

Fractions, Decimals, and Percents

Program 1 Guide



The *Go Figure? Interactive Multimedia Kit* may be used in a classroom or intervention setting. Presented in a fun and creative way, each program on the *Go Figure?* DVD can be used as an introduction to or a review of basic mathematics concepts. The accompanying CD-ROM edu-game was designed for use by students on an individual basis. The object of the edu-game is to solve a mystery. In order to do this, the student must solve mathematics problems in the specific content areas presented by the DVD dramatic video series. Consequently, programs on the DVD are used to generate interest in and enthusiasm for learning mathematics concepts, while the CD-ROM edu-game allows students to practice the concepts in a challenging game format.

The three main characters in each DVD video program – the mysterious Pythagleo, plus two students named Carter and Chris who are trying to solve the mystery of Etna High School – discuss the targeted math concepts.

Chris, and to a lesser extent, Carter, verbalizes what each is thinking as they work through problems associated with the math concepts. The DVD programs assume that, like Chris and Carter, your students have already been introduced to the math concepts presented in the episode. The dialog may be too quick for some students. Every step that some of your students will need to solve similar problems on their own may not be mentioned in the programs. Therefore, pausing the DVD to review or present additional information will help adapt the learning situation to the needs of your students. See additional materials about teaching with videos and differentiated instruction in the Introduction of the Teacher Resources Guide.

Ohio Mathematics Content Standards and Benchmarks

Numbers, Number Sense, and Operations

- B. Compare, order and convert among fractions, decimals and percents.
- C. Develop meaning for percents, including percents greater than 100 and less than 1.
- F. Apply number system properties when performing computations.
- H. Use and analyze the steps in standard and non-standard algorithms for computing with fractions, decimals and integers.
- I. Use a variety of strategies, including proportional reasoning, to estimate, compute, solve and explain solutions to problems involving integers, fractions, decimals and percents.

Measurement

- B. Convert units of length, area, volume, mass and time within the same measurement system.
- E. Use problem solving techniques and technology as needed to solve problems involving... time and temperature.

Math Content

- Three ways to write the same number: fraction, decimal, percent
- Basketball and baseball statistics: fractions, decimals, and percents
- Discounts and sales: fractions, decimals, and percents
- Fractional part of a whole number
- Add simple unlike fractions, find the common denominator, and make equivalent fractions
- Reduce an improper fraction to lowest terms
- Compare and order discount and sale prices based on fractions, decimals, and percents
- A summary of all skills covered in the episode



Episode Notes

- Chris and Carter begin their quest to solve the mystery of the disappearance of over 500 Etna High School staff and students in 1966. They meet Pythagleo and learn that they must work with math concepts and skills in order to receive clues to the mystery.
- The actor portraying Pythagleo's versatility allows him to take on the role of a teacher, a librarian, a chef and a custodian. He is very good at spontaneous action, as seen by Carter's expression when being hit by the ruler.
- The actors portraying Chris and Carter, at times, admit to memorizing lines and not personally understanding the content they were presenting. This is reality and models the behavior of our students.
- Chris accuses Pythagleo of being sexist at one point in this episode.

Teacher Notes

Ways to express parts of a whole –

Express 7 of 10 equal parts:	
Decimal	.7
Percent	70%
Fraction	$\frac{7}{10}$

Review: How to reduce proper fractions: Find the greatest common factor (GCF) for the numerator and the denominator. Divide both the numerator and the denominator by the greatest common factor.

Examples:

Reduce $\frac{25}{100}$ to lowest terms.

