

Geometry – Semester 2 – EXAM Review – Study Guide

STUDENTS – You will be taking your final exam for Geometry during the week of May 22nd. The topics we have explored so far this year are listed below and may be assessed on the exam (topics with a line through them were skipped and will not be on the exam). **Topics taught during first semester could also reappear on this exam, as much of second semester was built from first semester topics – so if there was anything you struggled with first semester, make sure to review it as well.** Corresponding homework problems are listed for each concept to help you prepare for your exam. See the last page of this packet for instructions for finding and using “Homework Help” on the CPM website, so that you may check your work for these problems. You **DO NOT** need to complete all of the listed problems – just complete enough to make sure you **thoroughly** understand the concept. If you need additional help, be sure to go to Math Help or see Mrs. Reed (or another math teacher, or a tutor, or...) **BEFORE** the exam!

CHAPTER 6 – You will need to use the CPM website or the online book for this chapter (see above)

- 6.A** Identify pairs of triangles as similar or congruent – justify using similarity conjecture
(Problems 6-23, 6-35, 6-47, 6-58, 6-83, CL 6-101)
- 6.B** Use flow charts to organize arguments about triangle similarity and congruence & evaluate logic of arguments
(Problems 6-8, 6-23, 6-35, 6-58, 6-63, 6-73, 6-83, CL 6-101, CL 6-110)
- 6.C** Write converse of conditional statement
(Problems 6-48, 6-64, 6-86, CL 6-100)
- 6.D** Solving proportional equations and similar figures (Checkpoint 6)
(Problems 6-16, 6-25, 6-37, 6-50, 6-57, 6-73, 6-96, p)
- 6.E** Law of Sines & Law of Cosines
(Problems 6-15c, 6-47, 6-55, 6-74d, CL 6-105)

CHAPTER 7

- 7.A** Construct a proof structured as a flowchart using given information, reasons for each step, and an organized progression of information
(Problems: 7-46, 7-69, 7-76, 7-86, 7-100, 7-108, 7-123, 7-134a, CL 7-155)
- 7.B** Work with a simple two-column proof
(Problems: 7-113, 7-124, 7-132, CL 7-148)
- 7.C** Identify different shapes based on a description in words, (“must be”, “could be”) or by their central angle (hinged mirror)
(Problems: 7-9, 7-43, 7-55, 7-137, 7-142, 7-144, CL 7-147, CL 7-156)
- 7.D** Analyze a shape on a coordinate grid, and use information about the length and slope of sides and measures of angles, to name the shape and justify conclusions
(Problems: 7-35, 7-79, 7-131, 7-135, 7-146, CL 7-150, CL 7-153)
- 7.E** Find the midpoint of a segment on a coordinate grid
(Problems: 7-20, 7-29, 7-45, 7-119, 7-140, CL 7-151)
- 7.F** Solving with trigonometric ratios and the Pythagorean Theorem (Checkpoint 7)
(Problems: 7-10, 7-15, 7-34, 7-39, 7-48, 7-85a, 7-136, CL 7-152, pp. 778-782)
- 7.G** Shortest distance optimization
(Problems: 7-56, 7-84, 7-114)

CHAPTER 8

- 8.A** Move flexibly around the Regular Polygon Angle Web to find interior angles, exterior angles, or the number of sides of the regular polygon, given any one of the other pieces of information
(Problems: 8-44, 8-53, 8-95, 8-107, 8-119, and CL 8-138)
- 8.B** Solve for variables using the sums of interior or exterior angles of non-regular polygons
(Problems: 8-60, 8-61c, 8-95, 8-97a, 8-107a, CL 8-138)
- 8.C** Find the area of a regular polygon given a side length or radius
(Problems: 8-73, 8-84, 8-107b, 8-105, 8-126, CL 8-130)
- 8.D** Understand how the area and perimeter of similar figures are related, and use those relationships to find areas of enlarged and reduced shapes
(Problems: 8-71c, 8-83, 8-106b, 8-123c, 8-125b)
- 8.E** Find the area and circumference of circles (including how to find area of a sector and arc length)
(Problems: 8-116, 8-123, 8-128, CL 8-130, CL 8-135, 9-27, 10-87c)
- 8.F** Angle relationships in geometric figures (Checkpoint 8)
(Problems: 8-6, 8-23, 8-33, 8-60a, 8-97b, 8-108, 8-121, 8-124, CL 8-137, CL 8-139, pp. 783-786)

