Texas Mathematics Teacher

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IN THIS ISSUE

TEXAS COUNCIL OF TEACHERS OF MATHEMATICS

GOALS 2001-2002

MISSION: To promote mathematics education in Texas

GOALS:

* Maintain journal quality.
* Support CAMT.
* Award scholarships.
* Communicate better among board members and affiliated groups. Maintain website.
* Support affiliated group conferences by advertising in journal and on website.
* Encourage affiliated groups to put TCTM membership on their membership forms.
* Staff and sponsor TCTM booth at CAMT.
* Increase scholarship and CAMTership funding and awards.
* Increase public relations efforts.

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1972-1974	Shirley Ray	1988-1990	Otto Bielss
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1984-1986	Ralph Cain		

If your label includes a date earlier than "**7/02**,"
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to renew your TCTM membership.
Don't miss a copy of the *Texas Mathematics Teacher*.

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___Journal for Research in Mathematics Education ($90)

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___Mathematics Teaching in the Middle School ($28)
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___Journal for Research in Mathematics Education ($50)

Amount Due to NCTM: $ _____

Scholarship Donations: _____

TCTM awards scholarships to high school seniors planning to pursue a career in mathematics teaching either as a mathematics specialist in elementary school or as a secondary school teacher with certification in mathematics. Your contributions in any amount are greatly appreciated. Please write a separate check for scholarship donations.

Make check(s) payable to TCTM and mail to:
TCTM Treasurer
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Total Amount Due: $ _____

LONE STAR NEWS

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Texas Mathematics Teacher, the official journal of the Texas Council of Teachers of Mathematics, is published in the fall and spring. Editorial correspondence and manuscripts should be mailed or e-mailed to the assistant editor.

All readers are encouraged to contribute articles and opinions for any section of the journal.

Manuscripts, including tables and figures, should be typed in Microsoft Word or Works. Submit four copies and an IBM formatted 3 1/2 inch diskette containing the manuscript or send as an e-mail attachment to assistant editor.

Articles for *Voices From the Classroom* should be relatively short. A discussion of appropriate grade level and prerequisites for the lesson should be included.

Items for *Lone Star News* include, but are not limited to, TCTM affiliated group announcements, advertisements of upcoming professional meetings, and member updates.

Businesses interested in placing an **advertisement** for mathematics materials should contact Michelle Moravec.

Letter from the President

Howdy, Texas mathematics educators!

The 2001-2002 school year is nearly over and so is my term as TCTM President. Cynthia Schneider will be installed as our new president at our annual TCTM Business Meeting and Breakfast on July 10, 2002 during CAMT. I am sure she will do a great job and look forward to working with her. Being TCTM President has been a real honor for me, and I appreciate the opportunities it presented. I have met and worked with many wonderful people including TCTM Executive Board Members and CAMT Board Members, as well as exemplary Texas mathematics teachers. All these volunteers make organizations such as ours and conferences such as CAMT possible.

There will be many exciting professional development activities available for Texas mathematics educators during the next year. Here are a few of them:

1. CAMT 2002 - Dallas, TX - July 8-10, 2002
This conference promises to be one of the best. All sessions and exhibits will be at the Adam's Mark Hotel. The Program Co-Chairs, Susan Hull and Jacqueline Wielmuenster, have done a great job scheduling over 700 sessions. The post-conference will be July 11-13 and will include grade-level sessions as well as a NCTM Professional Development Academy " Making Sense of Algebra."

2. NCTM 2003 - San Antonio, TX - April 9-12, 2003
The last NCTM national convention in Texas was 1985, so this is a great opportunity for Texas math teachers to attend a national conference. Norma Torres-Martinez and I are Local Arrangements Committee (LAC) Co-Chairs, and we have assembled an outstanding committee that has already met three times. We are expecting about 22,000 educators to attend the conference and many exciting events are scheduled. The LAC is working closely with the Program Committee Co-Chairs, Laurie Boswell and Don Balka; NCTM President-Elect, Johnny Lott; and NCTM Convention Services Manager, Mark Workman, to plan the best NCTM Annual Conference possible.

3. CAMT 2002 Volunteer Participation
The volunteer forms for CAMT 2002 are included in this journal issue. Please volunteer to work at CAMT.

4. Speaker for NCTM 2003
The deadline for submitting a speaker proposal is May 1, 2002. Go to the NCTM website (www.nctm.org) to submit your proposal. It would be great to have many TCTM members present at this conference.

5. Texas Master Mathematics Teacher Initiative
The implementation of this Initiative is well underway. The first examinations will be administered in January 2003 and will include Pre-K to 4, 4 to 8, and 8 to 12 level certifications. Grants to school districts will be effective for the 2003-2004 school year. Go to the TEA website (www.tea.state.tx.us) to find out the latest information on the Initiative.

6. TCTM Annual Business Meeting and Breakfast - July 10, 2002 - 7am
Please attend our breakfast and business meeting. The registration form is included in this journal issue. Many great door prizes will be given away!

7. Nominate people for TCTM Awards, CAMTerships, and Student Scholarships
The forms for all the awards and scholarships are included in this journal, so be sure to observe the deadlines. Winners of the Glenadine Gibb Service Award and the TCTM Leadership Award will receive plagues and be recognized at the CAMT 2002 Luncheon. Five $200 CAMTerships will be awarded at the TCTM Breakfast meeting, so please nominate yourself for this award if you qualify. TCTM members may nominate a high school senior for one of three $1000 scholarships if the student plans on becoming a mathematics teacher.

It is an exciting time to be a mathematics teacher in Texas and I hope all of you take advantage of these opportunities. Keep up the good work and thanks again for the chance to serve TCTM.

Happy Trails to you!

Kathleen Cage Mittag
TCTM President 2000-2002

TEXTEAMS: Professional Development-Mathematics

Diane McGowan, Charles A Dana Center

What is TEXTEAMS?

TEXTEAMS is a comprehensive system of professional development based on the Mathematics and Science Texas Essential Knowledge and Skills designed to offer quality professional development through a well-trained network of leaders within a flexible structure. Every district, working with a TEXTEAMS Leader or Master Leader can customize the program to meet its needs, including developing appropriate ongoing support and follow-up experiences. (from TEXTEAMS: Professional Development-Mathematics brochure)

For more information on TEXTEAMS Professional Development and a list of training dates, please visit www.utdanacenter.org/ssi/projects/texteams.

TEXTEAMS at CAMT

CAMT participants may preview the existing TEXTEAMS institutes by attending awareness sessions that will be presented during CAMT. In these 90-minute sessions, you will experience hands-on activities from the institutes. Check the program book for sessions times and rooms. Also, some of the institutes will be presented in their entirety from July 8 – 12. Those institutes are:

- PreK-K
- Grades 1-2
- Grades 3-5
- Rethinking Middle School Mathematics: Numerical Reasoning Across the TEKS
- Rethinking Middle School Mathematics: Algebraic Reasoning Across the TEKS
- Rethinking Middle School Mathematics: Proportionality Across the TEKS
- Rethinking Middle School Mathematics: Geometry Across the TEKS
- Algebra I: 2000 and Beyond
- Algebra II/Precalculus.

Registration information is available at the CAMT website, www.tenet.edu/camt/.

New Institutes

TEXTEAMS has several new institutes that will provide support for teachers. The dates listed below each institute are the dates for training of leaders in the institutes. Teachers should contact their school district or education service center for sessions in their area.

Rethinking Middle School Mathematics: Geometry Across the TEKS

Houston-May 20-24; Austin-June 3-7, July 22-26

This institute focuses on important geometric concepts: geometric structure, transformations, triangles, plane figures, and solids called for in the TEKS and TAKS in grades 6 through 8. The institute activities are designed to engage vertical teams in learning about geometrical concepts. These activities highlight the importance of building conceptual understanding for students. Concrete models, algebraic connections, and appropriate technology are incorporated throughout the institute. (30 hours minimum)

Rethinking Secondary Mathematics: Statistical Reasoning Across the TEKS

University Forum-May 20-24

Training of Leaders dates will be determined later. This institute focuses on the mathematical foundations of statistical reasoning and sound decision making. Participants engage in activities and discussions that strengthen their own content knowledge in probability and statistics, enabling them to provide their students with the depth of understanding required by the TEKS and TAKS. The institute activities incorporate technology and real-world applications; related student activities address middle and high school TEKS as well as TAKS objectives in probability and statistics as well as those specified for courses in algebra, modeling, geometry, and precalculus. (30 hours minimum)

Practiced-Based Professional Development: Algebra I Assessments
February 4-6, 2002. A second training of trainers is planned for September, 2002.

This session is designed to assist teachers in implementing performance-based assessments in the Algebra I classroom. Participants analyze and evaluate student work to determine the level of student understanding. Student work samples will be gathered and analyzed from their own classroom. Classroom, campus, and district level implementation strategies are generated and discussed. (18 hours minimum)

Practiced-Based Professional Development: Geometry Assessments
The first training of trainers for the new geometry assessments is planned for fall, 2002.

This three day training session will include analysis of student work and classroom implementation of the assessments.

High School Geometry: Supporting TEKS & TAKS
Houston-Aug. 5-9; Austin-Sept. 16-20, Dec. 2-6

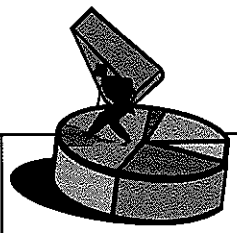
This institute focuses on important geometric concepts: geometric structure, transformations, triangles, plane figures, and s ids called for in the high school TEKS and TAKS. The institute activities are designed to engage vertical teams in learning about geometrical concepts. These activities highlight the importance of building conceptual understanding for students. The institute incorporates concrete models and appropriate technology.

Updated information on TEXTEAMS is available at the Math TEKS Toolkit website: http://www.tenet.edu/teks/math/.

And Around We Go!

