# Welcome to Honors Geometry 2019

Your summer assignment includes practice problems that review algebra topics, area, and beginning geometry topics.  It is expected that you complete these assignments and are ready for a test after the first week of school.

Geometry Binder Requirement:

It is required that you get a **large** binder (at least 2 inches thick) with four sections with dividers.  Fill up your binder with lined paper.

Section 1 – Notes/Homework/Handouts

Section 2 – Vocabulary list

Section 3 - Proofs

Section 4 – Tests, Projects, and Quizzes

In addition, you will need a zippered pouch with three holes that will hold your materials in your binder.  Please include the following tools:

1. At least 6 pencils
2. Box of colored pencils.
3. TI-83 or higher graphing calculator.
4. Protractor
5. Compass
6. Ruler (cm and inches, could be small)
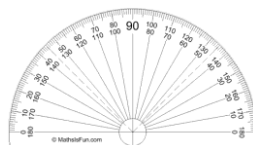
Your summer assignment:

- Do all problems in this packet

- Make sure that you use pencil for the entire assignment.  INK WILL NOT BE ACCEPTED.

- Your summer assignment will count as five homework assignments and will be collected the first day of class.

- During the first few weeks of school, you will have a test on the summer assignment material.  One week of class days is not enough time to re-teach the information in the packet.

- You are also responsible for knowing the definition of the 36 words attached

Part I of your Summer Packet: Vocabulary

Using the enclosed vocabulary sheets, define and draw pictures or examples of the following:

1) Building Blocks of Geometry
2) Definition
3) Collinear
4) Coplanar
5) Line Segment
6) Congruent Segments
7) Midpoint
8) Bisects
9) Ray
10) Angle
11) Vertex
12) Sides of an angle
13) Measure of an angle
14) Degrees
15) Protractor
16) Congruent Angles
17) Angle Bisector
18) Counterexample
19) 3 Steps to Creating a Good Definition
20) Parallel Lines
21) Perpendicular Lines
22) Skew Lines
23) Polygon
24) Diagonal
25) Convex Polygon
26) Concave Polygon
27) Congruent Polygons
28) Equilateral Polygons
29) Equiangular Polygons
30) Regular Polygons
31) List of Polygon Names
32) Slope Formula
33) Slope Intercept Form
34) Area of Parallelogram Formula
35) Area of Triangle Formula
36) Area of Trapezoid Formula
37) Area of Circle Formula

Flash cards or Quizlet are great tools to make throughout the year. You will have approximately 200 vocabulary words by the end of the year.

Part II: Derivations of Area Formulas

Go to https://people.wku.edu/tom.richmond/area.html and watch the animations to see where the area formulas came from. Write an explanation with a picture for each of the following:

How is the formula for the area of a rectangle derived?

How is the formula for the area of a parallelogram derived from the area of a rectangle?

How is the formula for the area of a triangle derived from the area of a parallelogram?

How is the formula for the area of a trapezoid derived from the area of a parallelogram?

How is the formula for the area of a circle derived from the area of a parallelogram?

Part III: Book Work

Complete all work on lined paper. Clearly label each assignment.

a) Read pg 28-32 1.1 – Building Blocks of Geometry. Do pg. 33 #2-34 Even
b) Read pg 38-42 1.2 – Angles. Do pg. 42 #1-37 odd
c) Read pg 47-49 and do investigation on pg 49.
d) Read pg 54-55 1.4 – Polygons and do Pg. 56 #1-16
e) Slope - Do Pg. 134 #1-5, 7-8
f) Writing Linear Equations – Pg. 212 #1-8

Complete all of the problems below. Show all work.

**4.** $A = 273$ cm$^2$
$h = $ ?

**5.** $P = 40$ ft
$A = $ ?

7 ft

**6.** Shaded area $= $ ?

21 m
5 m
12 m
11 m
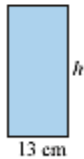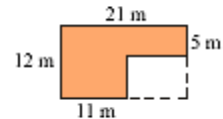
In Exercises 7–9, each quadrilateral is a parallelogram.   Show your work

**7.** $A = $ ?

9 in   8 in.
12 in.

**8.** $A = 2508$ cm$^2$
$P = $ ?

44cm   48cm
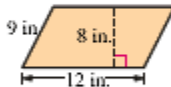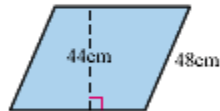
**9.** Find the area of the shaded region.