- The factors of 25 are 1×25 , and 5×5 .
 - Listed in order from least to greatest, the factors are 1, 5, 25.
- The factors of 100 are 1×100 , 2×50 , 4×25 , 5×20 , and 10×10 .
 - Listed in order from least to greatest, the factors are 1, 2, 4, 5, 10, 20, 25, 50, 100.
- The largest factor that is common to both lists (Greatest Common Factor) is 25.

$$\frac{25}{100} \div \frac{25}{25} = \frac{25 \div 25}{100 \div 25} = \frac{1}{4}$$

Adding Fractions with Unlike Denominators Example:

Example:

$$\frac{1}{4} \text{ hour} + \frac{1}{2} \text{ hour} + \frac{2}{5} \text{ hour} + \frac{3}{5} \text{ hour}$$

You need a number (preferably, the smallest) that is divisible by all of the denominators: 4, 2, and 5. The least common multiple (LCM) – the common denominator – is 20.

- Multiples of 2: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20
- Multiples of 4: 4, 8, 12, 16, 20
- Multiples of 5: 5, 10, 15, 20



All of the original fractions must be changed to fractions with 20 in the denominator. Equivalent fractions are created in the process because each original fraction is always multiplied by a value that is equal to one.

<p>Create an equivalent for each fraction and add them together.</p> $\frac{1}{4} \times \frac{5}{5} = \frac{5}{20}$ $\frac{1}{2} \times \frac{10}{10} = \frac{10}{20}$ $\frac{2}{5} \times \frac{4}{4} = \frac{8}{20}$ $\frac{3}{5} \times \frac{4}{4} = \frac{12}{20}$ <hr style="width: 10%; margin-left: auto; margin-right: auto;"/> $\frac{35}{20}$	<p>Convert the improper fraction to a mixed number.</p> $\frac{7}{4} = \frac{4}{4} + \frac{3}{4} = 1 \text{ and } \frac{3}{4}$ <p style="text-align: center;">or</p> $1 \frac{3}{4} \text{ hours}$ $\frac{1}{4} + \frac{1}{2} + \frac{2}{5} + \frac{3}{5} = 1 \frac{3}{4} \text{ hours}$
<p>Reduce the fraction to lowest terms.</p> $\frac{35}{20}$ <p style="text-align: center;">Factors of 35: 1, <u>5</u>, 7, 35 Factors of 20: 1, 2, 4, <u>5</u>, 10, 20 Greatest Common Factor: 5</p> $\frac{35 \div 5}{20 \div 5} = \frac{7}{4}$	<p>Convert the mixed number into hours and minutes.</p> <p>1 whole hour is 60 minutes. What is $\frac{3}{4}$ of 60 minutes?</p> $60 \times \frac{3}{4} = \frac{60 \times 3}{1 \times 4} = \frac{180}{4} = 45 \text{ min.}$ $1 \frac{3}{4} \text{ hours} = 1 \text{ hour and } 45 \text{ minutes}$

Discounts

When making comparisons, it is easier to order amounts if the conversions are all in the same form (all percents or all fractions).

Example: The video chart shown needs its data units converted so that they are the same:

- $20\% \text{ off} = \frac{20}{100} \div \frac{20}{20} = \frac{1}{5} \text{ off}$
- $\frac{1}{4}$ is already a fraction.
- $\frac{1}{2}$ is already a fraction.
- $75\% \text{ of original means } 25\% \text{ off and } 25\% = \frac{25}{100} \div \frac{25}{25} = \frac{1}{4} \text{ off}$

Now we can compare:

$\frac{1}{5}, \frac{1}{4}, \frac{1}{2}$, and $\frac{1}{4}$ and observe the $\frac{1}{5}$ is the best deal.

Video Chart

20% off

$\frac{1}{4}$ off

$\frac{1}{2}$ off

75% of original

We could also compare all the data in percent form:



- 20% off is already a percent.
- $\frac{1}{2}$ off = $\frac{1}{2} \times \frac{50}{50} = \frac{50}{100}$ or 50% off.
- $\frac{1}{4}$ off = $\frac{1}{4} \times \frac{20}{20} = \frac{20}{100}$ or 25% off.
- 75% of (the) original (price) means $100 - 75 = 25$ or 25% off.

Comparing the results, 20% off, 25% off, 50% off, and 25% off, we observe that 50% off is the best deal.