Rethinking Middle School Mathematics: Numerical Reasoning Across the TEKS

Dr. Pam Littleton, Tarleton State University
Dr. Paul Kennedy, Southwest Texas State University
Michelle Morvant Moravec, McLennan Community College



Institute Notes

Concept: Use models to develop estimation strategies with fractions and percents.

TEKS Focus: **6.10D**—The student is expected to solve problems by collecting, organizing, displaying and interpreting data.

7.1A—The student is expected to compare and order integers and positive rational numbers.

8.12.C— The student is expected to construct circle graphs, bar graphs, and histograms, with and without technology.

Overview: Participants will use survey data to construct a bar graph that will then be changed into a circle graph. From the bar graph, benchmark fractions and percents will be compared and percents estimated. From the circle graph, benchmark fractional and percent values will be illustrated. The idea for this activity came from NCTM's Addenda Series, *Making Sense of Data*, Grades K – 6 and the TEXTEAMS Rethinking Middle School Mathematics: Proportional Reasoning Institute.

Materials: Large grid paper, Markers, Scissors, Centimeter rulers, Masking tape or clear tape, Compasses (optional)

Procedure:

1. Survey the group to fill in the interest inventory on favorite sport, soft drink, music, and color. This can be done by a show of hands or by handing out the survey to participants. You want the total number of people polled to be a number that is not easy to estimate with, such as 17 or 21. Also, keep the group number under 25 so that the graphs will fit on the grid paper.

2. Assign one of the interest inventory questions to each group. Instruct groups to sort the data and construct a bar graph on the worksheet provided. Advise each group to use markers to color each bar a different color.

Math Notes
Circle graphs cannot be used for all data. These graphs show relationships to the whole. Discussing fractional parts and percents is a necessary part of interpreting and creating circle graphs.

3. Once the individual bar graphs are completed, have participants transfer graphs to large grid paper. Each bar should be two inches wide. Also, the height of the graph should accommodate a length equal to the total number polled. For example, if 19 people are polled, then the vertical axis should go to 19. Have participants make two identical bar graphs. (One they will cut up later, and one they will not.) If the grid paper is turned sideways, both bar graphs will fit on one sheet.

4. Display one of each group's bar graphs and discuss conclusions that can be drawn from the graphs.

5. Instruct groups to cut their other bar graph out in the following manner. Each bar should be cut to the length of the number of people surveyed. For example, if nineteen people are surveyed, the strips should be nineteen inches long. Note that part of the bar will be colored, and part will not. Then each bar should be split vertically into one-inch strips.

6. Using the strips of length "total number of surveys," guide participants to determine benchmark percents to describe their data. Use the process of folding the bars in halves, fourths, thirds, etc. that was developed in "Percent Benchmarks."

7. Using the remaining bars from the bar graph, tape the bars together overlapping the bars so that the colored sections are end to end. (Make sure no "white tab" is left showing.) Cut off any excess white parts. Fold the strip lengthwise with the colors out. (This helps identify where bars change.) Now loop the strip and tape the ends together to make a circle. Participants can use the circle to tell what fraction or percent of it is allocated to each of the inventory responses.

8. Have participants roughly calculate the diameter of the circle. For example, if there were 19 surveys, then the diameter would be about 6. Use leftover grid paper and draw a circle for the data. There should be room on the saved bar graph to draw the circle. Hold the colored circle around the drawn circle and mark where the colors change. Connect the center with each point where colors change. Participants can then color their circle graphs to match the colors used on the strips.

9. Instruct participants to label each fractional part of the circle graph and each estimated percent. Display the circle graphs next to the bar graphs saved from the first part. Discuss the fractional parts and percents and draw out ideas about benchmark fractions and percents.

Extensions:

1. Construct an "exact" circle graph with the data using the fractional values and proportionality to determine the angle measures.

2. Use the TI-73 or similar calculator to create a circle graph.

Assessment: Collect additional data of interest. Have students organize, graph, and analyze the data. Have students estimate the percents of each set of data and compare to the fractional parts.

And Around We Go!

Interest Inventory Transparency

Favorite Sport	#	Ratio
Football		
Baseball		
Basketball		
Other		

Favorite Soft Drink	#	Ratio
Coca Cola		
Dr. Pepper		
Pepsi		
Other		

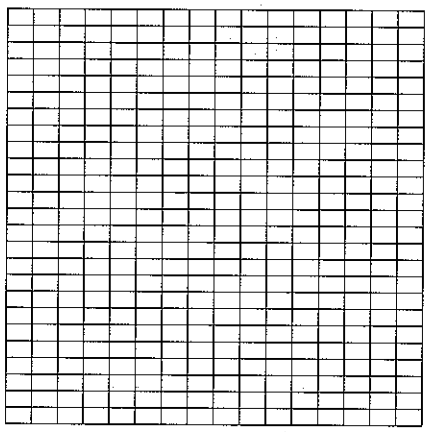
Favorite Music	#	Ratio
Rock		
Country		
Rap		
Alternative		
Other		

Favorite Color	#	Ratio
Green		
Blue		
Red		
Other		

And Around We Go!

Activity 1

1. Using the interest inventory data, sort your assigned set of data and construct a bar graph.



2. Record the fractional part of the data represented by each bar of the graph.

3. Transfer your bar graph to large graph paper.
   - Make sure that the height of the graph will accommodate a length equal to the total number polled. For example, if you have 19 surveys, make sure you draw your bar graph so that 19 is represented on the vertical axis.
   - Draw each bar two inches wide.
   - Color each bar a different color.

4. What conclusions can you draw from your bar graph?

5. Are any of your bars close to a common fractional part of the whole set of data?

Reason and Communicate:

· What data had the most responses? The least? Were any about the same?

· Are any of your bars close to $\frac{1}{2}$ of the whole set of data? Close to $\frac{1}{3}$ of the data? Close to $\frac{1}{4}$ of the data? Explain how you determined this.

Answers:

Answers will vary according to survey results.

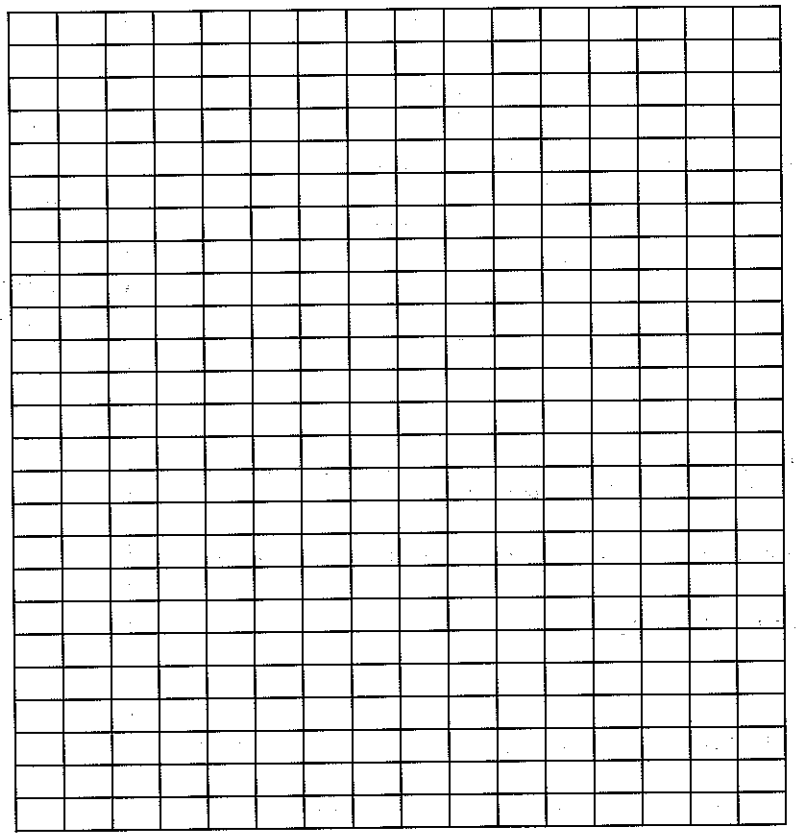
Math Notes:

Encourage participants to estimate the fractional size of each part, then compare to the actual fractional part and determine whether the estimate was greater than or less than the actual. Make sure students explain their thinking. For example, $\frac{6}{23}$ is approximately $\frac{1}{4}$ ($\frac{6}{24}$). In this example, the estimate ($\frac{1}{4}$) is less than that actual fraction. Ask if the numerators are the same, but the estimate divides the whole into 24 parts and the actual fraction divides the whole into 23 parts. Each of the 23 parts will be a little bit larger than each of the 24 parts, so $\frac{6}{23} > \frac{6}{24}$. Participants should be able to connect this idea to "Order On Line." If the numerator of a fraction remains fixed and the denominator increases, then the value of the fraction decreases. So, $\frac{6}{23}$ is larger than $\frac{6}{24}$ or $\frac{1}{4}$ and would be to the right of $\frac{1}{4}$ on a number line.

And Around We Go!

Activity 1

1. Using the interest inventory data, sort your assigned set of data and construct a bar graph.



2. Record the fractional part of the data represented by each bar of the graph.

3. Transfer your bar graph to a half sheet of large graph paper.
   - Make sure that the height of the graph will accommodate a length equal to the total number polled. For example, if you have 19 surveys, make sure you draw your bar graph so that 19 is represented on the vertical axis.
   - Draw each bar two inches wide.
   - Color each bar a different color.

4. What conclusions can you draw from your bar graph?

5. Are any of your bars close to a benchmark fraction?

And Around We Go!

Activity 2

You are going to cut your bar graph apart. Read all directions carefully before cutting.

1. Cut the bars out to two inches wide and a length equal to the number of interest inventories taken.
2. Split the bars lengthwise into two one-inch strips. Set one set of strips aside.
3. Using the other set of strips, fold each strip to estimate fractional part and percent of the whole. For example: fold the strip into halves, thirds, fourths, etc. Record your estimated fractional parts and percents below.

Item	Estimated Fractional Part	Estimated Percent

4. Compare the estimated fractional part with the actual fractional part in Activity 1. Does the estimate seem reasonable?
5. Is the estimate less than or greater than the actual fractional part? Explain.
6. Explain your estimation stratigies.

