



# Oak Meadow

K-12 CURRICULUM AND DISTANCE LEARNING

## Geometry

*For enrollment only*

This course covers essential topics of Euclidean geometry to provide students with solid foundational skills to prepare them for success in Algebra 2 and beyond. Topics include basic geometric terms and definitions, reasoning and proofs (direct and indirect), properties and theorems related to parallel and perpendicular lines, triangles and congruence, special properties of triangles, properties of quadrilaterals, similarity, transformations, right triangles and trigonometry, area, surface area, volume, circles, and other conic sections.

Students also have the opportunity to explore extension topics including Frieze patterns, Laws of Sines and Cosines, parabolas, ellipses, hyperbolas, measurement, rounding error, reasonableness, and the effect of measurement errors on calculations.

### Course Materials

- Geometry by Elayn Martin-Gay (Pearson, 2016)
- MyMathLab (online resource)
- Oak Meadow Assessment Tests

### About MyMathLab

Students will have access to learning resources through MyMathLab® including an online textbook, an interactive lecture series of instructional videos aligned with the textbook, chapter test prep videos, student success tips videos, an online solution manual, and a student organizer to guide students through effective study skills including note-taking and practice exercises.

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# Geometry

## Syllabus and Assessment Tests



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# Geometry Course Syllabus

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## For Students Enrolled in Oak Meadow School

### Materials List

- *Geometry* by Elayn Martin-Gay (Pearson, 2016)
- MyMathLab (online resource)
- Oak Meadow Assessment Tests

### Additional Materials to Be Provided by the Student

- mathematical compass
- protractor

### Course Organization

This course is arranged into 12 units. Your geometry textbook is organized into 12 chapters that correspond to these 12 units. In addition, there is 1 optional bonus unit. The length of each chapter varies, and the suggested time to be spent on each unit is shown here and included in the syllabus below. Following this suggested schedule will allow you to successfully complete the course within your 10-month enrollment period.

Unit	Topics	Weeks
1	A Beginning of Geometry	3
2	Introduction to Reasoning and Proofs	3
3	Parallel and Perpendicular Lines	3
4	Triangles and Congruence	3
5	Special Properties of Triangles	2–3
6	Quadrilaterals	2–3
7	Similarity	3
8	Transformations	3
9	Right Triangle and Trigonometry	2–3
10	Area	3
11	Surface Area and Volume	3
12	Circles and Other Conic Sections	3

This syllabus includes regular submission points in the schedule that will allow you to get consistent and timely learning support from your Oak Meadow teacher. These submission checkpoints occur every one to two weeks: one halfway through each chapter, when you will submit the integrated review assignment, and the second at the end of each chapter, when you submit the chapter test as well as the Oak Meadow Assessment Test.

You are welcome to check in with your teacher more frequently, if needed. If you are unable to maintain this schedule, please discuss it with your teacher. Regular communication with your teacher is essential for a successful learning experience!

There are four main types of assignments. Exercise sets, integrated reviews, and chapter tests are all found in the textbook. Oak Meadow Assessment Tests are found in this syllabus.

Exercise sets help you develop necessary skills. You are encouraged to work on them daily and check your answers in the textbook answer key. **It is essential that you review and correct any problems you answered incorrectly before moving forward in the lesson.** If, after self-correction, you are still unsure of how to complete a problem, please reach out to your teacher for more guidance.

Integrated reviews are found midway through each chapter. These contain a review of algebraic topics that are essential not only for geometry but also for preparation for taking Algebra 2. Complete the required problems, check your answers, and make any necessary corrections. Let your teacher know if you have any questions about the material.

Chapter tests are found at the end of each chapter. After completing a chapter test, you or your home teacher should grade it and mark the score at the top (such as 18/20). Then, review any mistakes and make necessary corrections before taking the Oak Meadow Assessment Test.

Oak Meadow Assessment Tests, included in this syllabus, will be graded by your Oak Meadow teacher. Your final grade in the course will be primarily based on the average of your assessment test scores.

### Submitting Work to Your Teacher

The following work will be submitted to your teacher:

- Exercise Sets** (with answers checked and corrections noted)
- Integrated Reviews** (with answers checked and corrections noted)
- Chapter Tests** (with answers checked, a score marked at the top, and corrections noted)
- Oak Meadow Assessment Tests**

It is important that you always show your work and/or explain your thinking, wherever relevant, so your teacher can see where you are having difficulty and better support your learning. In order to be considered complete, math assignments need to include handwritten computations showing how you arrived at your final answer.