Fractions, Decimals, and Percents

Worksheet 1

Choice *E*, in multiple-choice questions, is always: *I request help from the teacher.*

You may mark *E* in addition to one other choice if you think that you have the right answer to the question but you do not feel that you have a complete understanding of the problem.

Your teacher will decide whether to use the two-point or four-point scoring rubric for problems that use numbers, pictures, or words to justify/explain your answer(s). You may request help for these questions, too. Write the word “teacher” by your answer(s).

1. Which list has three equivalent numbers?

A. 0.65, 65%, $\frac{3}{4}$ B. 0.40, 45%, $\frac{4}{5}$ C. 0.80, 80%, $\frac{4}{5}$ D. 0.25, 25%, $\frac{1}{2}$ E. Teacher

2. Chris decided to make cookies for the members of her Mystery Solvers club. She wanted to make gingersnap and chocolate chip cookies. The ingredients used by both kinds of cookies are in the table below.

<i>Gingersnap Cookies</i>	<i>Chocolate Chip Cookies</i>
$2\frac{1}{4}$ cup flour	$1\frac{1}{4}$ cup flour
1 cup brown sugar	$\frac{1}{4}$ cup brown sugar and $\frac{1}{2}$ cup granulated sugar
$\frac{3}{4}$ cup butter	$\frac{1}{2}$ cup butter
1 Egg	1 Egg

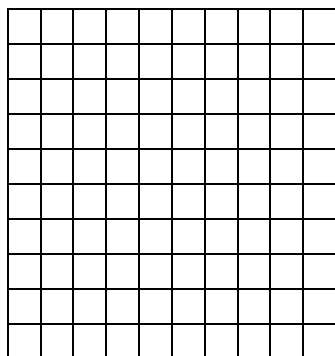
- a. If Chris makes one batch of the gingersnaps and one batch of the chocolate chip cookies, how many cups of flour will she need? Use pictures, numbers, or words to justify your answer.
- b. Chris has $1\frac{2}{3}$ cups of butter on hand. Explain whether or not she has enough butter to make both the gingersnap and the chocolate chip cookies. Use pictures, numbers, or words to justify your answer.



3. Use the chart of the record temperatures in Enigma, Ohio. Which list below correctly orders the temperatures from warmest to coldest?

6/1/1935	7/2/1955	7/25/1958	7/15/1981	8/22/2003
-28°F	-10°F	-17°F	-24°F	-5°F

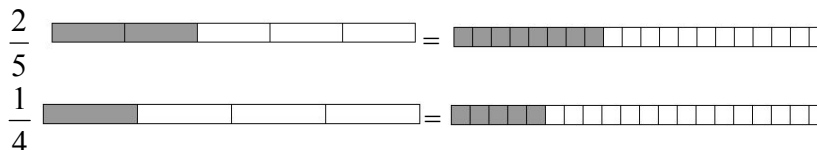
- A. -28°F, -10°F, -24°F, -5°F, -17°F C. -28°F, -24°F, -17°F, -10°F, -5°F
 B. -5°F, -10°F, -17°F, -24°F, -28°F D. -10°F, -17°F, -24°F, -28°F, -5°F
 E. Teacher



4. Use a 10 row, 10 column grid like the sample shown at the left to model the solution to the following problem.

$$0.7 \times 0.4$$

5. The model below represents two fractions. Choose the equation that shows the sum of the two fractions.



- A. $\frac{2}{5} + \frac{1}{4} = \frac{3}{9}$ B. $\frac{2}{5} + \frac{1}{4} = \frac{3}{5}$ C. $\frac{2}{5} + \frac{1}{4} = \frac{13}{20}$ D. $\frac{2}{5} + \frac{1}{4} = \frac{13}{40}$ E. Teacher
6. Chris wanted to download some freeware from the Internet for her computer. The freeware's file size was 4368 KB. Chris has a dial-up modem that can download files at 38 KB a second. Estimate how long it will take Chris to download the file to her computer.
- A. 30 seconds B. 60 seconds C. 100 seconds D. 1000 seconds E. Teacher
7. Yesterday, Carter got back four tests in four different subjects. On his science test, he got 80 out of 100 points. On his English essay, he scored 4 out of the 5 on the grading rubric. On his geography test, he got 30 out of 40 questions correct. On his German vocabulary test, he answered 9 out of 10 questions correctly. On which tests did Carter get the same percentage correct? Use pictures, numbers or words to explain your answer.