9 ft   7ft
12ft
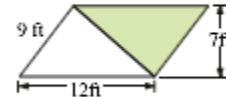
**APPLICATION** Sarah is tiling a wall in her bathroom. It is rectangular and measures 4 feet by 7 feet. The tiles are square and measure 6 inches on each side. How many tiles does Sarah need? *(h)*

Be careful with units

. What is the area of the parallelogram?



(8, 16)

(0, 0)    (6, 0)

$A = 50$ cm$^2$ *(h)*
$h = $ ?

**1.** $A = $ ?

5cm    6cm
8cm

**2.** $A = $ ?

9m
11m

6 cm    7 cm
h
13 cm

**4.** $A = $ ?

6 cm
8 cm
6 cm
14 cm

**5.** $A = 39$ cm$^2$
$h = $ ?

h
13 cm

**6.** $A = 31.5$ ft$^2$
$b = $ ?

b
9 ft
10 ft
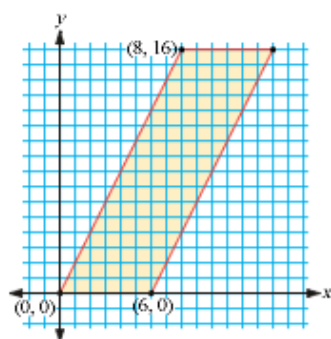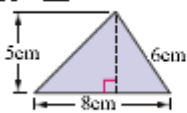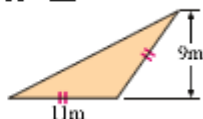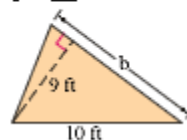
**APPLICATION** The roof on Crystal's house is formed by two congruent trapezoids and two congruent isosceles triangles, as shown. She wants to put new wood shingles on her roof. Each shingle will cover 0.25 square foot of area. (The shingles are 1 foot by 1 foot, but they overlap by 0.75 square foot.) How many shingles should Crystal buy?
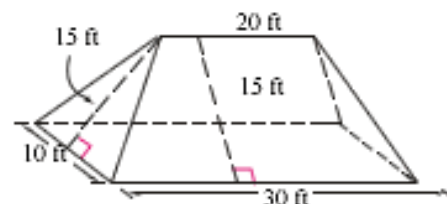


**APPLICATION** Dareen's family is ready to have wall-to-wall carpeting installed. The carpeting they chose costs $14 per square yard, the padding $3 per square yard, and the installation $3 per square yard. What will it cost them to carpet the three bedrooms and the hallway shown? *h*
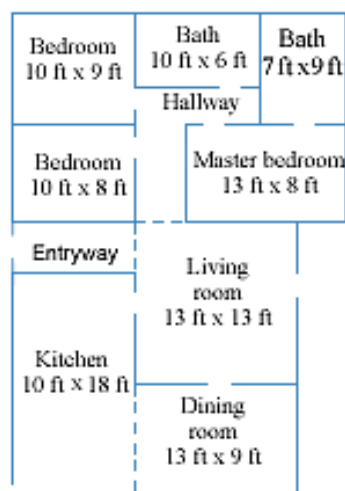
**. APPLICATION** A landscape architect is designing three trapezoidal flowerbeds to wrap around three sides of a hexagonal flagstone patio, as shown. What is the area of the entire flowerbed? The landscape architect's fee is $100 plus $5 per square foot. What will the flowerbed cost?



20 ft

12 ft

7 ft
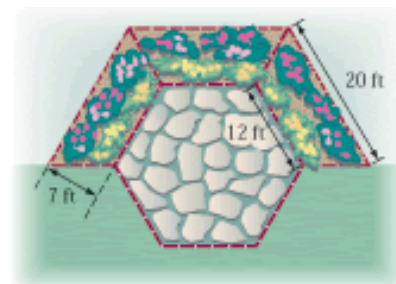
Sampson's dog, Cecil, is tied to a post by a chain 7 meters long. How much play area does Cecil have? Express your answer to the nearest square meter.

If $A = 0.785$ m$^2$, then $r \approx$ _?_.

What is the area of the shaded region between the circle and the triangle?



(-8, 6)     (8, 6)

(10, 0)

| # | Term | Definition | Example or Picture |
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