Winter 2014 Math 123a Test 3 Name: _____

Show all necessary work neatly, clearly, and systematically. Any understatement and/or incorrect statement may be penalized. There is a total of 104 points available to grab. Good Luck! BOX YOUR FINAL ANSWERS

1. (3) Multiply: $(3x-2)(2x^2-3x-7)$

2. (3) Multiply: $(3x-8y)(5x-6y)$

3. (3) Simplify: $(2x-7y)^2$

4. (4) Simplify: $(2x-3)^3$

5. (1) Write in decimal notation: 2.785×10^6

6. (1) Write in scientific notation: 0.000325

7. (4) Divide and write the answer in scientific notation: $\dfrac{3.2\times10^{-21}}{8\times10^{-17}}$

8. (4) Simplify: $\dfrac{-54x^{-3}y^{-14}z^8}{-63x^6y^{-7}z^{-2}}$

9. (5) Simplify: $\left(-2x^{-2}y^3\right)^{-4}\left(-3x^{-3}y^{-2}\right)^3$

10. (5) Simplify: $-4x^6y^6\left(-3x^7y^9\right)^2-6x^2\left(x^3y^4\right)^6$

11. (4) Divide: $\dfrac{10x^2y-8xy+6x^2}{4x^2y}$

12. (5) Divide: $\left(2x^2+11x-21\right)\div\left(2x-3\right)$

13. (6) Divide: $\left(2x^3-7x^2+3\right)\div\left(x^2-3\right)$

14. (4) Factorize completely: $2x^3+3x^2-8x-12$

15. (3) Factorize: $x^2-5xy-14y^2$

16. (4) Factorize completely: $3x^3+3x^2y-18xy^2$

17. (3) Factorize: $64x^2-48xy+9y^2$

18. (4) Factorize completely: $81x^4-16y^8$

19. (4) Factorize: $64x^3+27y^6$

20. (5) Factorize completely:
$45a^3b-78a^2b^2+24ab^3$

21. (4) Factorize: $45a^3b-78a^2b^2+24ab^3$

22. (3) Factorize: $15a^2 - 14ab - 8b^2$

23. (3) Solve: $2x^2 = 6 + x$

24. (3) Solve: $x(x+3) = 28$

25. (4) Solve: $(x+4)(x+3) = 72$

26. (5) Solve: $2x^3 + 24x = 19x^2$

27. (4) Simplify: $\left(-3xy^{-2}\right)^{-4}\left(-2x^{-3}y\right)^3$

28. (3) Compute: $34.001^2 - 33.999^2$