Let Them Eat Pi
(cake and cookies, too!)

Interface 2008
Tan-Tar-A Resort
Osage Beach, Missouri

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Suggested Projects and Activities – just a sampling of ideas!
Some of these we have done; others we've just heard or thought about.

- Have a class or school-wide pi trivia contest/scavenger hunt; answers might be found on posters students have made, on the internet, in books, etc.

- Stories, poetry, other writing forms – write a "pi-ku" or "piem" – poem where each line contains the number of words that corresponds to a digit of pi, or each word contains the number of letters to correspond to a digit of pi, or each line contains the number of syllables to correspond to a digit of pi; an opportunity to work with communication arts department, maybe have English teacher judge entries

- Posters, mobiles, and other art forms – decorate pi symbols, for example; an opportunity to work with art department, maybe have art teacher judge entries

- Beaded jewelry or key chains – select ten colors, one to stand for each digit, and string in order to correspond to digits of pi; use a special bead for the beginning 3 and the decimal

- Construction paper chain – select ten colors, one to stand for each digit, cut 1"-2" strips, and make a chain to display in your classroom or hallway

- (variation on chain – from Kathleen Ingalls in Hancock, NY) – give each student a 4 inch square in colors to represent digits; student writes number on square, decorates, and signs name; put squares on black construction paper background, tape together, and laminate to form a long banner; she puts the banner in the hall each year and adds digits; says students enjoy seeing squares from previous years that they or older siblings have made; some students even come back on Pi Day to add another digit

- Pi "quilt" (made of construction paper or fabric) – large square in center to represent the 3, then spiral smaller squares from center, color coded to represent digits; possibly use unique color to represent decimal

- Video, song, skit, rap – encourage students to use their creativity to write and/or produce a multi-media project; if your school has a video class, this is a good way to work with that discipline; if you have a daily broadcast, you might ask to have Pi Day publicized and some productions shared; some students

- (variation on song idea – from Joan Tobey, a teacher on AP Calculus listserve) "One of my geometry students just presented musical PI in class for PI day. She wrote the music using the odd numbers on lines starting on the bottom, the evens in the spaces and letting zero be a rest. The she played it on her violin. It was quite awesome and, at times, even melodic."

- Make pi symbols out of wood, metal, fabric, etc. – maybe an opportunity to work with FACS, woodworking, welding, and other vocational classes

- Food – decorate pies, cakes, cookies, etc., with pi-related themes – another possible opportunity for connection with FACS classes

- Some sort of presentation of uses of pi in scientific formulas, study of mathematician/scientist Albert Einstein (whose birthday is 3/14), etc. for connection with science classes

- Make a timeline of the development and use of pi throughout history – an opportunity to work with social studies department
- Sell chances to throw pies at teachers and/or administrators
- Have a contest to see who can memorize the most digits of pi
- Rolling for Pi -- Bring to class one or more large circular items such as a bicycle wheel, hula hoop or plywood disc (available a many home improvement centers). Physically measure the circumference of your circular object by marking the round item along the outside edge, and rolling it on the floor one full revolution to convert the circumference into a straight line. Next measure the diameter by finding the absolute widest measurement across the circle. Lay the diameter measurement onto the circumference line and it should go slightly more than three times. (Your results may vary slightly due to measurement inaccuracies.)
- Form a "human pi" on the football field and take a picture from high in the bleachers
- Find and play video or audio clips from internet

Some helpful resources:

Websites –This is just a small sampling of helpful sites. Do an online search for "pi day" or "pi" and you'll find many more.

- Teach Pi
  http://www.teachpi.org/index.htm
- Pi Across America -- lots of activities
  http://www.piacrossamerica.org
- Fun with Pi
  http://www.kathimitchell.com/pi.html
- How to Celebrate Pi Day
  http://www.wikihow.com/Celebrate-Pi-Day
- MEGSL Pi Day
  http://www.mobot.org/education/megsl/pi.html
- Facts About Pi
  http://www.pen.k12.va.us/Div/Winchester/jhhs/math/facts/pifacts.html
- Education World Pi Day Party
  http://www.education-world.com/a_lesson/lesson/lesson335.shtml
- Pi Day Activities
  http://www.geocities.com/rozauer/pi_day.htm
- Missouri Council of Teachers of Mathematics
  http://www.moctm.org/PiDay/PiDayActivities.htm
- Joy of Pi
  http://www.joyofpi.com
- Pi Explorer
  http://www.42explore.com/pi.htm
- Pi Day - A Holiday for Math Geeks
  http://hubpages.com/hub/Pi_Day_A_Holiday_for_Math_Geeks
- Pi Music Video -- link to video is on Mr. Bird's Calc Page
  http://cs3.covenantchristian.org/bird/Calculus.htm

Books

Sir Cumference and the Dragon of Pi by Cindy Neuschwander. Although the book is written for elementary students, many secondary students enjoy the story. Cindy has also written several other related books.

