Fall 2011 Math 112 Test 1 Name: SOLUTION

Show all necessary work NEATLY, CLEARLY, SYSTEMATICALLY and UNDERSTANDABLY. Any understatement and/or incorrect statement will be penalized. Answer-by-guessing (i.e., without proper work) will receive at most 1 point. There are 109 points available in this test. BOX YOUR FINAL ANSWER. Good luck!

A. Basic: 4-point each

1. Compute: $-7924-(-4659)-8173$

$= -7924 + 4659 - 8173$

$= -3265 - 8173$

$= -11438$

$7924 - 4659 = 3265$ $\quad 3265 + 8173 = 11438$

2. Multiply: -753×689. Show your computation!

$= -518817$

$$\begin{array}{r} 753 \\ \times\ 689 \\ \hline 6777 \\ 6024 \\ 4518 \\ + \\ \hline 518817 \end{array}$$

3. Divide: $-87203\div 29$ Show your computation!

$= -3007$

$$\begin{array}{r} 3007 \\ 29\overline{)87203} \\ -\ 87 \\ \hline 20 \\ -\ 0 \\ \hline 203 \\ -\ 203 \\ \hline 0 \end{array}$$

4. Compute: $-25-3(5-7)^2$

$= -25 - 3(-2)^2$

$= -25 - 3\cdot 4$

$= -25 - 12$

$= -37$

5. Compute: $-43-26-|-78+57|$

$= -43 - 26 - |-21|$

$= -43 - 26 - 21$

$= -69 - 21$

$= -90$

6. Simplify: $-4(3+5x)-5(4x-3)$

$= -12 - 20x - 20x + 15$

$= -40x + 3$

7. Solve: $-95 = 59 - x$

$-95 - 59 = -x$

$-154 = -x$

$\frac{-154}{-1} = x$

$154 = x$

8. Solve: $-552 = 4x + 648$

$-552 - 648 = 4x$

$-1200 = 4x$

$\frac{-1200}{4} = x$

$-300 = x$

9. Compute: $-6^2 \div (-3)^2(-2)$

$= -36 \div 9(-2)$

$= -4(-2)$

$= 8$

10. Solve: $25 - 3x = 15 - 2x$

$25 = 15 - 2x + 3x$

$25 = 15 + x$

$25 - 15 = x$

$10 = x$

11. Evaluate: $-4x^2 - y^3$ when x = -3, y = -2.

$\Rightarrow -4(-3)^2 - (-2)^3$

$= -4(9) - (-8)$

$= -36 - (-8)$

$= -36 + 8$

$= -28$

B. Intermediate: 5-point each

12. Simplify: $-5(3-x) - (3x-7) - 7(x+3)$

$= -15 + 5x - 3x + 7 - 7x - 21$

$= -5x - 29$

13. Solve: $6x - (7 + 2x) = 5 + 7(x-3)$

$6x - 7 - 2x = 5 + 7x - 21$

$4x - 7 = 7x - 16$

$-7 = 7x - 16 - 4x$

$-7 = 3x - 16$

$-7 + 16 = 3x$

$9 = 3x$

$\frac{9}{3} = x$

$3 = x$

14. Simplify:

$-23x^2 + 23y + (-18x) - (-13y) + 5x - (-2y^2)$

$= -23x^2 + 23y - 18x + 13y + 5x + 2y^2$

$= -23x^2 + 2y^2 - 13x + 36y$

15. Simplify: $-5 - 3[2x - (7 - 2x)]$

$= -5 - 3[2x - 7 + 2x]$

$= -5 - 3[4x - 7]$

$= -5 - 12x + 21$

$= -12x + 16$

16. Compute: $36-(10-16)^2\div(-3)\cdot 2$

$= 36-(-6)^2\div(-3)\cdot 2$

$= 36-36\div(-3)\cdot 2$

$= 36-(-12)\cdot 2$

$= 36-(-24)$

$= 36+24$

$= 60$

17. Compute: $\dfrac{-|-4-8|^2}{3(-2)-2\cdot|-3|}$

$= \dfrac{-|-12|^2}{3(-2)-2|-3|}$

$= \dfrac{-12^2}{3(-2)-2\cdot 3}$

$= \dfrac{-144}{-6-6}$

$= \dfrac{-144}{-12} = 12$

18. Write in denominator $72x$.

a. $\dfrac{5}{9} = \dfrac{40x}{72x}$ (×8x)

b. $\dfrac{3}{8x} = \dfrac{27}{72x}$ (×9)

c. $\dfrac{7x}{12} = \dfrac{42x^2}{72x}$ (×6x)

C. Advanced: 6-point each

19. Compute: $(24-30)^2\div 3(-4)-3(-4-3)^2$

$= (-6)^2\div 3(-4)-3(-7)^2$

$= 36\div 3(-4)-3\cdot 49$

$= 12(-4)-147$

$= -48-147$

$= -195$

20. Write in simplest form:

a. $\dfrac{72x^8y^3}{27x^2y^6} = \dfrac{8x^6}{3y^3}$

b. $\dfrac{16a}{48a^3} = \dfrac{1}{3a^2}$

21. Solve: $-3(x+4)-4(3-x)-24=48-3x$

$-3x-12-12+4x-24 = 48-3x$

$x-48 = 48-3x$

$x-48+3x = 48$

$4x-48 = 48$

$4x = 48+48$

$4x = 96$

$x = \dfrac{96}{4}$

$x = 24$

22. Solve: $3x-2[8x-5(1+x)]=4(2x-1)-8$

$3x-2[8x-5-5x]=8x-4-8$

$3x-2[3x-5]=8x-12$

$3x-6x+10=8x-12$

$-3x+10=8x-12$

$10=8x-12+3x$

$10=11x-12$

$10+12=11x$

$22=11x$

$\frac{22}{11}=x$

$2=x$

23. Compute: $\frac{-6(-4)-(-8)(-3)}{-2[-16\div(-4-4)]}$

$=\frac{-6(-4)-(-8)(-3)}{-2[-16\div(-8)]}$

$=\frac{-6(-4)-(-8)(-3)}{-2\cdot 2}$

$=\frac{24-24}{-4}$

$=\frac{0}{-4}$

$=0$