Reason and Communicate:

· Are the actual fractional parts "nice" fractions?

· What strategy did you use to determine whether your estimate is greater than or less than the actual fraction?

• Does the estimated percent seem to match your estimated fractional part?

• Do your estimated percents add to be 100%? Why or why not?

Math Notes:

This is an excellent activity to build understanding and confidence in "close" fractional estimates.

Participants may use two different approaches to the folding to establish benchmark percents. The directions instruct participants to cut part of the bar graph the length of the total number of surveys, then fold in half to determine 50%, fourths to determine 25%, and so on. During field testing, some groups used the length of the colored portion of the strip as the measurement for folding. They then fan folded the entire strip using that length. When the entire length was folded, they then counted the number of lengths. If they had 4 lengths with a little left over, then they concluded that the colored portion was a little less than 25%.

And Around We Go!

Activity 2

On the unused half of the large graph paper, copy your bar graph again.

You are going to cut your bar graph apart. Read all directions carefully before cutting.

1. Cut the bars out to two inches wide and a length equal to the number of interest inventories taken.

2. Split the bars lengthwise into two one-inch strips. Set one set of strips aside.

3. Using the other set of strips, fold each strip to estimate fractional part and percent of the whole. For example: fold the strip into halves, thirds, fourths, etc. Record your estimated fractional parts and percents below.

Item	Estimated Fractional Part	Estimated Percent

4. Compare the estimated fractional part with the actual fractional part in Activity 1. Does the estimate seem reasonable?

5. Is the estimate for each item less than or greater than the actual fractional part? Explain.

6. Explain your estimation strategies.

And Around We Go!

Activity 3

1. Using the remaining set of bars, trim each remaining bar leaving a one-inch "tab" on each strip.
2. Tape the strips together with the colored sections touching. Make sure the different colored strips come together with no white tab showing and no color overlapping.
3. Fold the new multicolored strip in half lengthwise. Fold so that the colored part is on the outside.
4. Bring the ends together lapping the colored end over the uncolored tab. Tape.
5. Estimate the diameter of the circle.
6. Using leftover grid paper, sketch the circle on the grid paper. Mark the center of the circle and the places on the circumference where the colors of the bars change. Connect the center to each of the marks on the circumference. Color each section the same color as the corresponding bar.
7. Label each part of the circle graph with fractional part and percent.
8. Do the fractional parts seem reasonable? Explain.
9. Do the percents seem reasonable? Explain.
10. Be prepared to present the circle graph to the group and discuss.

Reason and Communicate:

- How did you estimate the diameter of the circle?
- Was your estimate greater than or less than the actual diameter? Explain how you know.

Math Notes:

A circle graph is one of the easiest graphs to interpret because students can relate to parts of a whole in a circle graph, but one of the hardest to construct. For example, categories that have zero responses will not be on the circle graph but are on the bar graph. This activity presents a hands-on way to estimate a circle graph.

The ratio of the circumference to the diameter is pi. You can use circumference divided by three to estimate the diameter of your circle graph on the grid paper and adjust. However, any circumference can be used to draw the circle graph. If a different circumference is used, care must be taken in dividing the circle into parts. This still works because of proportionality.

Nice connections to geometry can be made in this activity. For example, you could use the circle graph to estimate angle measures.

And Around We Go!

Activity 3

1. Using the remaining set of bars, trim each remaining bar leaving a one-inch "tab" on each strip.

2. Tape the strips together with the colored sections touching. Make sure the different colored strips come together with no white tab showing and no color overlapping.

3. Fold the new multicolored strip in half lengthwise. Fold so that the colored part is on the outside.

4. Bring the ends together lapping the colored end over the uncolored tab. Tape.

5. Estimate the diameter of the circle.

6. Sketch the circle on the grid paper with the first bar graph. Mark the center of the circle and the places on the circumference where the colors of the bars change. Connect the center to each of the marks on the circumference. Color each section the same color as the corresponding bar.

7. Label each part of the circle graph with fractional part and percent.

8. Do the fractional parts seem reasonable? Explain.

9. Do the percents seem reasonable? Explain.

10. Be prepared to present the circle graph to the group and discuss.

Skydiving

Rethinking Middle School Mathematics: Geometry Across the TEKS

Overview: Participants will investigate the probabilities of landing in different parts of a region containing different shapes.

Objective: Mathematics TEKS
(6.8.B) The student is expected to select and use appropriate units, tools, or formulas to measure and to solve problems involving length (including perimeter and circumference), area, time, temperature, capacity, and weight.
(7.9) The student is expected to estimate measurements and solve application problems involving length (including perimeter and circumference), area and volume.
(6.9.B) The student is expected to find the probabilities of a simple event and its complement and describe the relationship between the two.
(8.11.B) The student is expected to use theoretical probabilities and experimental results to make predictions and decisions.

Terms: probability, rectangle, square, trapezoid, circle, area

Materials: Calculators, rulers

Procedures:

4.2 Transparency

An introductory transparency is provided for use prior to assigning the Skydiving activity. Discuss the meaning of probability as an area model. The probability of landing on the grounds (not in the pool) is given by:

P(grounds) = (area of grounds) / (area of whole recreation center).

Area of grounds = Total area – area of pool

Point out to participants that this skill is important for high school students.

Total area = 150 ft. x 150 ft. = 22,500 sq. ft.

The pool can be divided into regions many different ways. Have participants suggest possibilities. One example is provided.

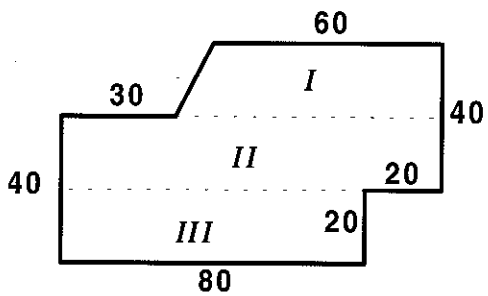
Area of pool = Region I + Region II + Region III

Region I (trapezoid) = (60 ft + 70 ft) x 20 ft / 2 = 1,300 sq. ft.

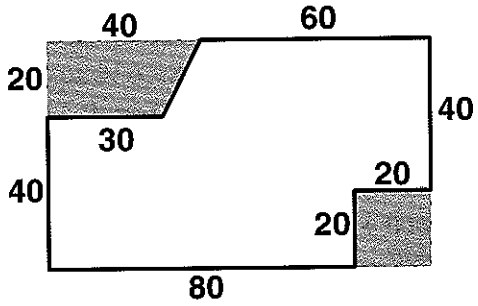
Region II (rectangle) = 100 ft x 20 ft. = 2,000 sq. ft.

Region III (rectangle) = 80 ft. x 20 ft. = 1,600 sq. ft.

Area of pool = (1,300 + 2,000 + 1,600) sq. ft. = 4,900 sq. ft



Another approach involves surrounding the region with a rectangle.



Area of pool = Area of surrounding rectangle – Area of trapezoid – Area of square.
Area of surrounding rectangle = 100 ft. x 60 ft. = 6,000 sq. ft.
Area of trapezoid = (40 ft. + 30 ft.) x 20 ft. / 2 = 700 sq. ft.
Area of square = 20 ft. x 20 ft. = 400 sq. ft.
Area of pool = (6,000 – 700 – 400) sq. ft. = 4,900 sq. ft.
Area of grounds = (22,500 – 4,900) sq. ft. = 17,600 sq. ft.
P(grounds) = (area of grounds) / (area of whole recreation center)
P(grounds) = (17,600 sq. ft.) / (22,500 sq. ft.) = 0.782 / 1 = 78.2%

Ask participants to explain what has happened to the units. A number divided by the same number equals 1; a variable divided by the same variable equals 1; a unit divided by the same unit equals 1. It is important that participants write out ratios with the units, even if the final answer does not have units.

Activity: Skydiving

***Version A** is suitable for grades 6-7. The perimeter fence of the farm is provided in the diagram.*

***Version B** is suitable for grades 6-8, but students will have to determine where to place the perimeter fence based on the 120,000 square feet given. Students should brainstorm as a group, or with a partner, possible dimensions that will provide a 120,000 square foot area. Using the scale given, try to draw in different possibilities that will enclose the buildings on the diagram. For example, 200 ft. x 600 ft is 120,000 square feet, but the rectangle will not enclose all of the buildings. It will be too short in one direction. Another example, 300 ft x 400 ft is 120,000 square feet. This rectangle will work if 300 ft is the vertical dimension.*

Discuss ways to determine where the perimeter rectangle should be placed. Participants might consider drawing a rectangle around the buildings. The dimensions can be converted to determine the area, and see whether it needs to be adjusted in one or other direction. Irregular shapes for the perimeter are also possible if the student is able to justify that the area is 120,000 square feet.

The probability of the sky diver landing on the house is given by:

P(open area) = open area / area of farm.