Piece of Pi – *Wit-Sharpening, Brain-Bruising, Number-Crunching Activities with Pi* by Naila Bokhari. This book contains several activities related to pi targeted to grades 6-8, but much of the material would work with other ages as well.

The Joy of Pi by David Blatner. We've not seen this book, but it is frequently recommended by others interested in pi; appears to have a lot of historical information.

Pi Day Trivia Contest

Instructions

1. Get an entry form from one of the math teachers.

2. Put your NAME on it.

3. Throughout the school you will find posters defining Pi – look for the small white posters with a **Pi Trivia** π symbol on them – record the questions on your form.

4. When you have all 10 questions, record the answers on your form. (You may need to use the Internet or reference books to find some of the answers.)

5. Place the form in the Pi Day Trivia Contest Box located in Mrs. Campbell's room on or before the end of the day Tuesday, March 14. The winning name will be drawn from the forms with all the correct answers.

6. Listen to the memo on Thursday, March 16 for the announcement of your name as the winner.

7. Go to Mrs. Burke's classroom to receive your prize.

The following prizes will be awarded:

3 first-place prizes – free large pizza from Domino's

1 second-place prize – $3.14

4 third-place prizes – free homework pass

Pi Day Trivia Contest Questions

1. What is the definition of pi? (This question is not asking for a numerical value.)

2. What famous mathematician's birthday is on Pi Day (3/14)?

3. What verse in the Bible makes a reference to an approximation for pi?

4. What state's legislature in 1897 introduced a bill to legally establish the value of pi?

5. Pi is which letter (1st, 2nd, 3rd, etc) of the Greek alphabet?

6. What English mathematician in the 1700's first introduced the Greek letter pi as a symbol for this special value?

7. What famous ancient Greek mathematician came up with an approximate value for pi by circumscribing and inscribing circles in and around regular polygons?

8. What are the first 21 digits of *pi* (include the whole number and 20 places after the decimal)?

9. What is the area of a circle which has a radius equal to 1?

10. Pi radians is equal to how many degrees?

(answer key)
1. ***The ratio of the cirumference of a circle to its diameter or the circumference of a circle divided by its diameter***
2. ***Einstein or Sierpinski***
3. ***I Kings 7:23 or II Chronicles 4:2***
4. ***Indiana***
5. ***16th***
6. ***William Jones***
7. ***Archimedes***
8. ***3. 1415926535 8979323846***
9. π
10. ***180 degrees***

PI Day Project

(This project is to be completed by a group of 2-4 students, with each student completing a worksheet.)

Diameter	Circumference

1. Measure the circumference and diameter of each circular object that you are given.

2. Record the measurements in the table to the right.

3. Enter the data from the table into a graphing calculator, following these steps:
   a. Press [STAT] [EDIT]
   b. In L1 enter the diameters and in L2 the circumferences from the table.

4. Use the data to draw a scatterplot in the calculator.
   a. Press [2nd] [Y=] .
   b. Select Plot 1 and press [ENTER].
   c. Turn the plot on; select the scatterplot under "Type;" put L1 in Xlist and L2 in Ylist – [2nd] [1] and [2nd] [2].
   d. Select the type of mark you want to show on your plot.
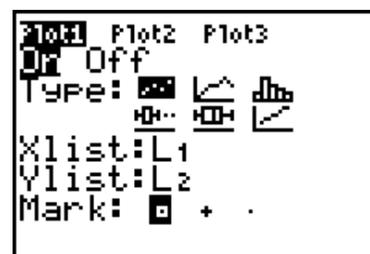
5. Set an appropriate window for your scatterplot.
   a. Xmin and Xmax should include all values from L1.
   b. Ymin and Ymax should include all values from L2.
   c. Xscl and Yscl can be set at 1.
   d. In the table to the right, show the window you use.

Xmin=	
Xmax=	
Xscl=	
Ymin=	
Ymax=	
Yscl=	

6. Graph the plot in your calculator and sketch in the rectangle below what you see on the calculator screen.

7. Use your graphing calculator to find the equation of a line that fits the points on your scatter plot – a "line of best fit."

   a. Press [STAT]; select CALC.

   b. Select LinReg (ax+b) – *Doesn't this remind you of y = mx + b?*

   c. Tell the calculator which lists to find the data in – L1, L2 – and where you want the equation to be stored in the calculator – Y1 – by using the following key strokes:
   [2nd] [1] [,] [2nd] [2] [,] [VARS] select "Y-VARS" [ENTER] [ENTER].
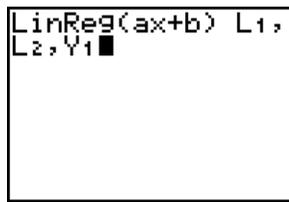
   ```
   LinReg(ax+b) L1,
   L2,Y1■
   ```

   d. Press [ENTER] again.

   e. Use the values for *"a"* and *"b"* which appear on the screen to write a linear equation for the line of best fit in the form y = mx + b. (Use the value for *a* in place of the slope, *m*, in your equation.) Write the equation in the space below, rounding the numbers to two decimal places.

