Section 1: Algebra

1.1 $2^{14} = 16384$

1.2 36

1.3 b

1.4 (a) 10, (b) 10, (c) 2

1.5 Yes, $(12345)(67)$

1.6 b, c

1.7 a, b

1.8 40

1.9 b, c

1.10 Yes, dimension $= n^2 - 1$

1.11 $a = \frac{1}{2}, b = \frac{(i-1)}{2}, c = \frac{(2-i)}{2}$

1.12 a, c

1.13 c

1.14 (a) prime, (b) prime, (c) 5

1.15 b, c

Section 2: Analysis

2.1 e^{-5}

2.2 $\frac{2}{\pi}$

2.3 $2\frac{\sin(x^2)}{x}$

2.4 $h = 2r$

2.5 $\frac{1.3.5}{2.4.6}\frac{1}{7}$

2.6 -8

2.7 $-2 \le x \le 0$

2.8 $p > 0$

2.9 a, b

2.10 b, c

2.11 b, c

2.12 a

2.13 1

2.14 b, c

2.15 0

Section 3: Geometry

3.1 $xy = 0$

3.2 parabola

3.3 $\frac{5}{2}$

3.4 4π

3.5 Two

3.6 $m_1 = 1/\sqrt{3}, \ m_2 = 1/\sqrt{3}, \ m_3 = -1/\sqrt{3}$

3.7 $\frac{8}{3}\pi$

3.8 $1, \frac{1}{\sqrt{3}}$

3.9 15

3.10 $\lambda_1 = 1 - x - y, \lambda_2 = x, \lambda_3 = y$

3.11 $(\frac{2}{3}, 0)$

3.12 ellipse

3.13 $\frac{\pi}{3}$

3.14 a, c

3.15 4π