Since the open area is irregular in shape, we can find its area by subtracting the areas of all the buildings and structures from the total area. The area of the structures can be obtained in

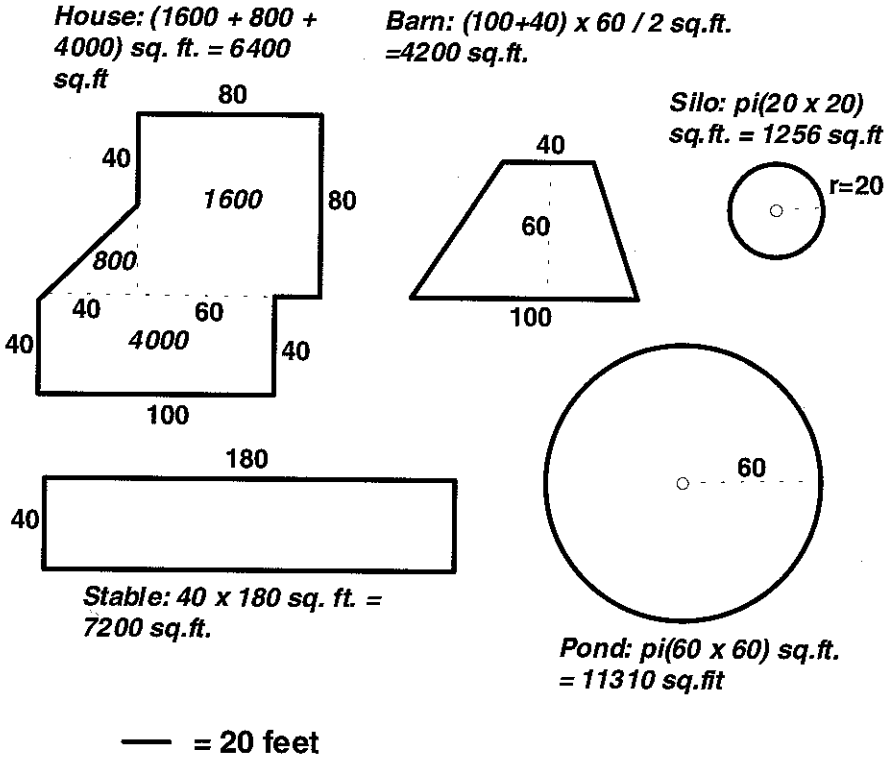
many ways. One possibility is shown:

Area of house + Area of barn + Area of silo + Area of stable + Area of pond = (6,400 + 4,200 + 1,256 + 7,200 + 11,310) sq. ft. = 30,366 sq. ft.

Open area = 120,000 – 30,366 sq. ft.= 89,634 sq. ft.

P(open area) = (89,634 sq. ft.) / (120,000 sq. ft.) = 0.74695 / 1

As a percentage, P(open area) ~ 75%.



Extension Answers

1. P(Shaded region) **= Area of shaded region / Area of square.**

   Area of shaded region= π x 3 units x 3 units = 9 x π ≈28.7 sq. units.

   Area of square = 6 units x 6 units = 36 sq. units.

   P(Shaded region) = (9 x π)sq. units / 36 sq. units = π /4≈0.79 = 79%

2. **P(Shaded region)** = Area of shaded region / Area of square.

   Area of shaded region = Area of square – Sum of the areas of the three unshaded triangles.

   Area of square = 6 units x 6 units = 36 sq. units.

   Area of top left unshaded triangle = 3 units x 3 units / 2 = 4.5 sq. units.

   Area of bottom left unshaded triangle = 3 units x 6 units / 2 = 9 sq. units.

   Area of right hand unshaded triangle = 6 units x 3 units / 2 = 9 sq. units.

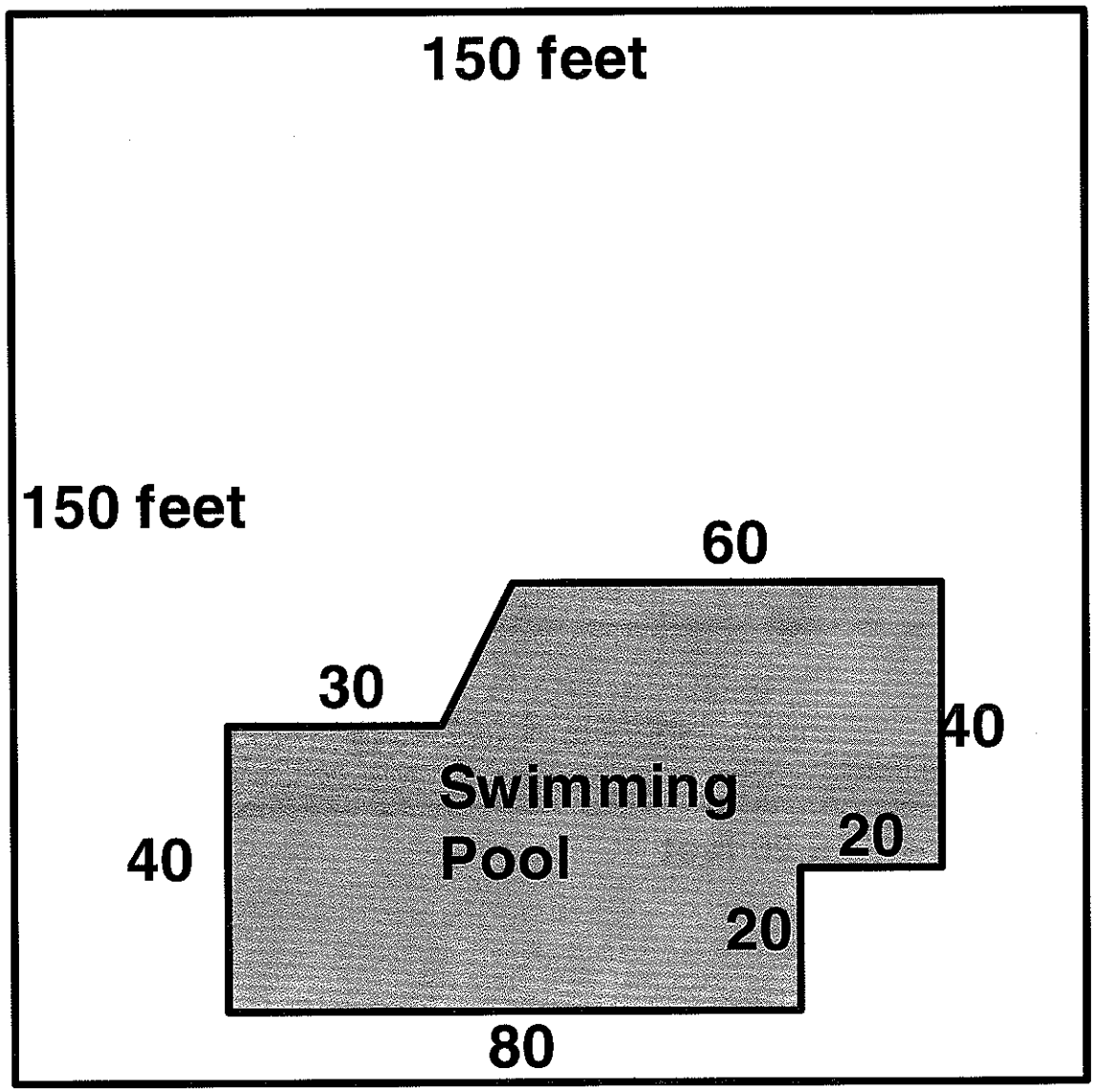
   Area of three unshaded triangles = (4.5 + 9 + 9) sq. units = 22.5 sq. units.

   Area of shaded region = (36 - 22.5) sq. units = 13.5 sq. units

   P(Shaded region) = (13.5 sq. units) / (36 sq. units) = 0.375 = 37.5%.

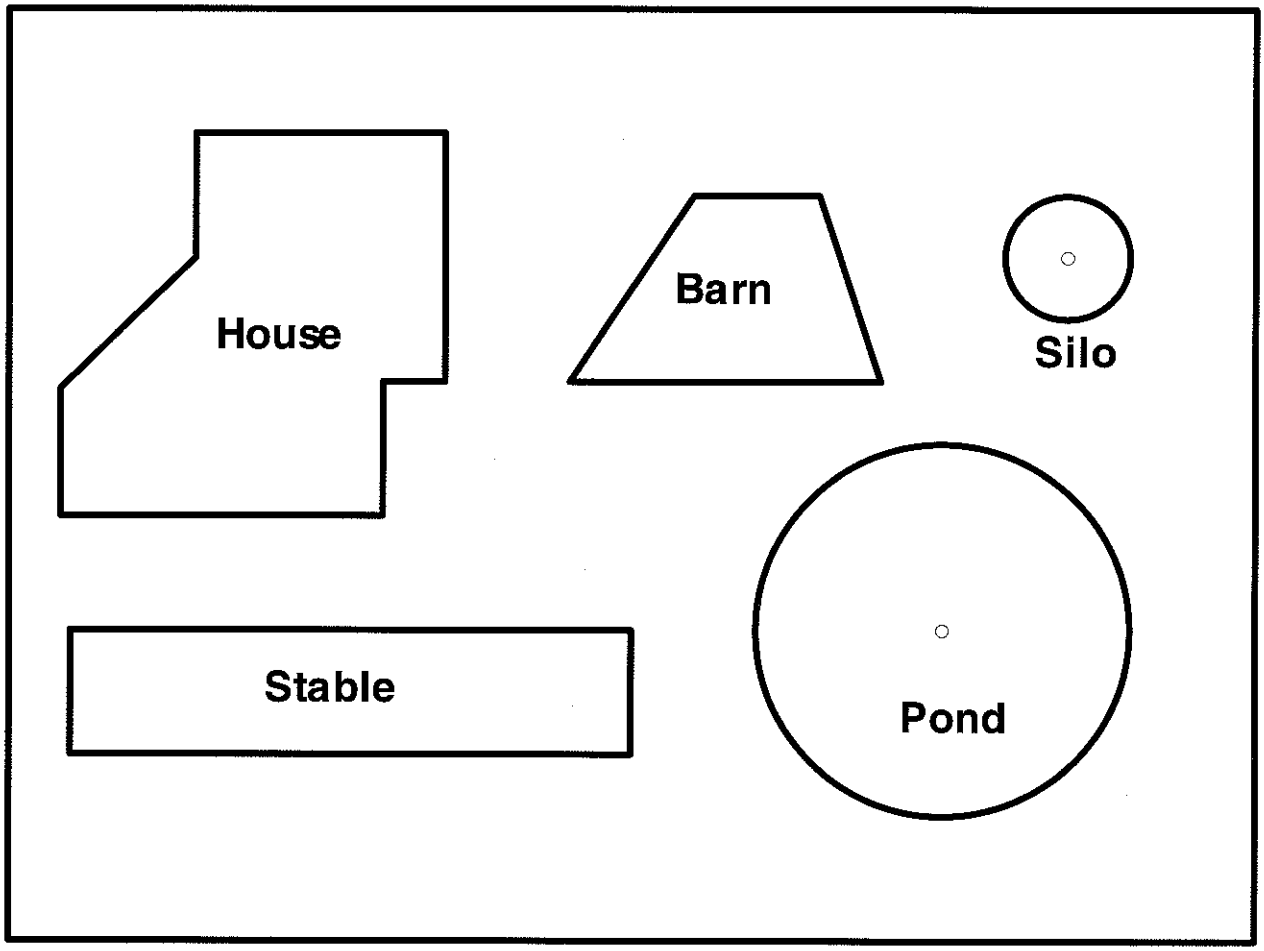
Transparency

What is the probability that the skydiver will land on the grounds of the recreation center? Measurements are given in feet.



