

Review for Exam 1 on Wednesday Feb 23, 2011

MTH/SLS 218–6816

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Note: CSI follows a Monday schedule on 2/23 so we will meet in 1S-107.

1. Polyhedra (8.6)
 - (a) Prisms and pyramids: names, faces, right vs oblique (8FF, HH)
 - (b) Regular polyhedra = Platonic solids: names, faces, properties (8JJ)
 - (c) Euler's formula for polyhedra: $V - E + F = 2$ (8LL)
2. Angles (8.2)
 - (a) Vertical angles, angles related to parallel lines (8H)
 - (b) Angles in a diagram with intersecting lines
 - (c) Exterior angles and rotation (8L)
 - (d) Application: Phases of the moon (8F)
3. Triangles (8.2)
 - (a) Scalene, right, isosceles, acute, obtuse
 - (b) Euclid's parallel postulate (8J)
 - (c) Angle sum in a triangle = 180° (8I, J)
4. Polygons (8.4)
 - (a) Concave vs. convex
 - (b) Angle sum in a convex polygon = $(n - 2) \cdot 180^\circ$
 - (c) Vertex angle of a regular polygon = $\frac{(n - 2) \cdot 180^\circ}{n}$
 - (d) Table of vertex angles & faces per vertex to explain why there are only 5 regular polyhedra, and 3 regular tilings of the plane (8KK)
5. Quadrilaterals (8.4)
 - (a) Be able to fill in properties in our chart
 - (b) Venn diagrams that describe relationships (8Z, AA, CC)

6. Compass and straightedge constructions (8.5)

- (a) Equilateral triangle (8W)
- (b) Hexagon (see 8V)
- (c) Perpendicular bisector of a line segment
- (d) Perpendicular to a line through a given point
- (e) Copy an angle
- (f) Bisect an angle
- (g) Parallel line through a given point
- (h) Square and octagon (8EE)
- (i) Justify a construction using properties of rhombus and/or kite (8DD)

7. Circles and spheres (8.3)

- (a) Distance and radius (8S)
- (b) Intersections and GPS (8U)