CHAPTER 9

- 9.A** Represent three-dimensional solids using a side view, a mat plan, and/or a net
(Problems: 9-7, 9-21, 9-49, 9-56a, 9-91, CL 9-111)
- 9.B** Find the surface area and volume of three-dimensional shapes
(Problems: 9-26, 9-34, 9-38, 9-40, 9-46a, 9-57, 9-69, 9-839-95, 9-103, CL 9-114)
- 9.C** Find density
(Problems: 9-40, 9-57b, 9-69d, 9-93c, CL 0-114)
- 9.D** Understand and apply the relationships between a linear scale factor and the ratio of areas or ratio of volumes of similar shapes
(Problems: 9-8, 9-20b, 9-45, 9-46b, 9-569-91c, CL 9-112, CL 9-113c)
- 9.E** Given a ratio of areas or volumes, work backwards to find a linear scale factor
(Problems: 9-8c, 9-86, CL 9-112b)
- 9.F** Use basic construction techniques to create shapes with specific relationships
(Problems: 9-79, 9-80, 9-98, 9-104, CL 9-110, CL 9-113a)
- 9.G** Probability of unions, intersections, and complements (Checkpoint 9A)
(Problems: 9-12b, 9-36, 9-51, 9-73, pp. 787-796)
- 9.H** Exponential functions (Checkpoint 9B)
(Problems: 9-24, 9-39, 9-61, 9-97, 9-107, pp. 797-801)
- 9.I** Find area as part of a three-dimensional situation (problems about volume or surface area may require students to find the area of a regular polygon or a trapezoid, using trigonometry as a base of a prism, or a slice of a cylinder where the base is a sector of a circle)
(Problems: 9-34, 9-95b, 9-103b, CL 9-114a, CL 9-9-118)

CHAPTER 10

- 10.A** Understand and use the relationships between central and inscribed angles and their intercepted arcs to calculate arc and angle measures
(Problems: 10-33, 10-68d, 10-78b, 10-87, 10-120, CL 10-185b)
- 10.B** Understand and use the facts that an angle inscribed in a semicircle (the angle of a diameter) measures 90°
(Problems: 10-43a, 10-68a, 10-54, 10-59, CL 10-185a)
- 10.C** Understand chord relationships and use those relationships to find the length of a chord
(Problems: 10-60, 10-78c, 10-107b, CL 10-186)

- 10.D** Use counts, especially in two-way tables, to determine probabilities, conditional probabilities, and association
(Problems: 10-85, 10-101, 10-116, 10-130, CL 10-188)
- 10.E** Use relative frequencies (probabilities) in two-way tables to determine other probabilities, conditional probabilities, and association
(Problems: 10-102, 10-117, 10-131, 10-176, CL 10-190)
- 10.F** Use the alternative definition for independence derived from the Multiplication Rule to determine independence, and vice versa
(Problems: 10-31d, 10-142, 10-176c, CL 10-190b)
- 10.G** Count the number of arrangements using a decision chart
(Problems: 10-132, 10-154, 10-155d, CL 10-187, CL 10-189, 11-9, 11-26c&d, 11-49)
- 10.H** Angles in and areas of regular polygons
(Problems: 10-19, 10-22, 10-70, 10-82, 10-119, 10-156, CL 10-194, pp. 802-804)
- 10.I** Count the number of arrangements for situation which can be put into one of these categories:
Permutations (Problems: 10-128, 10-139, 10-143, 10-155a, 11-9, 11-26a, 11-60, CL 11-127)
Anagrams (Problems: 10-145, 10-159, 10-180)
Combinations (Problems: 10-153, 10-155c, 10-173, 11-26b, 11-41, 11-59, 11-87, CL 11-126)
- 10.J** Counting the number of outcomes in complex cases that require combining smaller counts of permutations and/or combinations
(Problem: 10-179)
- 10.K** Counting the number of outcomes of “ n items, choose r ” when order does not matter, with repetition allowed
(Problem: 10-180)

CHAPTER 11

- 11.A** Find the volume of a pyramid or cone
(Problems: 11-25, 11-40, 11-52, 11-58b, 11-75, 11-86, 11-100, CL 11-128)
- 11.B** Find the total surface area of a pyramid
(Problems: 11-40, 11-76c, 11-113, CL 11-128)
- 11.C** Apply the r : r^2 : r^3 ratios of similarity
(Problems: 11-12, 11-43, 11-86b, 11-90, 11-123, CL 11-132d)
- 11.D** Volumes and Surface Areas of Prisms and Cylinders (Checkpoint 11)
(Problems: 11-10, 11-17, 11-47, 11-58a, 11-102, 11-118, CL 11-131, CL 11-132, pp. 805-808)
- 11.E** Problems that add and multiply combinations in subsets of problems
(Problems: 11-73, 11-74, 11-87e, 11-98, 11-119)
- 11.F** Surface areas of cones or spheres, and volumes of spheres
(Problems: 11-58b, 11-72, 11-97, 12-21, 12-40, 12-54, CL 12-112, CL 12-113)
- 11.G** Problems applying the relationship between arcs, tangents, secants, and chords
(Problems: 11-110, 11-117, 12-11, 12-52, 12-93, CL 12-115)

CHAPTER 12

- 12.A** Graph a circle on a coordinate grid and/or write the equation of a circle in graphing form
(Problems: 12-6, 12-19a, 12-24a, 12-27, 12-31, 12-43, 12-51a-c, 12-64, 12-74, 12-87, 12-105a, CL 12-111)
- 12.B** Complete the square to change the equation of a circle from general form to graphing form
(Problems: 12-24, 12-51d, 12-105, CL 12-109)
- 12.C** Graph a parabola on focus-directrix paper
(Problems: 12-66, 12-96, CL 12-116)