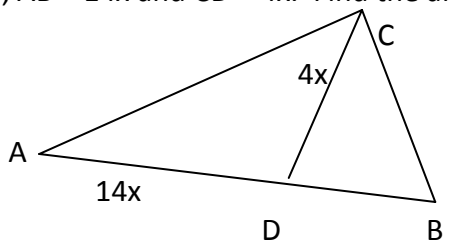
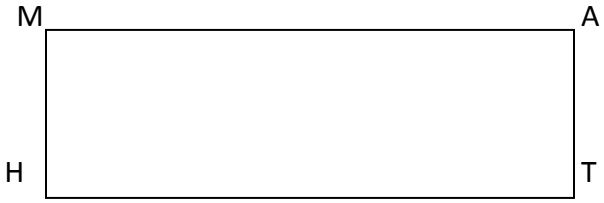
Informal Geometry
CEOCE Study Guide

B141	Finds Area of Plane Figure (MC) Finds Circumferences of Circles

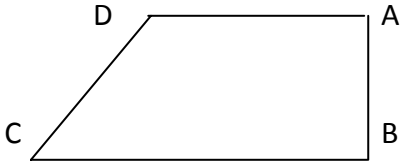
In the accompanying diagram of $\Delta ABC, \overline{CD} \perp \overline{AB}$, AB = 14x and CD = 4x. Find the area.



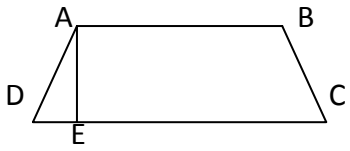
In the accompanying diagram, rectangle MATH has a length of 16 and a width of 14. The midpoints of sides $\overline{MA}$, $\overline{AT}$, $\overline{TH}$ and HM are connected to form quadrilateral BLUR. What is the area of quadrilateral BLUR?



In the accompanying diagram of trapezoid ABCD, AB = 10, BC = 28, CD = 22. What is the area of the trapezoid?



In the accompanying diagram of trapezoid ABCD, AB = 6, CD = 25, and altitude $\overline{AE}$ = 7. What is the area of the trapezoid?



The length of a diagonal of a square is 14 . What is the area of the square?
The length of a diagonal of a square is 13 . What is the area of the square?
A circle of radius 10cm in inscribed in a square. What is the area of the square, not covered by the circle?
A circle has a diameter of 4m. What is the area and circumference of the circle?

B143	Solves Ratios of Similar Figures(GR, ER)

Miguel is in his front yard and a tree in his yard cast a shadow of 20 feet. Miguel is 6 feet tall and his shadow is 4 feet. How tall is the tree?

A water tower is 25 feet high and cast a shadow of 15 feet. At the same Andrea's shadow is 3 feet. How tall is Andrea?

A triangle as a base of 20 in. and a height of 8 in and is similar to a second triangle with a height of 12in. How long is the base of the second triangle?

If the radius of a right cylinder is doubled, and the height is doubled, how many times greater will the volume of the new cylinder be?

How would tripling the radius of a sphere affect its volume?

B241	Describes / Applies Similarity Relationships(MC,GR) Uses Pythagorean Theorem

If the length of one of the legs of a right triangle is 9 and the length of the other leg is 12, what is the length of the hypotenuse?

What is the length of the hypotenuse of a right triangle with legs of lengths of 11 and 12?

The length of the hypotenuse of a right triangle is 13 and the length of one leg is 7. What is the length of the other leg?

The hypotenuse of a right triangle has a length of 26. If one length has a length of 10, what is the length of the other leg?

What is the length of the diagonal of a rectangle whose dimensions are 8 by 11?

Rectangle ABCD is similar to rectangle EFGH. If AB = 5, BC = 20, and EF = 12, what is the length of FG?

For ΔXYZ, A is the midpoint of $\overline{XY}$ and B is the midpoint of $\overline{XZ}$. If YZ=20, what is AB=?

C141	Represents Problems with Triangles / Applies Properties (MC, GR) Models Quadrilaterals / Applies Properties Describes / Applies Congruence Relationships Finds Angles of Polygon Finds Triangle Angles/Side Lengths

If the measures of three angles of a triangle are represented by (x), (x-5), and (3x-15), what type of triangle is being represented?

Given an isosceles triangle with its vertex angle equal to twice its base angle, will the triangle be right, acute, obtuse or equilateral?

In ΔCAT, m∠T =75 and TA > TC. Name the smallest angle of the triangle.

In ΔDOG, if the exterior of angle D is an acute angle, then what type of an angle is angle G?

In ΔHOG, m∠H = 6x, m∠O= 5x+3 and m∠G = 4x + 17. Name the side that is the longest.

Which quadrilaterals have congruent diagonals?

Are all rectangles squares?

Which quadrilaterals can be classified as parallelograms?

State the properties of the diagonals of a rhombus.

Name the 5 properties of a parallelogram?

Classify a square in as many ways as possible.

For the following regular polyhedra, what would be the measure of an interior angle?
Square, pentagon, octagon, decagon

C241 Uses mapping to Draw Transformations(MC)

If a point in quadrant III is reflected over the x-axis, which quadrant would the image lie in?

What are the coordinates of point A (-5, 6) under a reflection over the x-axis?

What are the coordinates of point A (-5, 6) under a reflection over the y-axis?

What are the coordinates of point A (-5, 6) under translation <11, -4>?

What are the coordinates of point A (-5, 6) under a 90° rotation (CCW)?

C342 Identifies Parallel / Perpendicular Lines(SR)

Are the following pairs of lines parallel, perpendicular or neither?

2x + 3y = 1 and y = -2/3 x -7

y = -x + 4 and x – y = 10

3x – 7y = 15 and 7x – 3y = 8.

Given the following points, would the two lines containing them be parallel, perpendicular or neither?

A line containing points (0, 7) & (2, 1) and the other line though points (3, 5) & (2, 8).
A line containing points (3, 4) & (3, -1) and the other line though points (7, -1) & (5, -1).
A line containing points (-3, -2) & (4, 1) and the other line though points (-5, 1) & (-2, -6).

Given points A(7, 2) and B(5, 6), what is the slope of a line perpendicular to line AB.

D141 Develops Equation from Figure(MC, GR)

In rectangle MNOP, MN = x + 7 and NO = 3x-2. If the perimeter of the rectangle is 58m, what is x?

If ∠R and ∠S are supplementary and ∠R=(4x-9)° and ∠S=(2x +15)°. What is x?

If the ratio of the angles of a triangle are 2:3:4, what are the angles?

If the ratio of the sides of a rectangle are 2:5 and the perimeter is 48m, what is the area of the rectangle?

If a rectangle has sides of length (m + 12) and (3m – 4), write expressions to represent the area and perimeter of the rectangle.

Key Vocabulary

Diameter	radius	complementary
Supplementary	congruent	similar
Midpoint	parallelogram	regular polygon
Rhombus	square	rectangle
Triangle	isosceles	scalene
Equilateral	diagonal	prism
Sphere	cone	midsegment
Parallel	corresponding angles	hypotenuse
Altitude	decagon	hexagon

Web Resources

http://math.rice.edu/~lanius/Geom/

http://www.ies.co.jp/math/java/geo/congruent.html

http://www.math.com/homeworkhelp/Geometry.html

http://money.howstuffworks.com/personal-finance/math-tutoring/geometry/complementary-supplementary-angle.htm