## Course Assignments and Requirements

- Please begin by reading the preface in your textbook. This will provide you with information about the resources available to you in this course (including the online resource MyMathLab) and how your textbook is organized.
- You do not have to do every problem in the textbook—a list of assignments is included in the chart starting on the next page. Check off assignments as you complete them.
- The exercise sets listed are suggestions. More or fewer problems can be done as needed. The textbook answer key includes answers to odd-numbered problems in the exercise sets. You can do even-numbered problems for extra practice, but you will not be able to check your answer.
- Primarily odd-numbered problems are assigned. Note that many assignments suggest completing every other odd (“EO odd”), which refers to problems 1, 5, 9, 13, and so on. You may want to circle these problems in the textbook to make sure you are completing the correct ones.
- Concept Extensions are included at the end of each problem set for additional learning and challenges. There are some extension problems included in the assignment list, but you are encouraged to explore as many of these problems as you wish.
- There is a Standardized Test Practice section at the end of each chapter that provides practice for standardized testing. You might consider completing a few of these throughout the course.
- This course contains 12 required units and 1 optional bonus unit. If time allows, you are encouraged to complete part or all of the bonus unit for extra enrichment at the end of the course. Please consult your teacher before starting this bonus unit.
- Your teacher will provide access information for MyMathLab, which includes online instructional videos. These videos are found in the Multimedia Library. From the CHAPTER drop-down menu, choose the chapter you are working on. Under MEDIA TYPE, select Section Video Lectures, then click Find Now. A library of video resources will appear. (You can also access chapter test prep videos, a digital copy of the textbook, and other resources from this menu.) MyMathLab also gives you digital access to a Video Organizer Notebook designed to be used while watching the instructional videos; you might find this resource particularly helpful.
- When checking your answers to exercise sets, you can find detailed solutions to odd-numbered problems on MyMathLab under Chapter Contents > Student Solutions Manual.

**We wish you a challenging and successful year of Geometry!**

# Geometry Assignments

## Chapter 1: A Beginning of Geometry

Suggested time: 3 weeks

Section	Page (textbook)	Problems
1.1 Tips for Success in Mathematics	x 1	<input type="checkbox"/> Read the preface <input type="checkbox"/> Read section 1.1
1.2 Geometry: A Mathematical System	11	1.2 Exercise Set <input type="checkbox"/> 1–31 odd Extension <input type="checkbox"/> 33–37 odd
1.3 Points, Lines, and Planes	17	1.3 Exercise Set <input type="checkbox"/> 1–61 every other (EO) odd Extension <input type="checkbox"/> 63–79 odd
1.4 Segments and Their Measure	23	1.4 Exercise Set <input type="checkbox"/> 1–35 odd Extension <input type="checkbox"/> 43 and 45
Integrated Review: Measurement Conversions	581	A.1 <input type="checkbox"/> 1–23 odd
<b>Submit the above work (with answers checked and corrections noted) to your Oak Meadow teacher before continuing.</b>		

**Chapter 1: A Beginning of Geometry (continued)**

Suggested time: 3 weeks

Section	Page (textbook)	Problems
1.5 Angles and Their Measure	30	1.5 Exercise Set □ 1–35 odd
1.6 Angle Pairs and Their Relationship	37	1.6 Exercise Set □ 1–57 EO odd □ 59 Extension □ 61 and 63
1.7 Coordinate Geometry: Midpoint and Distance Formulas	42	1.7 Exercise Set □ 1–29 odd □ 37–41 odd
1.8 Constructions: Basic Geometry Constructions	47	1.8 Exercise Set □ 1–25 odd □ Read page 48
Optional: Chapter 1 Review and Vocabulary Check	49	□ complete problems as needed
Chapter 1 Test	50	□ all problems
Optional: Chapter 1 Standardized Test Practice	51	□ complete problems as needed
Oak Meadow Assessment Test 1		□ all problems
<b>Submit the above work to your teacher (with answers checked and corrections noted on everything but the Oak Meadow Assessment Test) before continuing to the next chapter.</b>		

# Chapter

# 1

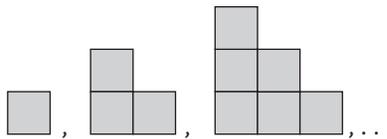
# Assessment Test

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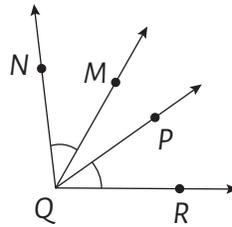
Please show all your work in the space provided.

1. Look for a pattern and predict the next two terms: 40, 32, 24, 16 . . .
2. Look for a pattern and predict the next figure.



