

TANGRAM CIRCLES: FREE SAMPLE

This activity is from a 16-page handout titled *Tangram Circles: Fractions, Decimals, Percent, Algebra, and Geometry, and a Generous Helping of Pi* that is available on my website (tttpress.com) and store at TeachersPayTeachers.com. In addition to this sample, the full handout contains five other tangram samples of increasing complexity that will help your students develop skills in these areas. The handout also contains a template so that your students can create their own models.

In addition, I offer an intensive exploration titled *Super Tangram*, and a simpler exploration based on a tangram square titled *Tangram Math*.

Each handout contains comprehensive and detailed teaching instructions, answer keys, and more. Enjoy your free sample.

Happy teaching,

Brad

Answer key:

Tangram 3

Region	Fraction	Decimal	Percent	Area	Perimeter
A	$\frac{1}{4}$	0.25	25	3.14	7.14
B	$\frac{1}{8}$	0.125	12.5	1.57	5.57
C	$\frac{1}{4}$	0.25	25	3.14	6.28
D	$\frac{1}{8}$	0.125	12.5	1.57	8.28

Look at all the Common Core Standards you can teach with these tangrams!

7th grade:

CCSS.MATH.CONTENT.7.RP.A.2

Recognize and represent proportional relationships between quantities.

CCSS.MATH.CONTENT.7.RP.A.2.C

Represent proportional relationships by equations. *For example, if total cost t is proportional to the number n of items purchased at a constant price p , the relationship between the total cost and the number of items can be expressed as $t = pn$.*

CCSS.MATH.CONTENT.7.NS.A.2

Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.

CCSS.MATH.CONTENT.7.NS.A.2.D

Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.

CCSS.MATH.CONTENT.7.EE.B.4

Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.

CCSS.MATH.CONTENT.7.G.B.6

Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.

8th grade:

CCSS.MATH.CONTENT.8.NS.A.2

Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., π^2). *For example, by truncating the decimal expansion of $\sqrt{2}$, show that $\sqrt{2}$ is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations.*

CCSS.MATH.CONTENT.8.NS.A.1

Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually

CCSS.MATH.CONTENT.8.EE.A.2

Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that $\sqrt{2}$ is irrational.

CCSS.MATH.CONTENT.8.G.A.2

Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.

CCSS.MATH.CONTENT.8.G.A.4

Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.

CCSS.MATH.CONTENT.8.G.A.5

Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. *For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transversals why this is so.*

CCSS.MATH.CONTENT.8.G.B.7

Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.

Tangram 3

Name _____

Date _____ Class _____

Region	Fraction	Decimal	Percent	Area	Formula
A	_____	_____	_____	_____	_____
B	_____	_____	_____	_____	_____
C	_____	_____	_____	_____	_____
D	_____	_____	_____	_____	_____