8. Press [Y=]. You should see an equation that looks like the one you just wrote, but with many more decimal places.

9. Press [GRAPH]. Do you see a line going through the points on your scatter plot?

10. Look at the equation you wrote in question 7e. What is the slope of the line represented by that equation?

11. The slope of the line you found is close to the approximate value of what very special number?

Pi Day, Let's Eat Cake!

In honor of Pi Day I thought we should celebrate together, so be sure to synchronize your watches. On March 14 at exactly 1:59 p.m., I want to hear everyone shout, "Happy Pi Day!" Be prepared to explain to all your non-math teachers.

In my classroom we are going to celebrate with Pi cake. I will bake and decorate two cakes like the ones in the picture. The first will be a rectangle that is 9 inches wide, 13 inches long, and 2 inches high. The other will be a 9-inch-round cake that is 3 inches high. For those of you who don't do a lot of baking, a 9-inch-round cake pan has a diameter of 9 inches.

I know that I can create nice equal slices from the rectangular cake by dividing the width into three pieces and the length into 5 pieces. To be fair, I want each of my students to receive the same amount of cake as the others.

The round cake will be cut into wedge-shaped pieces. How many wedge-shaped slices will I have to cut from the round cake to give everyone about the same amount of cake? Make sure that you are comparing the volumes of the pieces of cake.

Bonus: To make it easier to carry the cakes into school, I plan to leave them in their pans. That means that I will only decorate the tops with icing. If you like icing, would you want a slice of the rectangular cake or the round cake? Support your decision using mathematics.

(adapted from a Math Forum Problem of the Week)

PI DAY Project for Calculus

(*This project is to be completed by students in groups of 2-4, each group with a different size drinking cup. Each student is to turn in a separate worksheet.*)

You are going to use the calculus concept of volume by the disc method to approximate the volume of a cup.

❖ Measure the top and bottom diameters and height of the cup (in centimeters). Record the top and bottom radii and height in the table below.

Top Radius	Bottom Radius	Height

❖ On a piece of graph paper, graph a line which would come closest to representing a side of the cup, with the top or bottom of the cup placed on the y-axis.

❖ Write and evaluate an integral to find the volume (in cubic centimeters) of the solid formed when the area under line is rotated around the x-axis.

❖ Convert the volume to fluid ounces.
       (*1 fluid ounce $\approx$ 29.573 cubic centimeters*)

❖ Compare your calculated volume with the volume printed on the bottom of the cup.

❖ In good sentence form, give a brief explanation of why there may be some variation in your calculated volume and the actual volume of the cup. (You can write on the back of this sheet.)

PI DAY Project for Calculus (teacher notes)

Divide students into groups (of 2-4). Give each group a different sized drinking cup. Students are to use calculus (volume by disc method) to find the volume of the cup in cubic centimeters and then convert to fluid ounces.

Conversion factor: **1 fluid ounce = 29.573 cubic centimeters**

Measure top and bottom diameters (calculate radius) and height of the cup in centimeters. Graph a line which could represent a side of the cup with the top or bottom of the cup placed on the y-axis. Determine and evaluate an integral to find the volume (in cubic centimeters) of the solid formed when the line is rotated around the x-axis. Convert the volume to fluid ounces. (Check volume printed on bottom of cup.)

Example:

       diameter(1) = 5 cm

            radius (1) = 2.5 cm

       diameter(2) = 7.2 cm

            radius (2) = 3.6 cm

       height = 9 cm
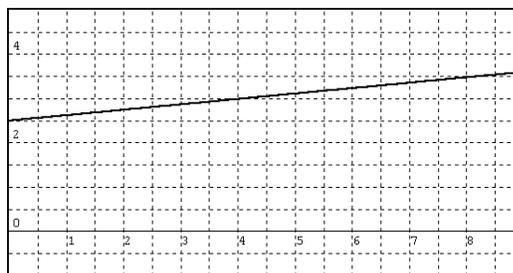
radius of solid: $y = \dfrac{1.1}{9}x + 2.5$

volume of solid: $\displaystyle\int_{0}^{9} \pi(.122x + 2.5)\, dx$ = 265.779 cubic centimeters

volume in fluid ounces: 265.779/29.573 = 8.987 fl. oz.

volume printed on bottom of cup: 9 fl. oz.

PI DAY Problem for PreCal/Trig – Dot.com Derby

The Dot.com Derby is about to start. Three dots begin on a line that serves as the radius for three concentric circles.

- Dot A is 6 inches from the center point, O.

- Dot B is 12 inches from O.