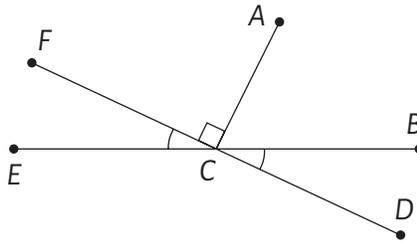
**Choose the best answer.**

3. A statement that we accept as true but do not prove is called a(n) \_\_\_\_\_.  
a. undefined term      b. theorem      c. postulate      d. definition
4. A(n) \_\_\_\_\_ consists of two endpoints and all the points between them.  
a. line      b. line segment      c. ray      d. angle
5. What is another way to name  $\angle PQR$ ?  
a.  $\angle Q$       b.  $\angle NQR$   
c.  $\angle PQM$       d.  $\angle RQP$



6. How many different angles are in the figure from question 5?  
a. 3      b. 4      c. 6      d. 8
7.  $\overline{BD}$  bisects  $\angle ABC$ . If  $\angle ABD = (3x + 20)^\circ$  and  $\angle CBD = (6x - 16)^\circ$ , what does  $x$  equal?  
a. 12      b. 2      c. 10      d. 9

For exercises 8–10, fill in the blank. Use the figure below.



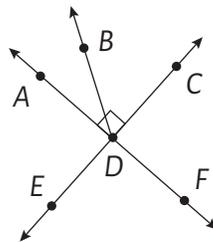
8.  $\angle BCD$  and \_\_\_\_\_ are vertical angles.
9.  $\angle ECA$  and \_\_\_\_\_ form a linear pair.
10.  $\angle ACB$  and \_\_\_\_\_ are complementary angles.

Determine whether the following statements are true or false. Write T or F after each statement.

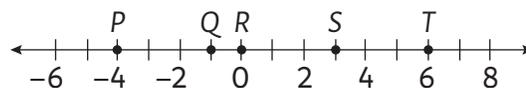
11. Acute angles are always congruent. \_\_\_\_\_
12. Two angles that form a linear pair are complementary. \_\_\_\_\_
13. Supplementary angles are always congruent. \_\_\_\_\_
14. Obtuse angles are between  $90^\circ$  and  $180^\circ$ . \_\_\_\_\_
15. An angle bisector divides an angle into two equal halves. \_\_\_\_\_

Use the figure below to determine whether the listed angles are acute, right, obtuse, or straight.

16.  $\angle ADB$  \_\_\_\_\_
17.  $\angle CDF$  \_\_\_\_\_
18.  $\angle BDF$  \_\_\_\_\_
19.  $\angle EDC$  \_\_\_\_\_



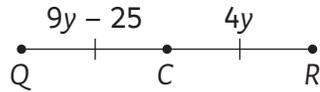
Use the number line below for exercises 20–21.



20. Find the length of  $\overline{QS}$ . \_\_\_\_\_
21. Is  $\overline{PQ}$  equal to  $\overline{ST}$ ? \_\_\_\_\_

22. C is the midpoint of  $\overline{QR}$ .

a. Find the value of  $y$ .



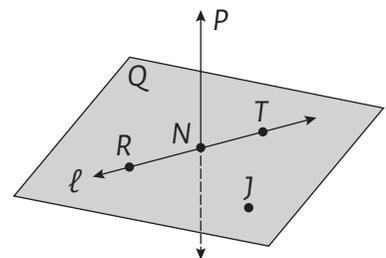
b. Find the lengths of  $\overline{QR}$ ,  $\overline{QC}$ , and  $\overline{CR}$ .

23. Draw an acute angle,  $\angle LMN$ . Use a compass and a straight edge to bisect the angle.

**Use the figure below for exercises 24–27.**

24. Name three collinear points.

25. Name four coplanar points.



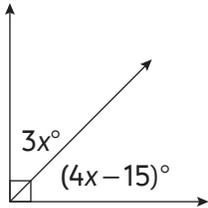
26. What is the intersection of  $\overleftrightarrow{PN}$  and Plane Q.

27. How many planes contain the points P, N, and J?

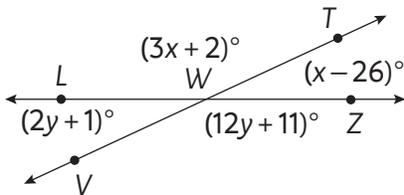
28. For the following image, if  $XZ = 50$ , what are  $XY$  and  $YZ$ ?



29. Find the value of  $x$  for the following image.



30. Find the values of  $x$  and  $y$  for the following image.



31.  $M$  is the midpoint of  $JK$ . Find the coordinates of  $K$  if  $J(9, -8)$  and  $M(5, -2)$ .

32. Find the distance between the given points to the nearest tenth:  $C(-1, -1)$  and  $D(6, 2)$ .