MAT 1050 Final Exam Answer Key
Winter 2014

1. $(2\pi-1)x^{\frac{1}{2}} - 10x^{\frac{2}{3}} + x^{\frac{3}{2}}$

2. $\dfrac{9b^{10}}{a}$

3. -6

4. $-\dfrac{9}{2}$

5. $(-\infty,0]\cup[2,\infty)$

6. $(-\infty,\infty)$

7. The sides are 11 feet, 13 feet, and 15 feet.

8. $b = \dfrac{a-ac}{a-1}$

9. $(-1,\infty)$

10. a) $f(3) = \dfrac{1}{6}$ **b)** $f(4+b) = \dfrac{\sqrt[3]{b}}{-8-2b}$

11. $2x+h-3$

12. $y = \dfrac{3}{4}x - \dfrac{7}{4}$

13. $x = \sqrt{2}$

14. The length is 11 cm, width 5 cm.

15. $\left\{3 \pm \sqrt{3}i\right\}$

16. **Vertex** $(-2,1)$
Opens down
Intercepts $(0,-3)$, $(-3,0)$, $(-1,0)$

17. $\dfrac{(x-3)(x-2)}{x}$

18. $\{-6\}$

19. $(-\infty,0)\cup\left(\dfrac{8}{3},\infty\right)$

20. $(2,4]$

21. a) Domain $[-4,0)\cup(0,2)\cup(2,\infty)$
b) Range $(0,\infty)$
c) $f(3)=2$
d) $f(-1)=1,\ f(1)=1,\ f(4)=1$

22. $\left\{\pm 3,\ \pm\sqrt{8}\right\}$

23. a) $\log_{\frac{1}{3}}(9)=-2$ **b)** $\log_{2}(32)=5$ **c)** $\log_{27}\left(\dfrac{1}{3}\right)=-\dfrac{1}{3}$

24. a) 2.4 **b)** 1.8 **c)** -0.8

25. $\{-8\}$

26. $-x^2-3x-6+\dfrac{20}{x-2}$

27. $\log_{2}\left(\dfrac{1}{5}\right)<\sin(6.3)<\cos(6.3)<\dfrac{\pi}{3}$

28. a) $\left(-\dfrac{540}{\pi}\right)^{\circ}$ **b)** 140°

29. $x=\dfrac{\sqrt{6}}{\sin(38^{\circ})}$

30. The speed of the boat in still water is 19 mph.