- Dot C is 18 inches from O.
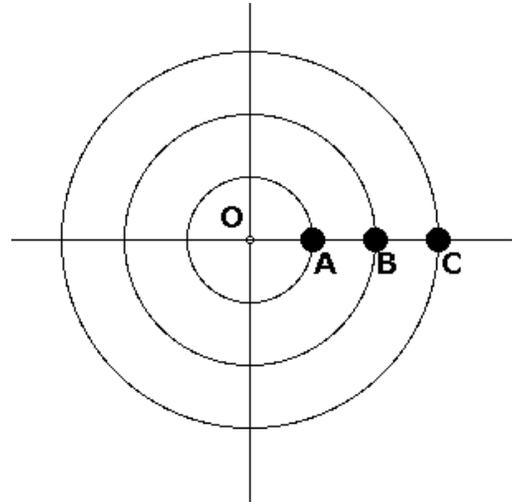
At the signal to start, each dot will begin traveling in a counter-clockwise direction along its respective circle. All three travel at one constant speed; no one dot goes faster than any other.

Each dot will travel a distance of 100 feet - no more, no less. On the figure on the last page represent their ending locations A' (for A), B' (for B), and C' (for C); use a protractor to measure the angles for accuracy in marking the ending locations.

Winners will be declared in two categories:

❖ <u>Shortest Distance Contest</u> – The shortest linear distance (along the circular path) left to finish the revolution.

❖ <u>Smallest Angle Contest</u> – The smallest angle (for example, angle AOA') left to complete the unfinished counter-clockwise revolution.

Work through the following exercises to determine who wins the gold, silver, and bronze medals in each category of the Dot.com Derby. Support your statements by showing all work clearly and completely.

On your mark... get set... go!

(adapted from a Math Forum Problem of the Week)

Show all calculations, fill in charts, and mark ending positions and angles on the figure at the end of the questions.

1. Find the circumference of each circle (in inches). Leave answers in terms of π.

	Circumference
Dot A	
Dot B	
Dot C	

2. Determine how many trips the dot must make around the track to travel 100 feet. (*Hint: How many inches are in 100 feet?*) Round the number of revolutions to 4 decimal places. Record the decimal fraction remaining of the last incomplete revolution made around the track.

	Fraction of revolution remaining
Dot A	
Dot B	
Dot C	

3. Determine how many inches are left to complete the last revolution. Round answers to 2 decimal places.

	Inches remaining in last revolution
Dot A	
Dot B	
Dot C	

4. Who wins which medal in the shortest distance contest?

Gold Medal (1st place)	
Silver Medal (2nd place)	
Bronze Medal (3rd place)	

5. Use the formula for arc length ($s = r\theta$) and your answers from question 3 to determine the angle left to complete the unfinished counter-clockwise revolution. (*Remember, your angles will be in radians using this formula.*) Round answers to 4 decimal places.

	Angle remaining (radians)
Dot A	
Dot B	
Dot C	

6. Convert each of the angles found in question 5 to degrees, rounded to the nearest 10th of a degree.

	Angle remaining (degrees)
Dot A	
Dot B	
Dot C	

7. Who wins which medal in the smallest angle contest?

Gold Medal (1st place)	
Silver Medal (2nd place)	
Bronze Medal (3rd place)	
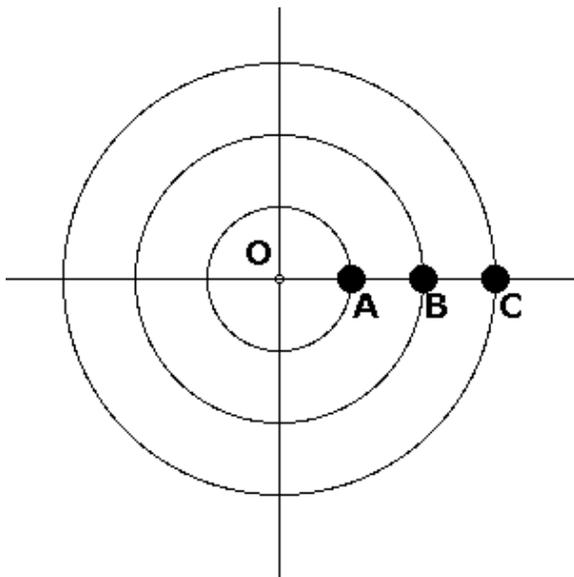
Statistics Pi Day Project

Give each student 100 digits of pi.

Assign the following:

- Put the digits into a list in the calculator.
- Make a frequency distribution and some type of graphical display of the digits – histogram, dot plot, etc.
- Calculate mean, median, mode, 5-number summary.
- Construct a box plot.
- All students combine numbers and repeat calculations.
- Describe distributions.
- Have students look for patterns and/or randomness in the digits.

PI DAY Project for Geometry

"Name that Circle"

Divide students into groups (2 or 3???).

Hand out first set of circles. Students are to write equations for each circle.

When a team is finished, someone should raise a hand so their finishing position can be noted.

After all teams are finished, check answers.

Winner is team with most correct answers who finished in shortest amount of time.

Repeat with second and third sets, as time permits.