8. Carter and Chris found that downloading their favorite songs went up in price to \$1.37 a song. About how many songs can Carter and Chris download for \$20.00?

- A. about 5 songs B. about 10 songs C. about 15 songs D. about 20 songs E. Teacher

9. The 1966 Etna High Drama Club performed its spring musical just as the worst of the disappearances occurred. The auditorium has 550 seats. The attendance is listed below.

Spring Musical Attendance		
Day of the Week	Afternoon Performances	Evening Performances
Thursday	No Performance	456
Friday	No Performance	345
Saturday	401	158
Sunday	54	21

- a. What was the total number of tickets sold for the evening performances? Use pictures, numbers, or words to justify your answer.
- b. How many total seats were empty on Saturday and Sunday afternoon? Use pictures, numbers, or words to justify your answer.
10. Carter's stepmother served an apple pie, a pumpkin pie, and a cherry pie for a holiday dinner. All of the pies were baked in the same size pie pan and each was cut into 6 equal pieces. There were 3 pieces of apple pie left uneaten after the dinner, 2 pieces of the pumpkin pie, and 5 pieces of the cherry pie.
- a. Write an improper fraction to show how much pie was left altogether. Use pictures, numbers, or words to justify your answer.
- b. Write a decimal – rounded to the nearest tenth – to represent the amount of pie left. Use pictures, numbers, or words to justify your answer.



Fractions, Decimals, and Percents

Worksheet 2

Choice *E*, in multiple-choice questions, is always: *I request help from the teacher.*

You may mark *E* in addition to one other choice if you think that you have the right answer to the question but you do not feel that you have a complete understanding of the problem.

Your teacher will decide whether to use the two-point or four-point scoring rubric for problems that use numbers, pictures, or words to justify/explain your answer(s). You may request help for these questions, too. Write the word “teacher” by your answer(s).

1. By the end of May 1966, 32 of the 160 seniors at Etna High had disappeared. What fraction of seniors had disappeared by the end of May?

A. $\frac{2}{5}$ B. $\frac{3}{8}$ C. $\frac{1}{4}$ D. $\frac{1}{5}$ E. Teacher

2. The table shows the results of the Frisbee distance toss for five Etna High students. Which of the following shows these distances ordered from greatest to least?

Name	Distance (in feet)
Jones	$35\frac{5}{8}$
Chang	$35\frac{7}{16}$
Hernandez	35.5
Jackson	36
Alvarez	$35\frac{3}{4}$

A. $35\frac{7}{16}$, 35.5, $35\frac{5}{8}$, $35\frac{3}{4}$, 36
B. 36, $35\frac{7}{16}$, $35\frac{5}{8}$, 35.5, $35\frac{3}{4}$
C. $35\frac{3}{4}$, 35.5, 36, $35\frac{5}{8}$, 35
D. 36, $35\frac{3}{4}$, $35\frac{5}{8}$, 35.5, $35\frac{7}{16}$
E. Teacher

3. Chris and Carter spent hours trying to solve the mystery of the disappearing students at Etna High. Monday they spent $4\frac{3}{4}$ hours. Tuesday they worked on the mystery for $3\frac{5}{6}$ hours. Wednesday they worked for $2\frac{1}{4}$ hours, and on Thursday they worked for $5\frac{1}{4}$ hours. How many more hours did they work the first two days compared to the final two days?