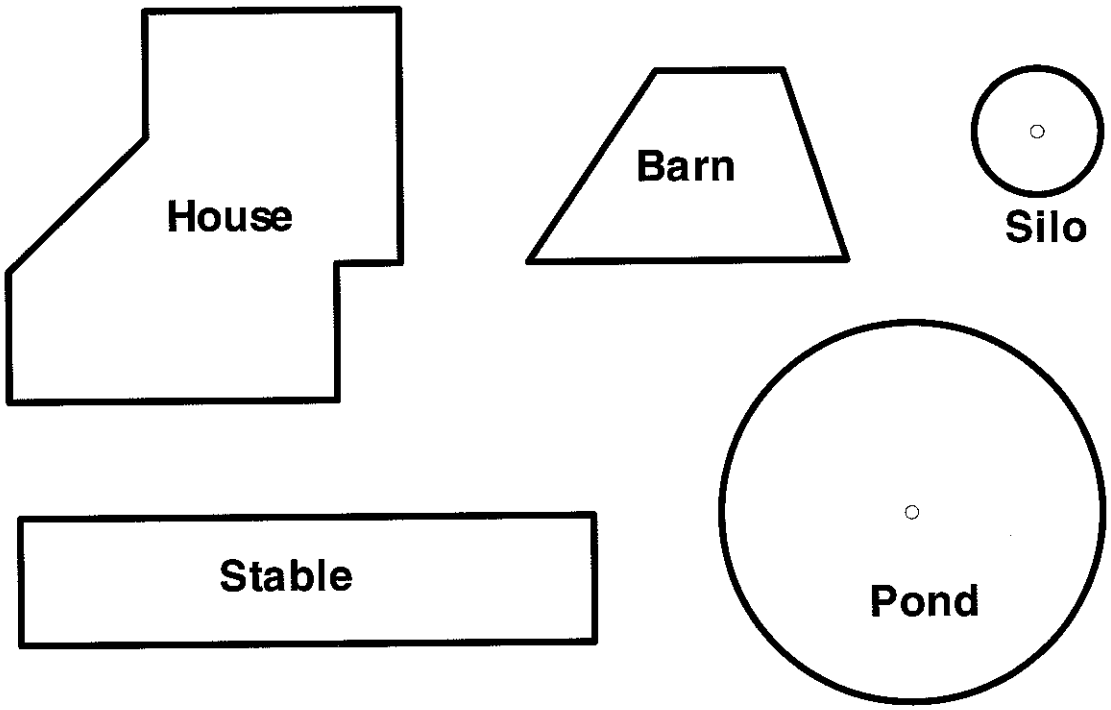
Skydiving: Version A

Sky Man is planning to perform his latest sky diving stunt over Old MacDonald's farm. He would prefer to land on the open area shown instead of on a building or in a pond. Using the aerial layout of the farm, determine the probability that Sky Man will land in an open area. The total area of the farm is 120,000 square feet.



Skydiving: Version B

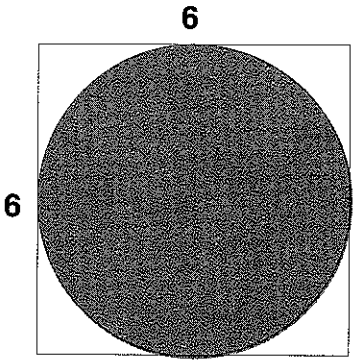
Sky Man is planning to perform his latest sky diving stunt over Old MacDonald's farm. He would prefer to land on the open area shown instead of on a building or in a pond. Using the aerial layout of the farm, determine the probability that Sky Man will land in an open area. The total area of the farm is 120,000 square feet.



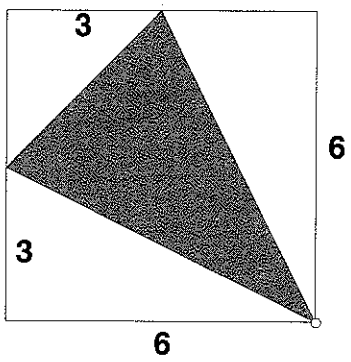
Extension

Given the following square dartboards. Assuming a dart will land on the given dartboard, find the probability of it landing in the shaded region.

1.



2.



Sylvia R Taube's article "Building Staircases and Stacking Up Soup Cans: Which Two Variables Are Related?" appeared in the Fall 2001 *Texas Mathematics Teacher*. The following page, p. 10 from that journal, was incorrectly printed. Please use the following version.

B. Growing diamonds

a) Observe how the first 3 figures are built.

b) Build the fourth shape and the fifth shape.

c) Complete the table showing the number of diamonds and the perimeter if each side of the diamond is one inch long.

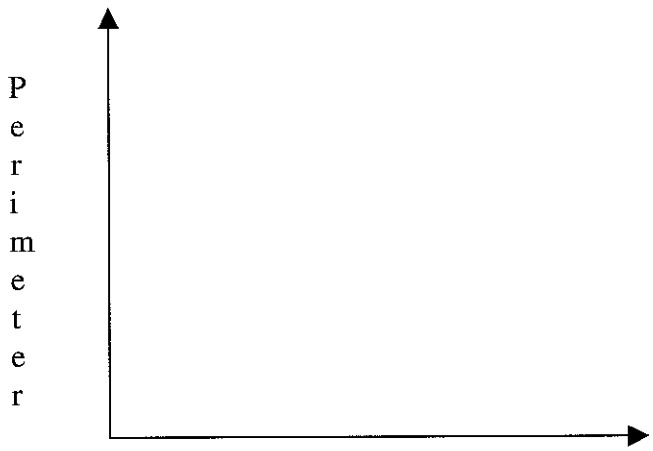
Area (# of tiles)	1	2	3	4	5	. . .	*a*
Perimeter	4	—	—	—	—		—

d) Explain how you would predict the perimeter of the 20th figure by looking at the data.

e) What relationship can you describe between the number of diamonds and the perimeter?

f) Suppose you graph the data on the table, what prediction can you make regarding the points on the graph? Why?

g) Graph 5 ordered pairs on the graph below. Draw a line to predict the perimeter of the 10th figure.



Pool Problem
Algebra I Assessments

The Dana Center has developed *Algebra Assessments* as a resource for teachers to use to provide ongoing assessment integrated with algebra instruction. The development of the work is supported in part by the Texas Education Agency, the National Science Foundation, and the Charles A. Dana Center at The University of Texas at Austin. The book or CD is available from the Charles A. Dana Center and on the Mathematics Toolkit website at www.tenet.edu/teks/math/. For more information on purchasing the book or CD, visit the Dana Center website at www.utdanacenter.org.

What are the *Algebra Assessments*?
The assessments are algebra problems that reflect what all students need to know and be able to do in first-year Algebra. These assessments may be formative, summative, or ongoing. The problems focus on students' understanding as well as their procedural knowledge. The tasks require more than right or wrong answers; they focus on how students are thinking about a situation.

What is the purpose of the *Algebra Assessments*?
The purpose of these assessments is to make clear to teachers, students, and parents what is being taught and learned. Teachers should use evidence of student insight, student misconceptions, and problem-solving strategies to guide their instruction. Teachers may also use the questions included with the assessments to guide learning and to assess student understanding. The use of these assessments should help teachers enhance student learning and provide them with a source of evidence on which they may base their instructional decisions.

What is the format of the *Algebra Assessments*?
The document contains 75 problems divided into two groups: the core group and the additional group. Collectively, the core group of problems addresses all the student expectations for Algebra I.

The additional group of problems is provided for practice or as substitution for problems in the core group.

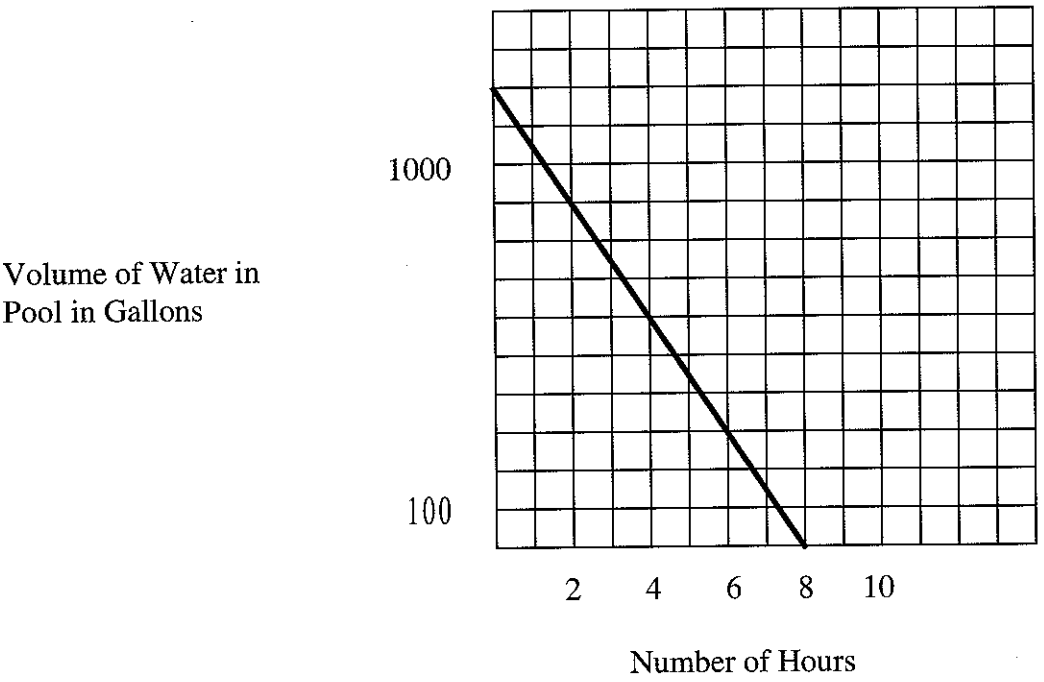
The problems have been divided into five categories:
- Function Fundamentals
- Linear Functions
- Related Linear Functions and System of Equations
- Quadratic Functions
- Inverse Variation, Exponential Functions, and Other Functions

Each problem:
- includes an algebra task,
- is aligned with the Algebra I Texas Essential Knowledge and Skills (TEKS) Student Expectations,
- is aligned with the Grade 11 Exit Level Texas Assessment of Knowledge and Skills (TAKS) objectives,
- is aligned with the Algebra End-of-Course (EOC) Exam objectives,
- is aligned with the TEXTEAMS *Algebra I: 2000 and Beyond* professional development institute,
- includes "scaffolding" questions that the teacher may use to help the student to analyze the problem,
- provides a sample solution*, and
- includes extension questions to bring out additional mathematical concepts in a summative discussion of solutions to the problem.

