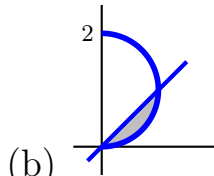# MAC 2313 EXAM 3 ANSWERS, FALL 2019

VERSION A

1. c
2. d
3. e
4. d
5. a

6. c
7. b
8. e
9. b
10. e

11. a
12. a
13. b
14. d

VERSION B

1. e
2. a
3. c
4. c
5. e

6. b
7. d
8. a
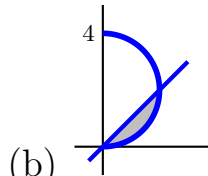9. d
10. c

11. b
12. e
13. a
14. b

PART II

1. (a) $r = 2\sin\theta$

   (b)
   (c) $\pi - 2$

2. (a) top hemisphere centered at $(0, 0, 2)$ with radius 2
   (b) $\rho = 4\cos\phi$
   (c) $\displaystyle\int_0^{2\pi}\int_0^{\pi/4}\int_{2\sec\phi}^{4\cos\phi} \rho^3 \sin\phi \cos\phi \, d\rho \, d\phi \, d\theta$

1. (a) $r = 4\sin\theta$

   (b)
   (c) $\dfrac{\pi}{2} - 1$

2. (a) top hemisphere centered at $(0, 0, 3)$ with radius 3
   (b) $\rho = 6\cos\phi$
   (c) $\displaystyle\int_0^{\pi}\int_0^{\pi/4}\int_{3\sec\phi}^{6\cos\phi} \rho^3 \sin^2\phi \, d\rho \, d\phi \, d\theta$