

# Math 1020/FA 1020

## Math In Art

### Additional Information

Material covered (refer to the textbook):

Section	Pages	Suggested Problems
1.1. Euclidean Geometry	1-6	
1.2. Euclidean Constructions	6-14	1-8 (Note: 8(b): Replace $\sqrt{d}$ by $\frac{d}{\sqrt{2}}$ )
1.3. Golden Ratio	14-24	1-11
1.4. Fibonacci numbers	24-31	1-6
2.1. Plane Symmetries	33-42	1-9
2.3. Groups of Symmetries	55-60	1-7
2.4. Frieze Patterns (part)	61-72	1-3
2.5. Wallpaper designs; Tilings (part)	72-81	
2.6. Tilings and Art (part)	81-89	
3.1. Similarities	91-100	1-7
3.3. Fractals (part)	100-123	1-4
3.4. Julia Sets (part)	123-131	1-3
4.1. Non-Euclidean Geometries	143-146	
4.2. Inversion	146	
4.3. Hyperbolic Geometry	153-158	
4.4. Hyperbolic Constructions	158-163	1-7
4.5. Tilings in Hyperbolic Plane (part)	163-167	
5.1. Perspective	169-181	1-9
5.3. Polyhedra (part)	197-206	1-4
5.4. Conic Sections (part)	206-216	1-6
6.1. Homotopy	223-230	1-6
6.2. Two-Manifolds and Euler (part)	230-237	1-6
6.3. Other Manifolds (overview only)	237-247	

## Information about contacting your Instructor:

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## Web page for this course:

<http://home.cc.umanitoba.ca/~davidsom/>

The main page for the instructor of this section. Follow the appropriate links.

Web pages which you might find useful (These were checked at the time this was written):

<http://server.maths.umanitoba.ca/homepages/sasho/>

The main page of the other section: contains links to old and new courses, including this one.

<http://webware.cc.umanitoba.ca:8080/webMathematica/Files/MathInArt.html>

WebMathematica Page: contains applets for real-time manipulation and drawing of various objects (fractals, tilings etc.)