*The sample solution is only one way that a problem may be approached. There are other approaches that may provide a correct analysis of the problem. The authors have attempted to illustrate a variety of methods in the different problem solutions.

The Pool Problem on the next page is one of the assessment pieces from the *Algebra Assessments*.

Pool Problem



1. The graph shows the relationship between the amount of water in a pool and the number of hours that have elapsed since a pump began to drain the pool. Describe verbally and symbolically the relationship between the amount of water in the pool and the number of hours that have elapsed since the draining began.

2. How much water would be in the pool after 4 hours and 20 minutes?

3. How many hours after they began draining the pool would it contain 720 gallons of water?

Teacher Notes

Materials: One graphing calculator per student

Connections to TEKS and Performance Descriptions:

(b.3) **Foundations for functions**. The student understands how algebra can be used to express generalizations and recognizes and uses the power of symbols to represent situations.

The student:

(A) uses symbols to represent unknowns and variables; and

(B) given situations, looks for patterns and represents generalizations algebraically.

(b.4) **Foundations for functions**. The student understands the importance of the skills required to manipulate symbols in order to solve problems and uses the necessary algebraic skills required to simplify algebraic expressions and solve equations and inequalities in problem situations.

The student:

(A) finds specific function values, simplifies polynomial expressions, transforms and solves equations, and factors as necessary in problem situations.

(c.2) **Linear functions**. The student understands the meaning of the slope and intercepts of linear functions and interprets and describes the effects of changes in parameters of linear functions in real-world and mathematical situations.

The student:

(A) develops the concept of slope as rate of change and determines slopes from graphs, tables, and algebraic representations;

(B) interprets the meaning of slope and intercepts in situations using data, symbolic representations, or graphs.

Connection to Texas Assessment of Knowledge and Skills:

Objective 3: The student will demonstrate an understanding of linear functions.

Connection to *Algebra 2000 and Beyond Institute*:

II. Linear Functions 1 Developing Mathematical Models
1.2 The Y-intercept
1.3 Exploring Rates of Change

Connection to Algebra I End of Course Exam:

Objective 1: The student will demonstrate an understanding of the characteristics of graphing in problems involving real-world and mathematical situations.

Scaffolding Questions

- Define the independent variable and the dependent variable for this problem situation.
- What type of relationship is described by the graph?
- How much water was in the pool when the pumping started? What part will this number play in the function rule?
- How much water was in the pool after two hours? Four hours? Six hours? Organize your response in a table.
- At what rate is the amount of water decreasing per hour?
- Use the rate of change and the starting volume in the pool to write a function rule.

Sample Solution:

1. The amount of water in the pool at time zero is 1200 gallons.
   The water is being drained at a constant rate, because the graph is the graph of a straight line. It takes 8 hours to drain the pool. The rate per hour would be 1200 gallons divided by 8 hours or 150 gallons per hour. Because the water is draining, the rate of change is -150 gallons per hour.

The amount of water in the pool is the starting value plus the rate times the number of hours. Let w be the amount of water in the pool at time t in hours,

$w = 1200 + (-150)t$ or $w = 1200 - 150t$, where t is any number between 0 and 8, inclusive.

2. The time is 4 hours and 20 minutes or $4\frac{1}{3}$ hours.

$$w = 1200 - 150\left(4\frac{1}{3}\right) = 1200 - 650 = 550$$

The amount of water in the pool after 4 hours and 20 minutes is 550 gallons.

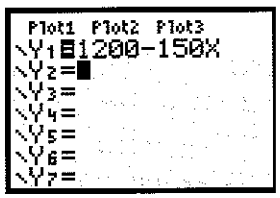
3. The amount of the water in the pool will be 720 gallons when $y = 720$.

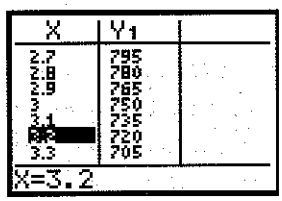
$720 = 1200 - 150\,t$

$t = 3.2$

There will be 720 gallons of water in the pool after 3.2 hours. Since 0.2 (60) = 12, the time is 3 hours and 12 minutes.

A table or graph could also be used to determine when the amount of water is 720 gallons. Set the table minimum at 1 and increments at 0.1, and scroll down the table to find the value when $y = 720$ at $x = 3.2$. In 3.2 hours the amount in the pool would be 720 gallons.





Extension Questions:

- What is the domain for the function rule you have written?
  The domain is the set of all real numbers.
- Describe the domain for this problem situation and explain why you selected this domain.
  The domain is the set of all real numbers from 0 to 8 inclusive. The domain values must be a non-negative number and must give non-negative range values. The pool is empty after 8 hours.
- How much time would have elapsed if the pool was half-empty to begin with?
  The original amount of water in the pool was 1200 gallons. The amount of water is 600 gallons at 4 hours. Note that this is one-half the time it takes to empty the pool.
- Will this relationship work if you are asked about how long it takes to empty one-third of the water? Explain your reasoning.
  It would take one-third of the time it takes to drain the pool. There is a proportional relationship between the time and the portion of the water that has been drained. The time it takes to drain the pool is $\frac{1200 \text{ gallons}}{150 \text{ gallons per hour}}$ or 8 *hours. If one-third of the pool is drained, two-thirds of the pool volume remains.*

$$\frac{2}{3}(1200) = 1200 - 150\,x$$

$$150\,x = \frac{1}{3}(1200)$$

$$x = \frac{1}{3} \cdot \frac{1200}{150} = \frac{1}{3}(8)$$

Let f be the fractional part of the pool drained. The part remaining is 1-f.

$(1-f)1200 = 1200 - 150x$

$150x = 1200 - (1-f)1200$

$150x = f(1200)$

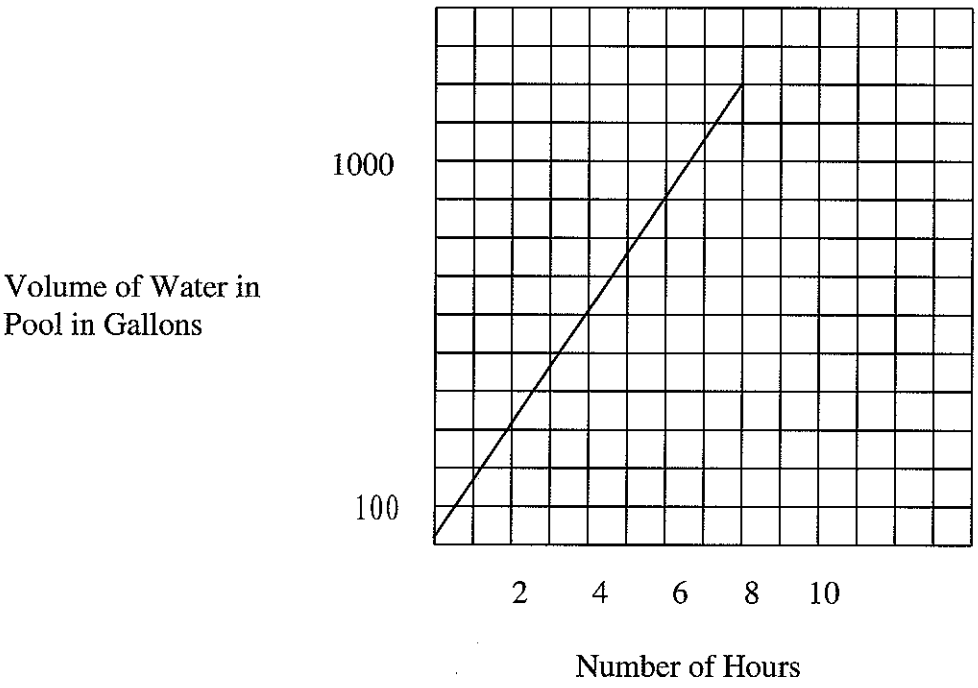
$$x = f\left(\frac{1200}{150}\right) \quad \text{or} \quad 8f$$

Thus, if the amount drained is (f)(1200), the time it takes is (f)(8) or f times the amount of time it takes to drain the pool.

- If the pool started at 1500 gallons, but emptied at the same rate, how would that affect your graph?
  The only value changed in the function is the y-intercept, so the function would become:
  $y = 1500 - 150x$
  The graph would be a straight line parallel to the original line, but with a y-intercept of 1500.

