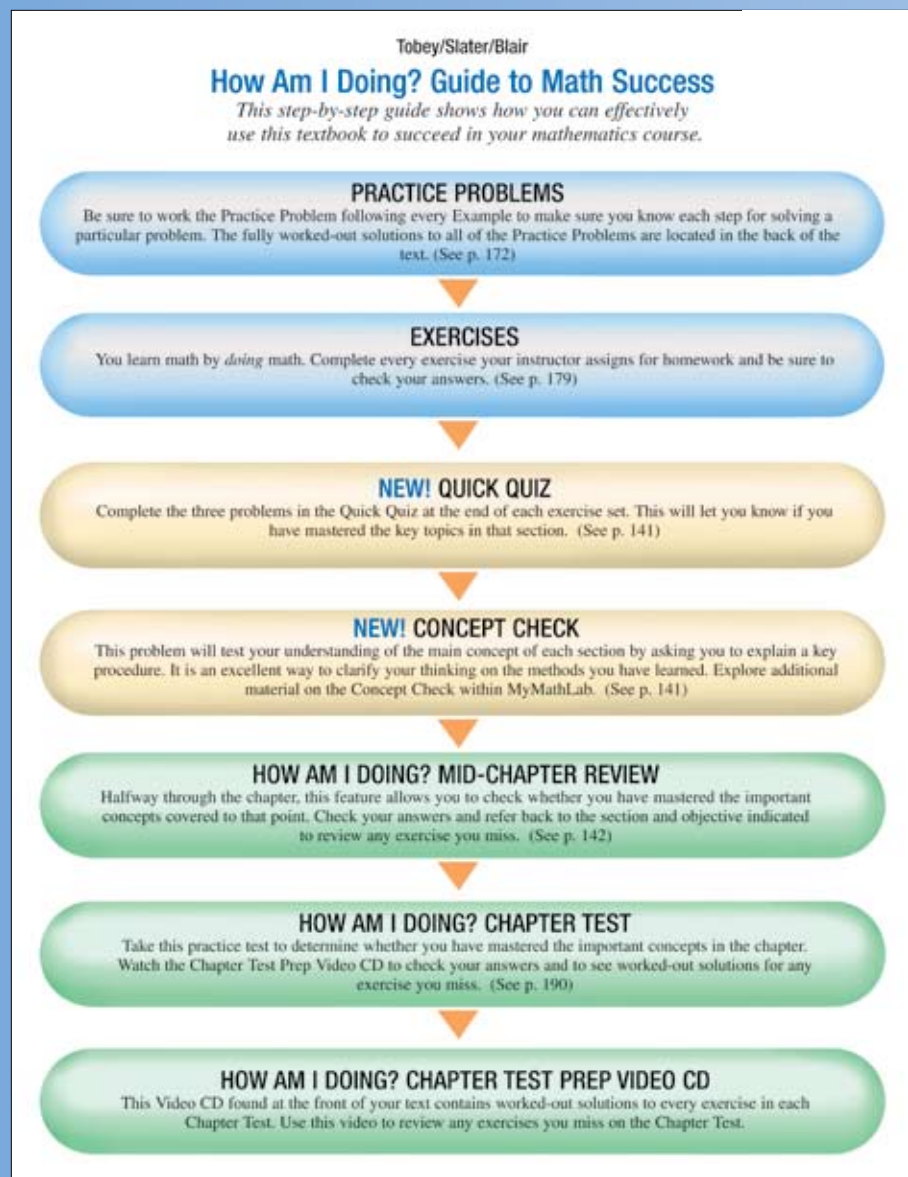
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The "How am I Doing?" Guide to Math Success shows students how to use the book effectively and make the most of its features.

A Quick Quiz at the end of each exercise set contains three problems that cover the essential content of that section so that students know exactly when they are ready to move on to new material.

The **Concept Check** question following each Quick Quiz asks students to explain concepts in their own words, allowing them to reflect on and synthesize ideas.

Classroom Quizzes in the Annotated Instructor's Edition parallel every Quick Quiz, which allows instructors to quickly assess the understanding of the class at any point in the chapter.

Quick Quiz 2.5 Divide.

1. $\frac{15}{24} \div \frac{5}{6} = \frac{3}{4}$ 2. $6\frac{1}{3} \div 2\frac{5}{12} = \frac{76}{29}$ or $2\frac{18}{29}$ 3. $7\frac{3}{4} \div 4 = \frac{31}{16}$ or $1\frac{15}{16}$

4. **Concept Check** Explain how you would divide the whole number 7 by the mixed number $3\frac{3}{5}$. Answers may vary

Classroom Quiz 2.5 You may use these problems to quiz your students' mastery of Section 2.5.

Divide.

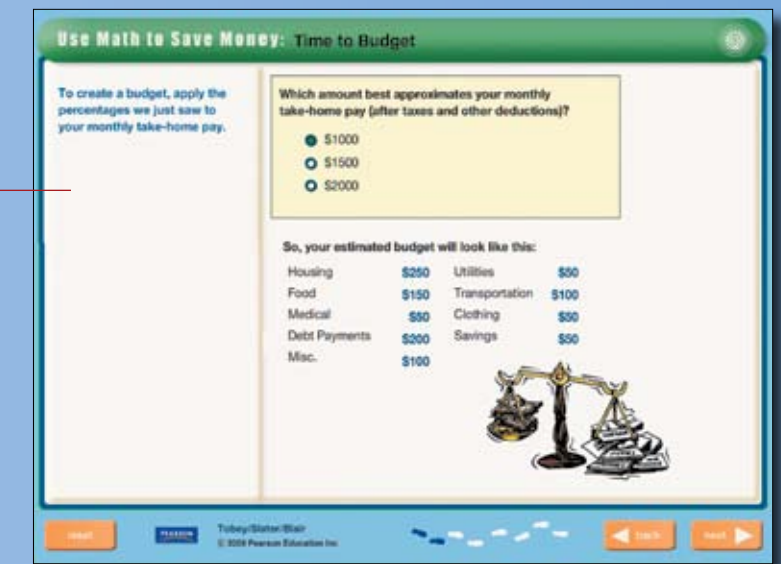
1. $\frac{16}{27} \div \frac{4}{13} = \frac{52}{27}$ or $1\frac{25}{27}$ 2. $8\frac{1}{4} \div 3\frac{5}{6} = \frac{99}{46}$ or $2\frac{7}{46}$ 3. $5\frac{1}{8} \div 3 = \frac{41}{24}$ or $1\frac{17}{24}$

ENHANCEMENTS IN MyMathLab



A substantial increase in exercises over the previous edition gives students the varied practice they need to master the material. All videos in MyMathLab now have optional subtitles in both English and Spanish.

The interactive **Use Math to Save Money** feature allows students to input spending to calculate expenses and apply the mathematics to their own lives.



Stepped-out, multi-part **Concept Check** questions guide students through every step of solving a problem, giving helpful feedback at each stage of the solution. Students learn not only the steps involved, but also the reasoning behind them.