A. $1\frac{1}{4}$ B. $1\frac{1}{12}$ C. $2\frac{6}{2}$ D. $2\frac{1}{12}$ E. Teacher



4. Chris, Carter and Pythagleo each took difficult math quizzes. Pythagleo scored 5 correct answers out of the 9 questions on his quiz. Chris scored 2 correct out of the three questions on her quiz. Carter scored between Pythagleo and Chris. What decimal can be written to show Carter's score?

$$\frac{5}{9} < \text{_____} < \frac{2}{3}$$

- A. .550 B. .667 C. .638 D. .750 E. Teacher
5. Carter was given free air fare to Los Angeles, CA for a five day audition in Hollywood. He had to pay for all of his other expenses. He spent \$750 on motels, \$175 for food, \$635 for new clothes, and \$325 for sight-seeing and souvenirs. Which of the following range of numbers is the best estimate of the Carter's total expenses?
- A. \$1,000-\$1,200 B. \$1,200-\$1,500 C. \$1,500-\$1,700 D. \$1,700-\$2,000 E. Teacher
6. Carter has 5^6 songs stored on his MP3 player. How many songs does he have on his player?
- A. 30 B. 3,125 C. 15,625 D. 78,125 E. Teacher
7. Simplify the expression: $90 - 20 \div 4(5+2) \times 2$
- A. 20 B. 79 C. 245 D. 1,190 E. Teacher
8. Carter multiplied -3 by an integer and his result was between -10 and 0 . Which integer could have been the other factor?
- A. 0 B. 3 C. -3 D. -2 E. Teacher
9. Chris and Carter hosted a party for their friends. They had \$50 to buy meat and cheese for a party. Their shopping list and the prices at the store are shown in the tables. There is no tax on these food products.

Shopping List	
Turkey	6 lbs.
Hot Dogs	?
Salami	4 lbs.
American Cheese	1 lb.
Mozzarella Cheese	2 lbs.

Store Prices	
Turkey	2 lbs for \$8.00
Hot Dogs	2 lbs. for \$2.00
Salami	2 lbs. for \$7.00
American Cheese	2 lbs. for \$4.00
Mozzarella Cheese	1 lb for \$3.00

- a. Figure out how many pounds of hot dogs Chris and Carter can buy after they purchase the turkey, salami, American and Mozzarella cheese on their shopping list. Be sure that they do not spend more money than they have.
- b. Show or describe all the steps you use to find the number of pounds they can buy.
- c. The store's price list was from the newspaper but when they got to the store they saw that the Mozzarella cheese was on sale for \$2.50 per pound. How many additional pounds of hotdogs could they buy and still stay within the budget?



10. A disposable cell phone is on sale. It now costs just 75% of its original price. If the original price was \$52.99, what proportion can be used to find the sale price (s) of the phone?

A. $\frac{75}{100} = \frac{s}{52.99}$

B. $\frac{25}{100} = \frac{75}{52.99}$

C. $\frac{s}{100} = \frac{75}{52.99}$

D. $\frac{52.99}{100} = \frac{s}{52.99}$

E. Teacher



Fractions, Decimals, and Percents

Worksheet 3

Choice *E*, in multiple-choice questions, is always: *I request help from the teacher.*

You may mark *E* in addition to one other choice if you think that you have the right answer to the question but you do not feel that you have a complete understanding of the problem.

Your teacher will decide whether to use the two-point or four-point scoring rubric for problems that use numbers, pictures, or words to justify/explain your answer(s). You may request help for these questions, too. Write the word “teacher” by your answer(s).