- If the pool started at the same amount, but emptied at 100 gallons per hour, how would the graph be changed?
  The rate of change or slope is – 100. The function would be $y = 1200 - 100x$

- Suppose an empty pool was being filled at the same rate and with the same capacity of 1200 gallons. Sketch the graph to represent this situation and write the function to represent this new situation.
  The function would be $y = 150x$ *where x varies from 0 to 8. Since the capacity of the pool is 1200 gallons, the graph terminates at the point (8,1200). Tthe graph is a line segment.*



Lone Star News

TCTM Update

TCTM will change presidents at CAMT 2002. Kathy Mittag will end her term, and Cynthia Schneider will begin her term as president. For more information, see "Letter from the President" on p. 4.

A great time to meet your new president as well as other board members is at the TCTM Breakfast and Business Meeting. It will be held at 7 am on Wednesday, July 10 during CAMT. The breakfast is good, but the door prizes are better. This year, not only will there be prizes from the vendors at CAMT, but **TCTM will be giving away five $100 confernece expense awards to members of TCTM present at the breakfast.** Send in the form on p. 32 to get your tickets now. There will be no tickets avaliable at the conference or breakfast. See you there!

Affiliated Group News

- **Austin Area CTM** sponsored its annual conference on Saturday, October 20, 2001 at Aikens High School in Austin. With the theme "Enrichment = Meaningful Connections" sessions for elementary, middle, and high school where offered. Paula Gustafson, Director of Mathematics for the Texas Education Agency, was luncheon speaker. She brought attendees up to date on TAKS and the Texas Math Initiative. AACTM hold regular meetings. Contact Pat Rossman (paancaro@hotmail.com) for information.
- **The Greater El Paso CTM (GEPCTM)** sponsors practice UIL Math meets throughout the year for both middle schools and high schools. On February 16, GEPCTM sponsored the annual UT El Paso Meet. This meet is for middle and high school students. On February 20, GEPCTM sponsored a dinner to honor the UIL Math coaches. The election of officers meeting is scheduled for May.

Presidential Awards

Four Texas Teachers were among the recipients of the 2001 Presidential Awards for Excellence in Mathematics and Science Teaching. The winners are Patricia Alexander, Barbara Bush Elementary in Grand Prairie, elementary mathematics; D'Ann Douglas, Sallie Curtis Elementary in Beaumont, elementary science; Kristine Smith, Weatherford High, secondary mathematics; and Peggy Schweiger, Klein Oak High in Spring, secondary science. Each 2001 winner receives a $7500 grant for the school and a trip to the ceremony in Washington. The applications for this years awards are due on May 1 and may be downloaded from: www.ehr.nsf.gov/pres_awards/

Conferences

- NMMATYC and TexMATYC Conference is to be held May 17 and 18, 2002 at El Paso Community College, Transmountain Campus. There will also be pre- and post-conference activities. Math teachers from all over Texas and New Mexico, not just two-year college teachers, are invited to come and network. If you would like to attend or present, please visit www.epcc.edu/Faculty/joanep/peeples.html and click on the conferece button. (Submitted by Joanne Peeples.)
- Panhandle Area Math and Science Confernece (PAMSC) is held the last Saturday of September. Last September 29, more than 700 teachers were in attendance. For more information, email Beverly Anderson at banderson@esc17.net.

Lifetime Membership

TCTM would like to thank the newest lifetime member, Pam Alexander. You too can be a lifetime member for $200.

CAMT 2002
Their Future in Our Hands
Learning Together for Student Success
Adam's Mark Hotel, Dallas
July 8-10, 2002

A registration booklet was mailed to all school districts and to those who attended CAMT last year about March 1, 2002. This booklet includes major highlights of the conference. It is also available at the CAMT website, www.tenet.edu/camt/. The official program book will be sent to anyone who registers. The program book is also available on the web at www.tenet.edu/camt/.

New special interest sections have been added to complement old favorites at CAMT.

- A secondary addition to the popular MATHARAMA called STEPS, Secondary Teachers Enhancing Performance for Students, will be available for middle school and high school teachers on Tuesday, July 9. Teachers may attend 25 minute sessions. Algebra I will be the focus of the six morning sessions. Algebraic reasoning in middle school will be the focus of the six afternoon sessions.
- A leadership strand especially for mathematics leaders or for those interested in mathematics education leadership will be available.
- Daily updates from TEA—the latest news from the state level, including information about the new TAKS tests, the Texas Math initiative, and technology will be available.

Other sessions of special interest:

Opening and closing session speakers:

- John Kuglin, The Next Generation: Discovering New Frontiers
- Glenda Lappen, Learning for Students and Teachers
- Eric Jolly, Bridging Homes and Schools: Education in a World of Diversity

Luncheon Speaker:

- Steven Leinwand, Ten Practical Strategies for Helping Our Students Beat the Tests Through Better Instruction

TEXTEAMS Sampler Sessions:

- Experience hands-on activities from TEXTEAMS institutes.
- Algebra I and Geometry Assessments
- The sessions will highlight new assessment resources for algebra and geometry..

NASA: Hands-on activities that use space contexts to teach strands from the TEKS.

Teaching Algebra Through Modeling: Activity highlights from Eisenhower sponsored institute on preparing for and teaching algebra through modeling.

Computer Lab Sessions: How- to sessions on the computer - 1 hour, 90 minute, or 2 hour sessions

MATHARAMA: Two days of sessions for elementary teachers. On Monday, July 8, elementary teachers will have the opportunity to attend sessions on Measurement and Geometry. Sessions on July 9 will focus on Patterns, Relationships and Algebraic Thinking.

The three days of the conference should provide sessions of interest to any mathematics teacher. Visit the CAMT website for more program information.

Post conference sessions will be held July 11 and 12. A description and registration information is available at the CAMT website, www.tenet.edu/camt/.

TCTM MEMBER PARTICIPATION FORM FOR CAMT

All members of TCTM should take an active role to help make CAMT successful. Please examine the times and volunteer to serve. Circle the time slot(s) you can help. If you cannot help for the whole time period, please indicate when you can work in the margin.

CAMT REGISTRATION DESK

Adam's Mark Hotel
Dallas, Texas

Sunday, July 7	1:45-3:30 p.m.	3:30-5:00 p.m.		
Monday, July 8	6:45-9:00 am	9:00-11:00 am	11:00 am-1:00 p.m.	1:00-3:00 p.m.
Tuesday, July 9	7:15-9:00 am	9:00-11:00 am	11:00 am-1:00 p.m.	1:00-3:00 p.m.
Wednesday, July 10	7:15-9:30 am			

NCTM Materials Sales and TCTM Booth

Adam's Mark Hotel

Monday, July 8	9:45-12:00	12:00–2:00	2:00-4:00	4:00-6:00	
Tuesday, July 9	8:30-10:30	10:30–12:30	12:30-2:30	2:30-4:30	4:30-5:30
Wednesday, July 9	8:30-10:30	10:30-12:30	12:30-1:30		

Member Information

Name _____

Home Address _____ ESC region _____

City, Zip _____ Phone _____

E-mail Address _____

School, District, or Professional Affiliation _____

Email the information to Cynthia Schneider at cschneider@mail.utexas.edu or **send** this form to her at 234 Preston Hollow, New Braunfels, TX, 78132 **no later than June 1, 2002.**

Confirmation of your registration or NCTM materials booth assignment will be mailed to your home about July 15.

TCTM Breakfast and Business Meeting

Come join us for the annual TCTM breakfast and business meeting. Meet your board members and be apart of TCTM decisions. Plus, there will be **great door prizes** from the vendors you will see at CAMT. Some of the prizes last year included books, manipulatives, games, and **calculators. New this year-TCTM will be awarding 5 $100 conference expense awards at the breakfast.** Don't miss out!

Wednesday, July 10, 2002
7:00 – 8:30 a. m.
Adam's Mark Hotel, Dallas Texas
Lone Star C-4

_____Enclosed find my $10.00 check for the TCTM breakfast and business meeting reservation.

NOTE: Breakfast tickets must be reserved. There will not be tickets available at the conference.

Member Information

Name _____

Home Address _____ ESC region _____

City, Zip _____ Phone _____

E-mail Address _____

School, District, or Professional Affiliation _____

Send this form **no later than June 1, 2002** to:
Kathy Mittag
4627 Pinecomb Woods
San Antonio, TX 78249

Tickets to the breakfast will be mailed to you.

CAMTERSHIP APPLICATION

Five $200 CAMTerships will be awarded to those teaching five or fewer years who are members of TCTM and have not attended CAMT before. The money is intended to help cover expenses associated with attending CAMT and to encourage new teachers to attend CAMT. Two CAMTerships will be awarded to teachers in each of the following grade levels: K - 4, 5 - 8, and 9 - 12. Winners will be determined by random drawing of names and will be notified by June 1, 2002. Winners will be asked to work for two hours at registration or NCTM material sales and will be TCTM's guest at our breakfast, where the checks will be presented. Good luck!

Deadline: May 1, 2002

Name: _____

Phone number: _____

Home address: _____

City, zip: _____

School: _____

Grade(s) taught: _____

School address: _____

School phone: _____

Principal's name: _____

Are you a member of TCTM? _____
Note: If you are not a member of TCTM, you must enclose $13 with this application to apply for membership.

Have you attended CAMT before? _____

How long have you been teaching? _____

Describe your primary teaching responsibilities:

Send your completed application to: **Kathy Mittag**
4627 Pinecomb Woods
San Antonio, TX 78249

TCTM Leadership Award Application

The TCTM Leadership Award is presented to a TCTM member who is nominated by a TCTM Affiliated Group. This person is to be honored for his/her contributions to the improvement of mathematics education at the local and state level. He/she has designed innovative staff development and has promoted the local TCTM Affiliated mathematics council. **Deadline: May 1, 2002**

Information about the of Affiliated group nominating a candidate:

Name of Affiliated Group: _____

President of the Affiliated Group: _____

Home address: _____

Home phone: _____ Business phone: _____ E-mail: _____

Are you a member of TCTM? _____ NCTM? _____

Information about the person being nominated:

Name: _____

Home address: _____

Home phone: _____ Business phone: _____ E-mail: _____

Is the nominee a member of TCTM? _____ NCTM _____ Retired _____

Applications should include 3 pages:

- Completed application form
- One-page, one-sided, typed biographical sheet including:
  - Name of nominee
  - Professional activities
  - State/local offices or committees
  - Activities encouraging involvement/improvement of math education
  - Staff Development
  - Honors/awards
- One-page, one-sided essay indicating why the nominee should be honored for his/her contribution to the improvement of mathematics education at the state/national level.

