

**Fall 2009 Math 151**  
**Sample Exam 2 Review Exercises -**  
**Answers**

1. e
2. c
3. d
4. a
5. a
6. d
7. d
8. b
9. c
10. c
11. b
12. a
13. a
14. c
15. c
16. c
17. c
18. a
19. a.)  $L(x) = 1 + \frac{1}{4}x$   
b.)  $\sqrt[4]{1.01} \approx \frac{401}{400}$  or 1.0025
20. Velocity:  $\langle -1, 1 \rangle$ ; Speed:  $\sqrt{2}$  units of distance/units of time.
21.  $\Delta v \approx dv = 2.56\pi$  cubic inches.

22.  $x = \frac{\pi}{4}, x = \frac{3\pi}{4}, x = \frac{5\pi}{4}, x = \frac{7\pi}{4}$ .
23.  $\frac{dh}{dt} = \frac{1}{2}$  feet per minute.
24. Vector equation:  $\langle 2 + 9t, 2 + 6t \rangle$ ;  
Parametric equation:  $x = 2 + 9t, y = 2 + 6t$ ,  
Cartesian:  $y - 2 = \frac{2}{3}(x - 2)$
25. The boat is docking at a speed of  $\frac{13}{6}$  feet per second.