



®

**TEKS-BASED
TUTORIALS**
Organized by TEKS
Correlated to TAKS

MATHEMATICS
Grade 6

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GRADE 6 TEKS BASED TUTORIALS CORRELATED BY TEKS
Table of Contents and TEKS/TAKS Correlation
Each Tutorial Set Includes Open-Ended Problem(s) w/Transparency
and Multiple-Choice Assessment

TAKS Objective	Tutorial #-TEKS	DESCRIPTION OF INSTRUCTIONAL TUTORIAL CONTENT
1	01-6.1A	Compare and order decimals and fractions
1	02-6.1A	Compare and order non-negative rational numbers
1	03-6.1B	Generate equivalent forms of rational numbers including whole numbers, fractions and decimals
1	04-6.1C	Use integers to represent real-life situations
1	05-6.1D	Write prime factorization using exponents
1	06-6.1E	Identify factors of a positive integer, common factors, and the greatest common factor of a set of positive integers
1	07-6.1F	Identify multiples of a positive integer and common multiples and the least common multiple of a set of positive integers
1	08-6.2A	Model addition and subtraction involving fractions with objects, pictures, words, and numbers
1	09-6.2B	Use addition and subtraction to solve problems involving fractions and decimals
1	10-6.2C	Use multiplication and division of whole numbers to solve problems including situations involving equivalent rates
1	11-6.2C	Use multiplication and division of whole numbers to solve problems including situations involving equivalent ratios
1	12-6.2D	Estimate and round to approximate reasonable results and to solve problems where exact answers are not required
1	13-6.2E	Use order of operations to simplify whole number expressions (without exponents) in problem situations
2	01-6.3A 6.3C	Use ratios to describe proportional situations Use ratios to make predictions in proportional situations
2	02-6.3B	Represent ratios with concrete models, fractions, and decimals
2	03-6.3B	Represent percents with concrete models, fractions, and decimals
2	04-6.4A 6.4B	Use tables and symbols to represent and describe proportional and other relationships – perimeter and area Use tables of data to generate formulas representing relationships involving perimeter and area
2	05-6.4A 6.4B	Use tables and symbols to represent and describe proportional and other relationships such as those involving arithmetic sequences (with a constant rate of change) Use tables of data to generate formulas representing relationships involving - arithmetic sequences
2	06-6.4A 6.4B	Use tables and symbols to represent and describe proportional and other relationships Use tables of data to generate formulas representing relationships involving volume of a rectangular prism, etc.
2	07-6.4A	Use tables and symbols to represent and describe proportional and other relationships – conversions
4	6.8D	Convert measures within the same measurement system (customary and metric) based on relationships between units

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2	08-6.5	Formulate equations from problem situations described by linear relationships
3	01-6.6A 6.6B	Use angle measurements to classify angles as acute, obtuse, or right Identify relationship involving angles in triangles
3	02-6.6B	Identify relationship involving angles in quadrilaterals
3	03-6.6C	Describe the relationship between radius, diameter, and circumference of a circle
3	04-6.7	Locate and name points on a coordinate plane using ordered pairs of non-negative rational numbers
4	01-6.8A 6.8B	Estimate measurements and evaluate reasonableness of results-perimeter and area Select and use appropriate units, tools, or formulas to measure and to solve problems involving length (including perimeter) and area
4	02-6.8A 6.8B	Estimate measurements and evaluate reasonableness of results Select and use appropriate units, tools, or formulas to measure and to solve problems involving volume
4	03-6.8A 6.8B	Estimate measurements and evaluate reasonableness of results Select and use appropriate units, tools, or formulas to measure and to solve problems involving time, temperature, and weight
4	04-6.8A 6.8B	Estimate measurements (including circumference) and evaluate reasonableness of results Select and use appropriate units, tools, or formulas to measure and to solve problems involving length (including perimeter), and area
4	05-6.8C	Measure angles
4	06-6.8C	Measure angles (quadrilaterals)
3	6.6A	Use angle measurements to classify angles as acute, obtuse, or right
5	01-6.9A	Construct sample spaces using lists and tree diagrams
5	02-6.9B	Find the probabilities of a simple event and its complement and describe the relationships between the two
5	03-6.10A 6.10D	Select and use an appropriate representation for presenting and displaying different graphical representations of the same data -bar graph Solve problems by collecting, organizing, and interpreting data-bar graph
5	04-6.10A 6.10D	Select and use an appropriate representation for presenting and displaying different graphical representations of the same data -line graph Solve problems by collecting, organizing, and interpreting data-line graph
5	05-6.10A 6.10C 6.10D	Select & use an appropriate representation for presenting and displaying different graphical representations of the same data -circle graph Sketch circle graphs to display data Solve problems by collecting, organizing, & interpreting data-circle graph
5	06-6.10A 6.10D	Select and use an appropriate representation for presenting and displaying different graphical representations of the same data -line plot Solve problems by collecting, organizing, and interpreting data-line plot

