

Outline of Math 142 Test III

Chapter 13 – Measurement

Section 1: Metric system. Understand the basic units of measure for the metric system, be able to give classroom examples of the common units, and be able to convert from one type of unit to another, including square and cubic units. Also know conversions between cubic centimeter, milliliter, and gram.

Section 2: Perimeter and area of polygons and circles. Understand all formulas and be able to use them to calculate areas of various polygons and circles. Be able to explain how the area formulas are all related to the area of a parallelogram. Know the Pythagorean theorem and how to apply it to find a missing length in a variety of figures.

Section 3: Surface Area. Be able to describe (with a picture and verbally) the surface area of any prism, pyramid, cylinder, and cone. Calculate the surface area of any of these polyhedra.

Section 4: Volume. Be able to describe and calculate the volume of any prism, pyramid, cylinder, and cone.

Summary of formulas – more compact than those inside the back cover of the text.

Prism & cylinder: $S = 2A + Ph$; $V = Ah$

Pyramid & cone: $S = A + \frac{1}{2} Pl$; $V = \frac{1}{3} Ah$

Chapter 14 – Geometry Using Triangle Congruence and Similarity

Section 1: Congruence of triangles. Be able to verify that two triangles are congruent using SAS, ASA, or SSS.

Section 2: Similarity of triangles. Triangles are similar if corresponding angles are congruent and corresponding sides are proportional. Be able to show this using SAS, AA, or SSS. Use similarity to find “missing” lengths in similar triangles and for indirect measurement problems.

Section 5: Geometric Problem Solving Using Triangle Congruence and Similarity. The test will include a simple proof from this section. See the online notes for examples.

Review your class notes, homework problems and quizzes.

Practice the concepts by doing problems from the chapter reviews.

Check your understanding by doing the chapter tests as though they are real tests.

Outline of Math 142 Final Exam

The final exam is cumulative and will thus be a summary of the major concepts in the course.

In addition to using the outlines of tests 1-3, think about how the concepts are connected, especially the geometry concepts in chapters 12-14 and 16. For example, knowing the definition of a prism and how to draw one (section 12.5), helps in being able to calculate the surface area for a prism (section 13.3) and volume of a prism (section 13.4).

Chapter 16 – Geometry Using Transformations

Please bring paper to use as tracing paper to do problems for this chapter.

Section 1: Transformations. Be able to perform a translation (slide), reflection (flip), rotation (turn), size transformation and combinations of these. Use tracing paper and a straight edge.

Section 2: Congruence and Similarity Using Transformations. A summary of notation for transformations is on the first page of this section. Know properties of transformations and which produce **congruent** figures and which yield **similar** figures.

Translation from A to B of point P: $T_{AB}(P)$

Rotation of a point P; about fixed point O, a degrees: $R_{O, a}(P)$

Reflection about line l of point P: $M_l(P)$

Glide reflection, that is, a translation followed by a reflection of point P: $M_l(T_{AB}(P))$

Section 3: Geometric Problem Solving Using Transformations. Use transformations to solve geometric problems and do simple proofs.

Chapter 16 Review

Chapter 16 Test # 1-21. These are especially good problems to use as practice for the final exam.