Send the completed application, biographical sketch, and essay to

Kathy Mittag
4627 Pinecomb Woods
San Antonio, TX 78249

E. Glenadine Gibb Achievement Award Application

The E. Glenadine Gibb Achievement Award is presented to someone nominated by a TCTM member to be honored for his/her contribution to the improvement of mathematics education at the state and/or national level. **Deadline: May 1, 2002**

Information about the TCTM member nominating a candidate:

Name: _____

Home address: _____

Home phone: _____ Business phone: _____ E-mail: _____

Are you a member of TCTM? _____ NCTM? _____

Information about the nominee:

Name: _____

Home address: _____

Home phone: _____ Business phone: _____ E-mail: _____

Is the nominee a member of TCTM? _____ NCTM? _____ Retired _____

Applications should include 3 pages:

- Completed application form
- One-page, one-sided, typed biographical sheet including:
  - Name of nominee
  - Professional activities
  - National offices or committees
  - State TCTM offices held
  - Local TCTM-Affiliated Group offices held
  - Staff Development
  - Honors/awards
- One-page, one-sided essay indicating why the nominee should be honored for his/her contribution to the improvement of mathematics education at the state/national level

Send the completed application, biographical sketch, and essay to:

Kathy Mittag
4627 Pinecomb Woods
San Antonio, TX 78249

TEXAS COUNCIL OF TEACHERS OF MATHEMATICS
MATHEMATICS SPECIALIST SCHOLARSHIP

Amount: $1000

Application Deadline: May 1, 2002

Eligibility: Any student who will graduate in 2002 from a Texas high school - public or private - and who plans to enroll in college in the fall of 2002 to pursue a career in mathematics teaching either as a mathematics specialist in elementary school or as a secondary school teacher with certification in mathematics.

Name: _____
Last First Middle

Address: _____
Number and street Apt. number

_____
City Zip code

Phone number: ( )_____ Birth date: _____

Social security number: _____

High school(s) attended: _____

What college or university do you plan to attend? If you are awarded this scholarship, TCTM's treasurer will send a check directly to the business office of the college. We need the college's complete address.

Enclose the completed application with each of the following in the same envelope and mail to Pam Alexander at the address listed below. **YOU MUST INCLUDE 3 COPIES OF ALL REQUIRED MATERIALS.**

1. On a separate sheet, list high school activities including any leadership positions.
2. Official high school transcript
3. Letter of recommendation from a TCTM member
4. An essay describing your early experiences learning mathematics and any experiences explaining mathematics to your classmates or friends. This essay must be no more than two pages, double-spaced.
5. An essay telling why you want to be a mathematics specialist in elementary school or a mathematics teacher in middle or high school. This essay must be no more than one page, double-spaced.

Return all materials in one envelope to:

Kathy Mittag
4627 Pinecomb Woods
San Antonio, TX 78249

PROFILES OF OFFICER CANDIDATES

Vice President - Secondary

Linda Shaub

Linda Shaub has been a high school and middle school mathematics teacher for eighteen years. She is the NCTM representative and former president of the Austin Area CTM. She has helped facilitate the annual math conference for her affiliated group for the last five years. Linda also presents workshops such as Making Math Memorable and is known for teaching old concepts in novel ways. In 1999, Linda received the TCTM Leadership Award at CAMT.

Marcia Ziegler

Marcia Ziegler is the High School Director for the Rio Grande Valley CTM. She has been a high school mathematics teacher for the past 14 years of which 13 of them have been with the Pharr-San Juan-Alamo (PSJA) ISD at PSJA North High School.

Northeast Regional Director

Brenda DeBorde

Jacqueline Weilmuenster

After teaching for twenty-three years in middle and high school, Jacqueline sees a great need for sources of support and inspiration for professionals who are making a difference in students' lives. Now, as a coordinator of mathematics for Grapevine-Colleyville ISD, the focus of her work is to bring the best staff development to the teachers in her district . Based on her past involvement with TASCD curriculum projects, EOC and TEXTEAMS review and writing committees, and as the co-chair for an annual math symposium in the Dallas-Ft. Worth metroplex as well as CAMT 2002, she is convinced that TCTM should figure into the systemic change equation. She sees enlarging the presence of our area's mathematics organization as a very positive step and is willing to help facilitate this goal. She has served TCTM well as the CAMT Board representative.

Northwest Regional Director

Beverly Anderson

Beverly is currently the Mathematics Specialist for Region 17 Education Service Center, where she has worked since 1991. Before that, she was a classroom teacher for 12 years. She is a member of the South Plains CTM, TCTM, NCTM, and the Texas and National Associations of Supervisors of Mathematics. She enjoys traveling, golf, shopping, word puzzles, and crosswords. She has served TCTM well as Northwest Regional Director for many years.

Central Regional Director

Erika Moreno

Pat Rossman

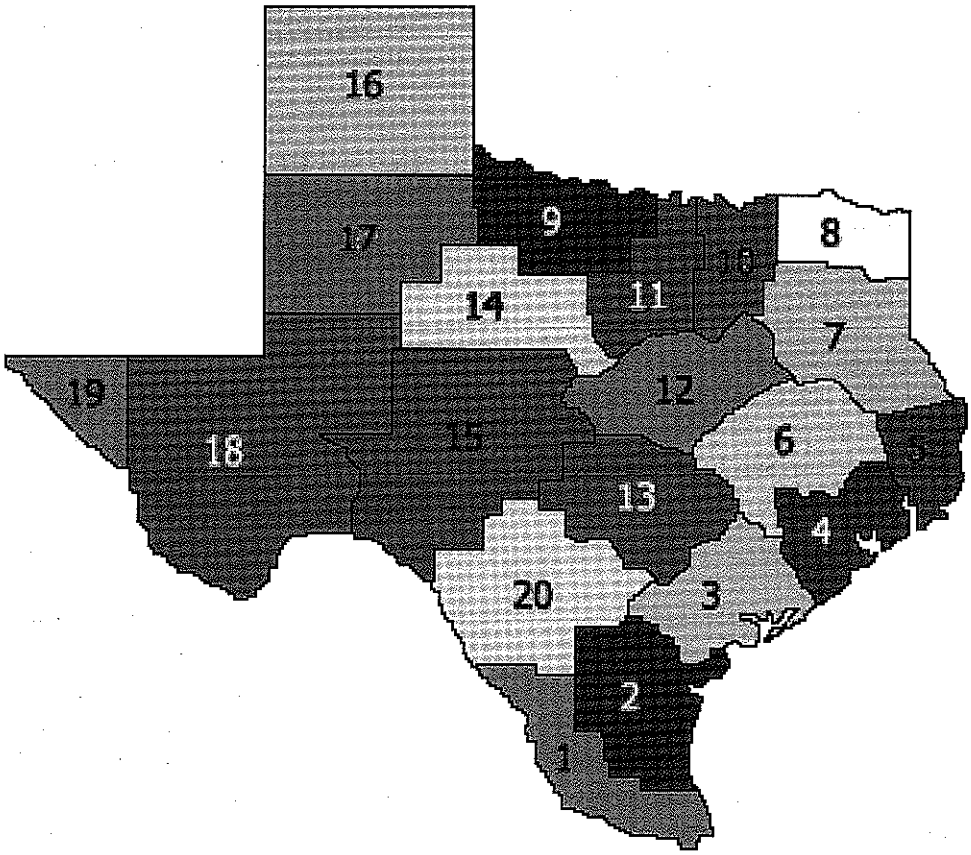
Secretary

Bill Jasper

Dr. Bill Jasper is an Assistant Professor of Mathematics Education at Sam Houston State University, where he is in the second year of teaching pre-service elementary teachers in mathematics. Previously, he taught mathematics methods courses for the College of Education at Stephen F. Austin University. Bill has seven years public school teaching experience. In addition, he taught mathematics, statistics, and mathematics education courses for three years at Blinn College. Bill is a longtime member of NCTM and TCTM and actively supports both organizations. Bill has presented at CAMT for the past 10 years, volunteers his time at CAMT for registration and manning booths, and has served as the Parliamentarian of TCTM for the past two years. He is also active in the Texas Middle School Association and the Southwest Educational Research Association, and frequently presents at area conferences.

Texas Council of Teachers of Mathematics

Regions



TCTM Region	ESC Regions
Southwest	15, 18, 19
Southeast	4, 5, 6
Northwest	9, 14, 16, 17
Northeast	8, 7, 10, 11
South	1, 2, 3
Central	12, 13, 20

BALLOT

Circle your choices below. Write-in candidate names are acceptable. Then fold this ballot in three, tape, and mail. You may place it in an envelope and mail to the address on the next page if you prefer. **Please return by June 1, 2002.**

Vice-President Secondary

Linda Schaub Marcia Ziegler Write-in: _____

Northeast Regional Director

Vote only if you live in one of these Service Center Regions:
7, 8, 10, 11

Brenda DeBorde Jacqueline Weilmuenster Write-in: _____

Northwest Regional Director

Vote only if you live in one of these Service Center Regions:
9, 14, 16, 17

Beverly Anderson Write-in: _____

Central Regional Director

Vote only if you live in one of these Service Center Regions:
12, 13, 20

Erika Moreno Pat Rossman Write-in: _____

Secretary

Bill Jasper Write-in: _____

place
stamp
here

Kathy Mittag
4627 Pinecomb Woods
San Antonio, TX 78249

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Affiliated with the
National Council of Teachers of Mathematics

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Texas Council of Teachers of Mathematics

Member 2001-2002

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