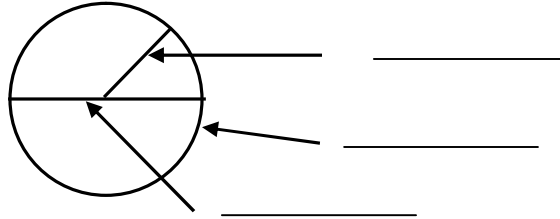
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5	07-6.10A 6.10D	Select & use an appropriate representation for presenting and displaying different graphical representations of the same data -stem and leaf plot Solve problems by collecting, organizing, and interpreting data-stem and leaf
5	08-6.10B	Identify mean (using concrete objects and pictorial models), median, mode, and range of a set of data
6	01-6.11A	Identify and apply mathematics to everyday experiences, to activities in and outside school, with other disciplines, and with other mathematical topics
6	02-6.11B	Use a problem solving model that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness
6	03-6.11C	Select or develop an appropriate problem-solving strategy from a variety of different types
6	04-6.12A	Communicate mathematical ideas using language, efficient tools, appropriate units, and graphical, numerical, physical, or algebraic mathematical models
6	05-6.13A	Make conjectures from patterns or sets of examples and nonexamples
6	06-6.13B	Validate conclusions using mathematical properties and relationships

GRADE 6 MATHEMATICS

(6.6) Geometry and spatial reasoning. The student uses geometric vocabulary to describe angles, polygons, and circles. The student is expected to: (C) describe the relationship between radius, diameter, and circumference of a circle.

Identify the circumference, radius and diameter in the circle shown below.



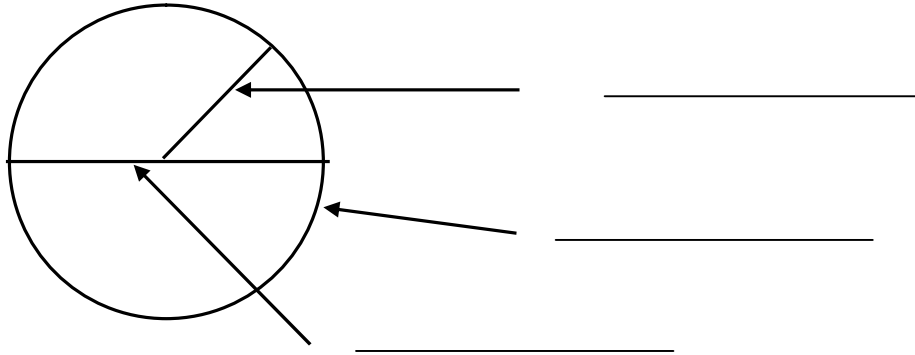
- In any circle the radius is always _____ of the diameter. The circumference is approximately _____ times as long as the diameter.
- If a circle has a diameter of 8 inches, its radius will be _____ inches and the circumference will be a little larger than _____ inches.
- If a circle has a circumference of 48 inches, its diameter can be estimated by dividing 48 by _____, which is a whole number approximation for π . The diameter of the circle would be about _____ inches.

1. What mathematical concepts and vocabulary do I need to know to be able to work this problem?
2. Will the Grade 6 Mathematics Formula Chart be helpful on this problem? Why or why not?
3. What problem-solving strategy or strategies will I use to help solve this problem?
4. **Extension (6.6C):** If you want to divide a circle into one-fourth of the circle sectors, what type angle do you need the radii to form at the center of the circle? Draw a sketch of this situation.

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Identify the circumference, radius and diameter in the circle shown below.