- Carter keys in text messages on his cell phone to send to his friends. Last year he keyed in 387 text messages. The messages averaged 18 letters (or characters) each. Carter’s error rate for hitting the wrong key by mistake was 5%. Which number is the best estimate for the total number of mistakes Carter made?
A. 4 B. 4 C. 400 D. 4000 E. Teacher
- Chris is designing her own skateboard decks. She recycled the back of a wall banner that is $6\frac{3}{4}$ feet long and 2 feet wide to draw her designs. If each deck she designs is $2\frac{1}{4}$ feet long and 1 foot wide, how many skateboard decks can Chris design on the banner?
A. 2 B. 4 C. 6 D. 8 E. Teacher
- Enigma’s Bronze Statues, Inc. company uses the element copper in the manufacture of the bronze they use to create their statues. (The two major ingredients of bronze are copper and tin.) Copper is often found in rocks in an impure state mixed in with other metals and substances. If the company receives a 32 pound piece of raw ore with a copper content of 5%, how much copper will be left after all the impurities are removed?
A. 16 lbs. B. 1.6 lbs. C. 3.2 lbs. D. 3 lbs. E. Teacher
- Enigma’s Palace Theater has eight sections. Each of the seven sections downstairs holds 50 people. The upstairs section holds 100 people. Each downstairs section was full and there were 20 empty seats upstairs. How many people were in the theater?
A. 400 B. 450 C. 430 D. 200 E. Teacher
- It takes a biologist two hours to collect a water sample from Burns Reservoir just outside Enigma and one hour to analyze the sample. How long would it take to make 30 such tests?
A. 90 hrs. B. 33 hrs. C. 61 hrs. D. 9 hrs E. Teacher
- How much less does one gallon of milk cost at \$2.15 than two half-gallons at \$1.29 each?
A. 41¢ B. 14¢ C. 43¢ D. 52¢ E. Teacher



7. Chris had \$427.31 in her checking account. She wrote three checks, one for \$25.72, one for \$24.32, and one for \$37.51. How much money does she have left in her account?
- A. \$340.00 B. \$339.76 C. \$339.86 D. \$321.00 E. Teacher
8. Chris visited a farm where she could pick raspberries for \$2.00 a quart. She decided to pick raspberries for herself, her aunt, her mother, her older sister and her grandfather. She kept seven quarts or 25% of the berries for her own use. How many quarts of raspberries did Chris pick all together?
- A. 14 qts. B. 56 qts. C. 100 qts. D. 28 qts. E. Teacher
9. The scale on a map is $\frac{1}{2}$ inch = 20 miles. How far is it from one city to another if the distance is $3\frac{1}{4}$ inches?
- A. 150 mi. B. 130 mi C. 50 mi D. 100 mi E. Teacher
10. Which statement is incorrect?
- A. $\frac{2}{5} < \frac{4}{6}$ B. $\frac{2}{3} < \frac{5}{9}$ C. $\frac{6}{8} = \frac{3}{4}$ D. $\frac{4}{9} > \frac{1}{5}$ E. Teacher



Fractions, Decimals, and Percents

Worksheet 4

Choice *E*, in multiple-choice questions, is always: *I request help from the teacher.*

You may mark *E* in addition to one other choice if you think that you have the right answer to the question but you do not feel that you have a complete understanding of the problem.

Your teacher will decide whether to use the two-point or four-point scoring rubric for problems that use numbers, pictures, or words to justify/explain your answer(s). You may request help for these questions, too. Write the word “teacher” by your answer(s).