Name that Circle -- #1

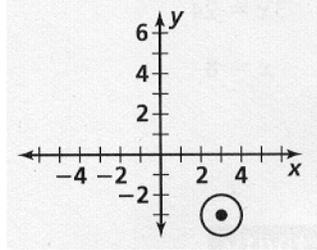Write an equation for each of the following circles.

1.

2.

3.

4.
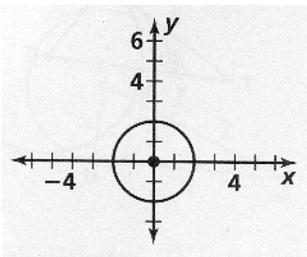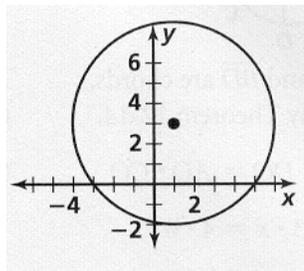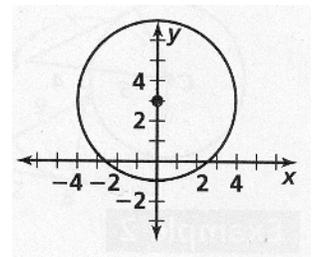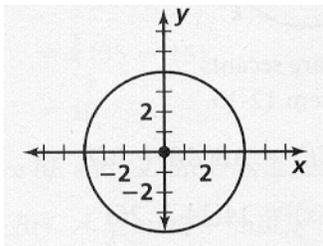
5.
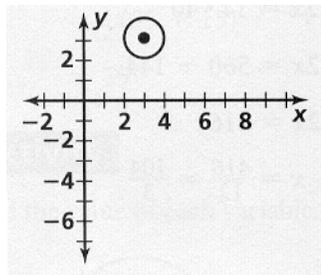
Name that Circle -- #2

Write an equation for each of the following circles.

1.

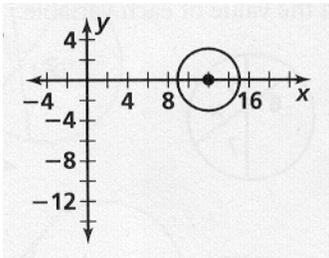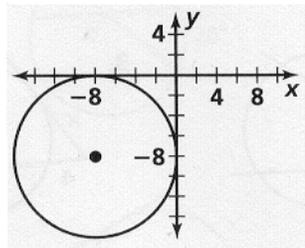2.

3.

4.
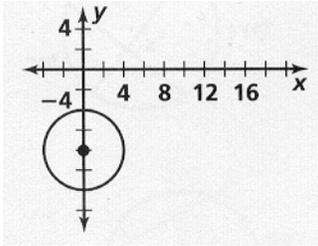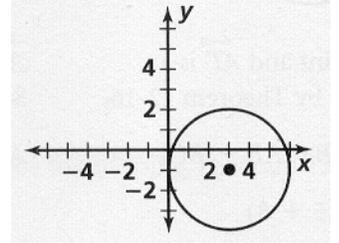
5.

