Mth 098 – Intermediate Algebra – **Practice Exam 4**

NOTE: This exam should not be taken as a complete list of possible problems. It is merely intended to be an example of the difficulty level of the regular exam. To best utilize it as a *practice* exam, try to complete the exam without notes or distractions. Try to emulate the classroom environment as much as possible.

1. Give an example of a cubic trinomial.

2. Simplify $\left(6y^2 - 9y + 4\right) - \left(-2y^2 - y - 8\right)$.

For problems 3-7, multiply the polynomials.

3. $\left(2x^3 + 3\right)\left(x^2 + 3x - 2\right)$

4. $\left(2x - 5\right)\left(x + 7\right)$

5. $\left(2a - 5\right)^2$

6. $(3s+5t)(3s-5t)$

7. $(a+3b)^2$

For problems 8-10, divide. (You may use any applicable method.)

8. $\dfrac{a^2+2a-13}{a+3}$

9. $\dfrac{6x^2+16x+15}{3x+2}$

10. $\dfrac{15x^3y-25xy^3}{5xy}$

For problems 11-19, factor as completely as possible.

11. $-12t^2 + 48t - 36$

12. $x^2 + 2x - 24$

13. $8y^3 - 4y^2 - 10y + 5$

14. $9b^2 - 25$

15. $8b^2 - 2b - 3$

16. $4x^2 - 20xy + 25y^2$

17. $y^2 + 49$

18. $a^6 + 3a^3 - 10$

19. $y^4 - 81$

For problems 20-21, solve each equation.

20. $x^2 + x - 12 = 0$

21. $9a^2 = -18a$

22. If a ball is thrown up into the air with an initial velocity of 10 m/s from the roof of a 15-m tall building, its height above the ground after *t* seconds is $h(t) = -5t^2 + 10t + 15$ meters. When will the ball hit the ground? (Hint: Think about what $h(t)$ represents, and the connection to the phrase 'hit the ground'.)