

FALL SEMESTER 2010,

MATH 1111 Final Exam Solutions

1. $\frac{4y^4}{x^2}$

2. $\frac{x+6}{(x-2)(x+2)}$

3. $\{\pm 1, \pm 3\}$

4. $\left\{\frac{1}{5} \pm \frac{2}{5}i\right\}$

5. $\left\{\frac{4}{25} - \frac{3}{25}i\right\}$

6. $\{-2\}$

7. $\{1\}$

8. $\left(\frac{5}{3}, \frac{7}{3}\right)$ or $\left\{x \mid \frac{5}{3} < x < \frac{7}{3}\right\}$

9. $d = 10$

10. Answers may vary .

11. $y = \frac{1}{2}x + \frac{3}{2}$ or $x - 2y = -3$

12. \$1575

13. 58

14. 3L of 20% alcohol, 2 L of 30% alcohol

15. $[3, \infty)$ or $\{x \mid x \geq 3\}$

16. $(-\infty, 8]$ or $\{y \mid y \leq 8\}$

17. $(-\infty, -1) \cup (1, 3)$ or $\{x \mid x < -1 \text{ or } 1 < x < 3\}$

18. $\{-3, 4\}$

19. 2

20. \$1700

21. 140 miles

22. $(-2, 3)$

23. $\frac{1}{3}$

24. $f^{-1}(x) = \frac{1-x}{-2x}$ or $f^{-1}(x) = \frac{x-1}{2x}$

25. quotient = $x^2 + 6x + 13$ remainder = 20

26. $y = \pm 2$ or $(0, -2), (0, 2)$

27. $\{3\}$

28. $\frac{\ln(90)-1}{3}$ or $\{1.167\}$

29. \$15,027.87

30. $x = 4, y = -3$ or $(4, -3)$