- In any circle the radius is always _____ of the diameter. The circumference is approximately _____ times as long as the diameter.
- If a circle has a diameter of 8 inches, its radius will be _____ inches and the circumference will be a little larger than _____ inches.
- If a circle has a circumference of 48 inches, its diameter can be estimated by dividing 48 by _____, which is a whole number approximation for π . The diameter would be about _____ inches.

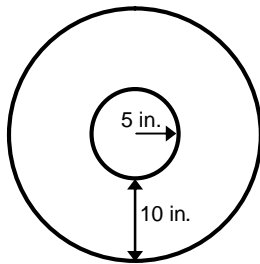
GRADE 6 MATHEMATICS

(6.6) Geometry and spatial reasoning. The student uses geometric vocabulary to describe angles, polygons, and circles. The student is expected to: (C) describe the relationship between radius, diameter, and circumference of a circle.

What measurement of a circle is about $\frac{1}{6}$ the circumference of the circle?

- A Area of circle
- B Diameter
- C Circumference
- D Radius

The drawing shows 2 circles that share a common center point.



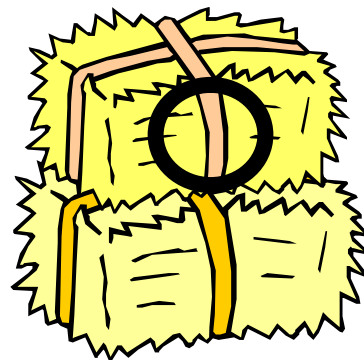
Which expression can be used to find the approximate circumference of the outer circle in inches?

- A $\pi(5 + 10)$
- B $2\pi(5 + 10)$
- C $\frac{1}{2}(5 + 10)$
- D $2(5 + 10)$

Which expression can be used to approximate the diameter of a circle with a circumference of 36 centimeters?

- A 36×3.14
- B $36 \div 2$
- C $36 \div 3.14$
- D 36×2

Raymond wants to paint a circle on a bale of hay for archery practice. He wants the circle to have a radius of 2 feet.



Which expression will help Raymond find the circumference of the circle?

- A 4π
- B 2π
- C 8π
- D 3π

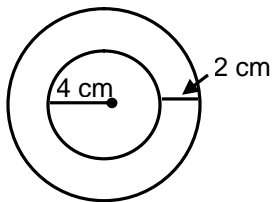
GRADE 6 MATHEMATICS

(6.6) Geometry and spatial reasoning. The student uses geometric vocabulary to describe angles, polygons, and circles. The student is expected to: (C) describe the relationship between radius, diameter, and circumference of a circle.

If a circle has a diameter of 12 inches, what will be the radius of the circle?

- A 8 inches
- B 24 inches
- C 6 inches
- D 12 inches

The drawing shows 2 circles that share a center point.



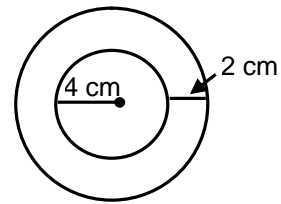
What is the diameter of the larger circle?

- A 6 cm
- B 8 cm
- C 4 cm
- D 12 cm

A circle has a radius of 24 centimeters. What is the diameter of the circle?

- A 48 cm
- B 12 cm
- C 72 cm
- D 36 cm

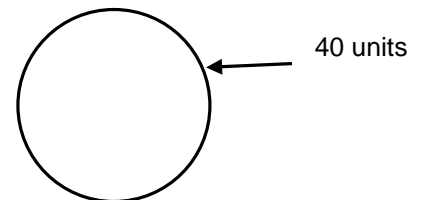
The drawing shows 2 circles that share a center point.



Which expression can be used to approximate the circumference of the larger circle?

- A $\pi (4 + 2)$ cm
- B $2 \times (4 + 2) \times \pi$ cm
- C $2(4 + 2)$ cm
- D $\frac{4 + 2}{2}$ cm

The drawing below shows a circle with a circumference of 40 units.



Which expression can be used to find the length of the radius of the circle?

- A $(40 \div 3)$ units
- B $(40 \div \pi) \div 2$ units
- C $(40 \times \pi) \div 2$
- D $(\pi \div 40) \div 2$