Name that Circle -- #3

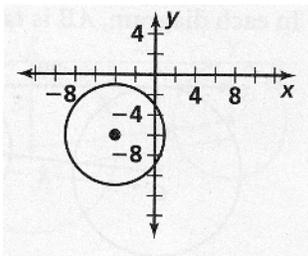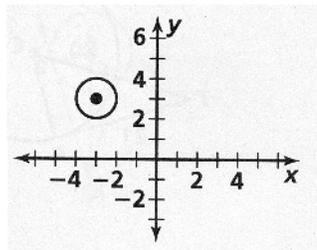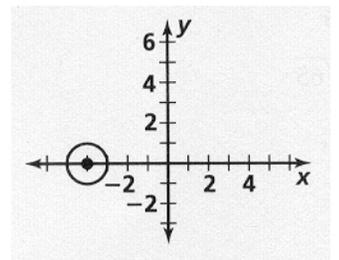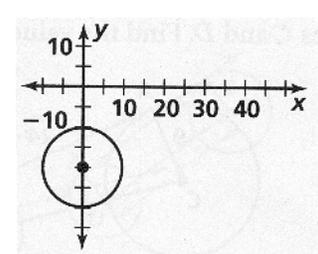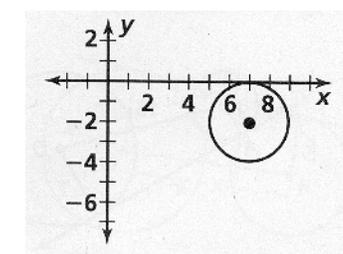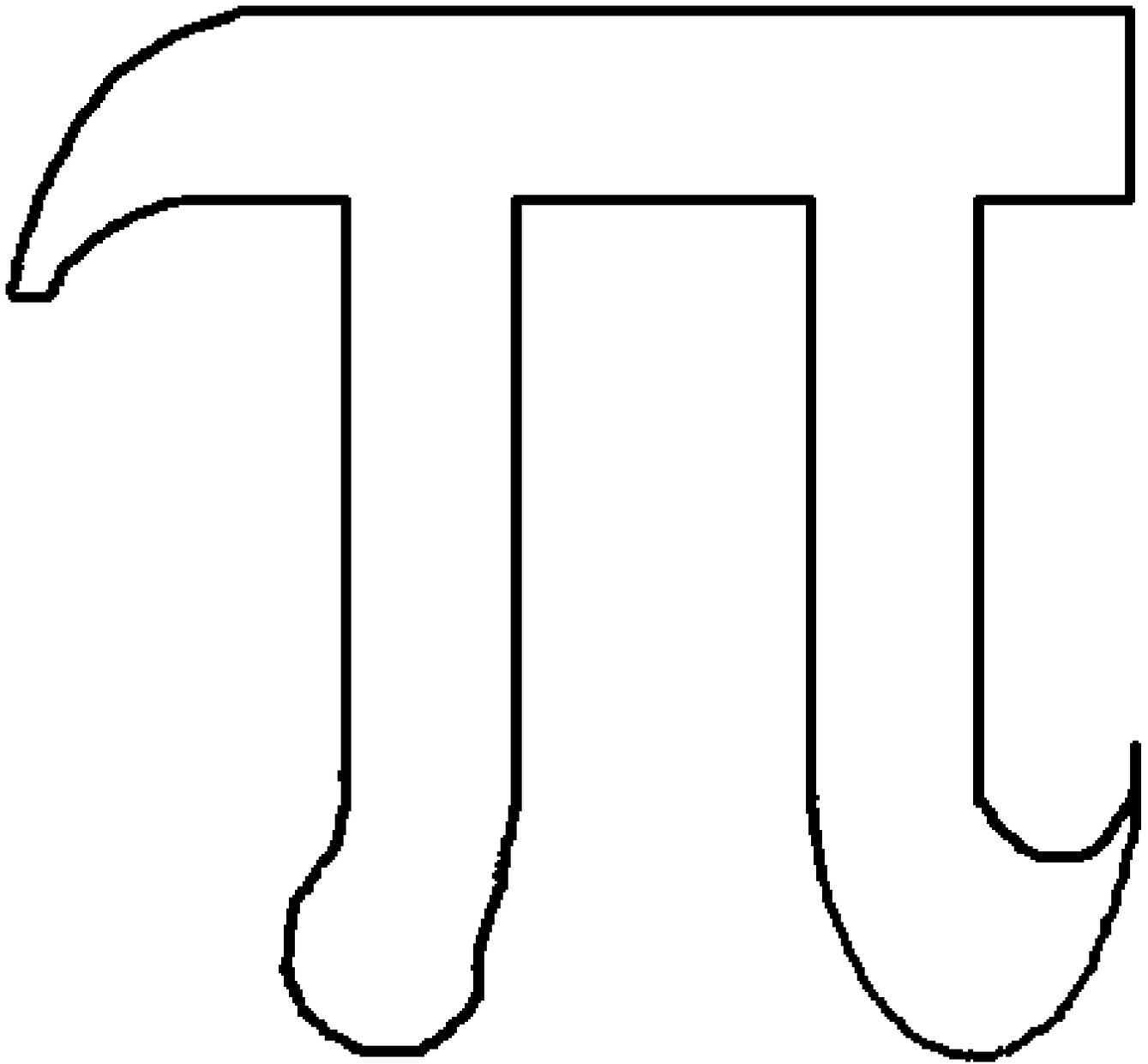Write an equation for each of the following circles.

1.

2.

3.

4.

5.

Are You Smarter Than a 5th Grader?

I have made two editions of this game with different questions.

π   The first 2 slides are set for automatic transition; the transition will stop on the 3rd slide – the game board.

π   You can edit the type on the second slide to change the host's name to your own.

π   Click on a category to go to the text of the corresponding question.

π   Click anywhere on the question slide to go to the answer.

π   Answers are hyperlinks back to the game board; you must click somewhere on the underlined text to go back.

π   Once back at the game board after a correct answer, click on the lowest empty white rectangle to reveal the amount of money won so far.

π   You will notice that for categories which have been used, the text will change color.

π   Click another category to go to the next question.

π   Once on a question slide, you have the option of going to the "cheats" slide; notice the "cheats" button in the top right corner of each question slide.

π   On the "cheats" slide, click on the underlined text corresponding to the cheat you want to use; you will be taken back to the game board. Click again on the category you are working with to go back to the question and then the answer. If you should go to the "cheats" slide and then decide not to use a cheat, click on the game show logo at the top to go back to the game board without choosing a cheat.

π   After correctly answering the questions from the 10 categories, click on the $1,000,000 button to go to the final question.

