

**Answer Key**  
**Math 1271**  
**Spring 2003 Final Exam**

**Multiple Choice Problems**

1. E
2. B
3. A
4. C
5. A
  
6. E
7. C
8. B
9. C
10. D
  
11. A
12. E
13. B
14. D
15. E

**Written Answer Problems**

16. disk method:  $40\pi \int_0^2 \sqrt{4-y^2} dy$   
shell method:  $4\pi \int_3^7 x \sqrt{4-(x-5)^2} dx$
17. a)  $b = (3 + \sqrt{17}) / 2$   
b)  $c = -2 + 3\sqrt{2}$
18. a)  $2/3$   
b)  $-2(1-x)^{1/2} + (4/3)(1-x)^{3/2} - (2/5)(1-x)^{5/2} + C$
19. base:  $(4\sqrt{6})/3$ , height:  $16/3$
20. a) domain: all reals  
b) x- and y- intercept:  $(0, 0)$   
c) no vertical asymptote;  
horizontal asymptote:  $y = 0$   
d) interval of increase:  $(-1, \infty)$ ;  
interval of decrease:  $(-\infty, -1)$ ;  
critical point:  $x = -1$  [local minimum]  
e) interval of upward concavity:  $(-2, \infty)$ ;  
interval of downward concavity:  $(-\infty, -2)$ ;  
point of inflection:  $x = -2$   
f) see graph below
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graph for #20(f):