1. The Etna High basketball team won $\frac{3}{4}$ of its games in 1965. If the team were to play 20 games in 1966 and performed as well as the previous year, how many games would the team win? Use pictures, numbers, or words to justify your answer.
2. Pythagleo decides to have a small party for the custodians at Enigma’s new Western High School. He plans to invite their families and their friends. He wants to make $2\frac{1}{2}$ dozen cookies and $1\frac{1}{2}$ dozen cupcakes. He needs $\frac{1}{2}$ cup of sugar for each dozen of cookies and 1 cup of sugar for each dozen of cupcakes. How many cups of sugar does he need? Use pictures, numbers, or words to justify your answer.
3. Chris is given 4 cards each with a different numerical value. If Chris can correctly choose the card showing the greatest probability she will receive another key that will help her locate the missing Etna High students and staff, which value represents the greatest probability?
A. 0.24 B. 25% C. $\frac{1}{5}$ D. $\frac{24}{100}$ E. Teacher
4. Carter had a bag of candy. While he looked away, $\frac{2}{5}$ of the candy disappeared. What percent of the candy did he still have? Use pictures, numbers, or words to justify your answer.
5. It takes $2\frac{1}{2}$ yards of material to make a tablecloth. Chris and Carter have 20 yards of material. How many tablecloths can they make for the Etna High reunion? Use pictures, numbers, or words to justify your answer.
6. Pythagleo was shooting basketballs in the old gym at Etna High. He made 12 of his 20 shots. What was his shooting percentage? Also show his shooting average as a decimal. Use pictures, numbers, or words to justify your answer.
7. Chris’s batting average is 0.245 and Pythagleo had 12 hits in 50 at-bats when he tried to prove that he is a better batter than Chris. Who had the higher average? Use pictures, numbers, or words to justify your answer.



Fractions, Decimals and Percents

Answer Keys, Program 1: Worksheets 1 - 4

Each question on every worksheet offers the students the option of marking “Teacher” instead of or in conjunction with answering the question. The “Teacher” option is included to support student understanding and achievement. Students may have as much help and guidance as they need to understand concepts and master skills.

Instructors may decide whether to use the two or four point scoring rubric for constructed response problems (problems that use numbers, pictures, or words to justify/explain student answers). See the appendix for the complete rubrics.

Two-Point Scoring Rubric

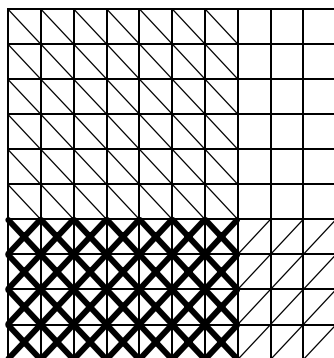
- 2 – Complete
- 1 – Partial
- 0 – Inadequate

Four-Point Scoring Rubric

- 4 – Complete
- 3 – Clear
- 2 – Partial
- 1 – Minimal
- 0 – Inadequate

Worksheet 1

1. C. 0.80, 80%, $\frac{4}{5}$
2. a. $3\frac{1}{2}$, b. yes, Student responses should show an understanding of the following concepts:
 - a. $3\frac{1}{2}$, Add the mixed numbers: $2\frac{1}{4} + 1\frac{1}{4} = 3\frac{1}{2}$
 - b. yes, Add one half and three fourths to get five fourths, then compare five fourths to five thirds: $\frac{3}{4} + \frac{1}{2} = \frac{3}{4} + \frac{2}{4} = \frac{5}{4}$ or $1\frac{1}{4}$, and $1\frac{2}{3} > 1\frac{1}{4}$
3. B. -5 F, -10 F, -17 F, -24 F, -28 F
4. .28. Student responses should show a 10 by 10 grid similar to the one below. The grid should illustrate the problem $.7 \times .4 = .28$. Variables: Student may shade the tenths rather than use cross hatches. They may begin in any quadrant of the grid.