π   If an incorrect answer is given for any question, the game is over. Click on the answer to go back to the game board. Then click on the game show logo at the top left of the slide. After the "flunked out" slide, click on the game show logo at the bottom right to go to the closing slides.

The template for this game came from the following site:
http://www.murray.k12.ga.us/teacher/kara%20leonard/Mini%20T%27s/March%20Mini%20T-Games/Games.htm

Are You SMARTER THAN A 5th GRADER? Pi Day Edition 1!

Welcome to
Are You Smarter
Than a 5th Grader?
--Pi Day Edition--

with your host
Mrs. Burke

Are You Smarter Than a 5th Grader?

1,000,000	
500,000	
300,000	5th Grade Literature	5th Grade Humor
175,000	
100,000	4th Grade Numbers	4th Grade Mathematicians
50,000	
25,000	3rd Grade Language	3rd Grade Calculation
10,000	
5,000	2nd Grade Grammar	2nd Grade Algebra
2,000	
1,000	1st Grade Value	1st Grade Calendar

CHEATS

Peek
Copy
Save

5th Grade Literature Question

Name one of the two books in the Bible that gives a reference to the value of pi.

5th Grade Literature Answer

1 Kings or 2 Chronicles

1 Kings 7:23, 2 Chronicles 4:2 -- in describing the furnishings of Solomon's Temple - ". . . . made the Sea of cast metal, circular in shape, measuring ten cubits from rim to rim . . . . a line of thirty cubits to measure around it . . ."

5th Grade Humor Question

What do you get when you divide the circumference of a bovine by its diameter?

5th Grade Humor Answer

Cow pi

4th Grade Numbers Question

The value of pi fits into what classification of numbers?

4th Grade Numbers Answer

Irrational

4th Grade Mathematicians Question

What famous mathematician's birthday is on the same date as Pi Day?

4th Grade Mathematicians Answer

Albert Einstein

3rd Grade Language Question

Pi is a letter from the alphabet of which language?

3rd Grade Language Answer

Greek

3rd Grade Calculation Question

If the circumference of a circle is pi, what is the circle's radius?

3rd Grade Calculation Answer

1/2

2nd Grade Geometry Question

What is the formula for area of a circle?

2nd Grade Geometry Answer

$A = \pi r^2$

2nd Grade Vocabulary Question

What is the definition of pi?

2nd Grade Vocabulary Answer

Pi is the ratio of a circle's circumference to its diameter

1st Grade Value Question

What is a decimal approximation for the value of pi, correct to two decimal places?

1st Grade Value Answer

3.14

1st Grade Calendar Question

What is the "official" date for celebrating Pi Day?

1st Grade Calendar Answer

March 14 (3.14)

Million Dollar Question Topic

PI HISTORY

$1,000,000 Question

What is one of two ancient countries in which a value for pi was probably first used to calculate the area of a circle?

$1,000,000 Answer

Babylon or Egypt

(probably as early as 2000 or 3000 BC)

Thanks for Playing
Are You Smarter
Than a 5th Grader?

HAPPY PI DAY!

Flunked out!

Are You SMARTER THAN A 5TH GRADER? Pi Day Edition 2!

Welcome to
Are You Smarter
Than a 5th Grader?
--Pi Day Edition--

with your host
Mrs. Burke

Are You Smarter Than a 5th Grader?

1,000,000
500,000
250,000
175,000
100,000
50,000
25,000
10,000
5,000
2,000
1,000

5th Grade Government | 5th Grade Humor
5th Grade Calculation | 4th Grade History
3rd Grade Language | 3rd Grade Geometry
2nd Grade Time | 2nd Grade Reasoning
1st Grade Value | 1st Grade Category

CHEATS

Peek
Copy
Save

5th Grade Government Question

In what U.S. state was a
bill introduced in 1897
to legislate the value
of pi?

5th Grade Government Answer

Indiana

5th Grade Humor Question

What do you get when you
divide the circumference
of a native Alaskan by its
diameter?

5th Grade Humor Answer

Eskimo pi

4th Grade Calculation Question

If a circle's area is pi,
what is its radius?

4th Grade Calculation Answer

1

4th Grade History Question

For how many centuries
has the symbol π been
used to represent this
special ratio?

4th Grade History Answer

3

3rd Grade Language Question

Pi is which letter (1st,
2nd, 3rd, etc.) in the
Greek alphabet?

3rd Grade Language Answer

16th

3rd Grade Geometry Question

What is the formula
for volume of a
cylinder?

3rd Grade Geometry Answer

$$V = \pi r^2 h$$

2nd Grade Time Question

What is the best time of day for celebrating Pi Day?

(according to the 3rd, 4th, and 5th digits following the decimal)

2nd Grade Time Answer

1:59

2nd Grade Reasoning Question

If you know a circle's circumference, how can you find its radius? (more)

2nd Grade Reasoning Question

a. Divide by π
b. Multiply by π
c. Divide by 2π
d. Multiply by 2π

2nd Grade Reasoning Answer

c. Divide by 2π

1st Grade Value Question

What is an approximate value of pi in fractional form?