5. C. $\frac{2}{5} + \frac{1}{4} = \frac{13}{20}$
6. C. 100 seconds



7. Science $\frac{80}{100}$ (80 of 100 points) and English $\frac{4}{5}$ (4 out of 5 on the rubric.).
- Students may have chosen to compare the scores by writing each one as a fraction reduced to lowest terms. Science: $\frac{80}{100} \div \frac{20}{20} = \frac{4}{5}$, English: $\frac{4}{5}$, Geography: $\frac{30}{40} \div \frac{10}{10} = \frac{3}{4}$ German: $\frac{9}{10}$.
 - Students may have chosen to write each score as a percent. Science: $\frac{80}{100}$ or 80%. English: $\frac{4}{5} \times \frac{20}{20} = \frac{80}{100}$ or 80%. Geography: $\frac{30}{40} \times \frac{2.5}{2.5} = \frac{75}{100}$ or $\frac{30}{40} \div \frac{10}{10} = \frac{3}{4} \times \frac{25}{25} = \frac{75}{100}$ or 75%. German: $\frac{9}{10} \times \frac{10}{10} = \frac{90}{100}$ or 90%.
8. C. about 15 songs
9. a. $980, 456 \div 345 + 158 + 21 = 980$ b. $645, 550 \times 2 - (401 + 54) = 645$
10. a. $\frac{10}{6}$ or $\frac{5}{3}$ b. 1.7
- a. a. Improper fraction: $\frac{10}{6}$ or $\frac{5}{3}$, Write each amount of leftover pie as a fraction and add. $\frac{3}{6} + \frac{2}{6} + \frac{5}{6} = \frac{10}{6} \div \frac{2}{2} = \frac{5}{3}$
- b. 1) Convert the mixed number to a decimal. $10 \div 6 = 1.666666$ or $5 \div 3 = 1.666666$. 2) Rounding 1.6666... to the nearest tenth gives an answer of 1.7.

Worksheet 2

1. D. $\frac{1}{5}$
2. D. $36, 35\frac{3}{4}, 35\frac{5}{8}, 35.5, 35\frac{7}{16}$
3. B. $1\frac{1}{12}$
4. C. .638
5. D. \$1,700-\$2,000
6. C. 15,625
7. A. 20
8. B. 3
9. a. 4 pounds of hot dogs. b. see below. c. 1 pound
- a. Student answers should reflect the following concepts. 1) The purchase price is dependent upon the "unit" prices. For example: Turkey sells as a 2 lb. unit. If 6 pounds is purchased, then Chris and Carter want 3 units. 2) Since the unit price was \$8 for 2 lb., they want 3 of the turkey units. 3) Add up the purchases and subtract the total from \$50. $50 - (3 \times 8 + 2 \times 7 + 1 \times 2 + 2 \times 3) = 4$. 4) Then check the price of hotdogs. Hotdogs sell for 2 lbs for 2 dollars or \$1 a pound.
- b. 1 pound, 1) Subtract to find the savings and 2) multiply by the number of pounds purchased. $2 \times (\$3 - \$2.50) = 1.00$. 3) Hotdogs sell for \$2 for 2 lbs. or \$1 a pound.
10. A. $\frac{75}{100} = \frac{s}{52.99}$

Worksheet 3

1. C. 400
2. C. 6
3. B. 1.6 lbs.
4. C. 430
5. A. 90 hrs.
6. C. 43¢
7. B. \$339.76
8. D. 28 qts.

9. B. 130 mi

10. B. $\frac{2}{3} < \frac{5}{9}$



Worksheet 4

1. The teams would win 15 games. Answers should include the solution to the problem: $20 \times \frac{3}{4} = 15$
2. Pythagleo needs $2\frac{3}{4}$ cups of sugar. Answers should include the solution to the problem: $2\frac{1}{2} \times \frac{1}{2} + 1\frac{1}{2} \times 1 = \frac{5}{4} + \frac{3}{2} = 2\frac{3}{4}$
3. B. 25%
4. 60% of the candy was left. Answers should include the solution to the problems: 1) $\frac{5}{5} - \frac{2}{5} = \frac{3}{5}$ and 2) $\frac{3}{5} \times \frac{20}{20} = \frac{60}{100}$ (or $3 \div 5 = .6$) or 60%
5. 8 tablecloths could be made. Answers should include the solution to the problem: $20 \div 2\frac{1}{2} = 8$
6. Percent: 60%. Decimal .6. Answers should include the solution to the problem: $12 \div 20 = .6$ or 60%
7. Chris had the higher average. Answers should include the solution to the problems: 1) $12 \div 50 = .24$ or .240 and 2) $0.245 > 0.240$