1st Grade Value Answer

22/7

1st Grade Calendar Question

What day in July would be good for celebrating Pi Day?

1st Grade Calendar Answer

22
(22/7 – July 22)

Million Dollar Question Topic

MATHEMATICIANS

$1,000,000 Question

In 1706, what Welsh mathematician first used the symbol π to represent the ratio of the circumference of a circle to its diameter?

$1,000,000 Answer

William Jones

Thanks for Playing
Are You Smarter
Than a 5th Grader?

HAPPY PI DAY!

Flunked out!

Jeopardy

π   You can edit the type on the first slide to change the host's name to your own.

π   Click on a dollar amount to go to the text of the corresponding question.

π   Click anywhere on the question slide to go to the answer.

π   Answers are hyperlinks back to the game board; you must click somewhere on the underlined text to go back.

π   There are no Double Jeopardy questions – maybe they will come later – or feel free to add your own!

π   I have added a Final Jeopardy question. On the top right corner of the game board, you will see a star burst symbol. That symbol is a hyperlink to the Final Jeopardy category slide. From there you can click to get to the Final Jeopardy answer and question.

The template for this game came from the following site:
http://www.wiu.edu/users/mfjro1/wiu/tea/game-files/gamesfront.htm

Pi Mixup	Pi Day	Pi Formulas	Pi Bonus	Pi Trivia
قيمة	قيمة	قيمة	قيمة	قيمة
قيمة	قيمة	قيمة	قيمة	قيمة
قيمة	قيمة	قيمة	قيمة	قيمة
قيمة	قيمة	قيمة	قيمة	قيمة
قيمة	قيمة	قيمة	قيمة	قيمة

Welcome to Pi Day Jeopardy!

With your host,
Mrs. Burke

The
definition
of pi

<u>What is the ratio
of a circle's
circumference to
its diameter?</u>

An approximate
value of pi,
correct to two
decimal places

<u>What is 3.14?</u>

An approximate
value of pi, in
fractional form

<u>What is 22/7?</u>

π is a letter from
the alphabet of
this language.

<u>What is Greek?</u>

π is the _____ letter
of the alphabet.
(1st, 2nd, 3rd, etc.)

<u>What is 16th?</u>

Pi Day is
celebrated on
this date.

<u>What is
March 14?
(3.14)</u>

This famous
mathematician's
birthday is on
the same date
as Pi Day.

<u>Who is Albert Einstein?</u>	The best time of day to celebrate Pi Day, according to the third, fourth, and fifth digits following the decimal	<u>What is 1:59?</u>
A date during the summer which could be another good time for Pi Day	<u>What is the 22nd of July? (22/7)</u>	Another date to celebrate Pi Day— the 314th day of the year
<u>What is November 10 (or November 9 in leap years)?</u>	The formula for area of a circle	<u>What is $A=\pi r^2$?</u>
The formula for circumference of a circle	<u>What is $C = 2\pi r$ or $C = \pi d$?</u>	The formula for volume of a cylinder
<u>What is $V = \pi r^2 h$?</u>	The formula for surface area of a cylinder	<u>What is $S = 2\pi rh + 2\pi r^2 h$?</u>

The formula for volume of a cone	<u>What is</u> <u>V = 1/3πr²h?</u>	This is what you get when you divide the circumference of a jack-o-lantern by its diameter.
<u>What is</u> <u>pumpkin pi?</u>	This is what you get when you divide the circumference of a native Alaskan by its diameter.	<u>What is</u> <u>Eskimo pi?</u>
This is what you get when you divide the circumference of the sun by its diameter.	<u>What is pi in</u> <u>the sky?</u>	This is what you get when you divide the circumference of a bovine by its diameter.
<u>What is</u> <u>cow pi?</u>	This is what you get when you divide the circumference of a bowl of ice cream by its diameter.	<u>What is pi</u> <u>a' la mode?</u>
The value of pi fits into this classification of numbers.	<u>What is irrational?</u>	One of the two books in the Bible that gives a reference to the value of pi

What is 1 Kings or 2 Chronicles?

1 Kings 7:23, II Chronicles 4:2 -- In describing the furnishings of Solomon's Temple – "... made the Sea of cast metal, circular in shape, measuring ten cubits from rim to rim ... a line of thirty cubits to measure around it ..."

The U.S. state in which a bill was introduced to legislate the value of pi

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What is Indiana?

(bill introduced, but failed to pass, in 1897)

The number of centuries for which the letter pi has been used to represent this special mathematical ratio

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What is 3?

(This use of the letter pi first showed up in mathematical writings in about 1706.)

One of two ancient countries in which a value for pi was probably first used to calculate the area of a circle

---

What is Babylon or Egypt?

(probably as early as 2000 or 3000 BC)

FINAL JEOPARDY

ZIP Codes

This southern U. S. city has a pi-related ZIP code of 31415.