Math 085 - Test 5a
May 6, 2013

Name key
Score _____

Part I - Solve each problem. Show all work to receive full credit. Supply explanations where necessary. Each problem is worth 2 points. CALCULATORS ARE ALLOWED ON THIS PORTION OF THE TEST.

1. Combine like terms: $79.02x - 6.74 + 0.765y - 45.109x + 17.457y - 0.05$

$33.911x + 18.222y - 6.79$

2. Compute: $23.042 \times (7 - 4.037 \times 1.46 - 0.932^2)$

$= 5.469156952\ldots$

≈ 5.469

3. Solve for x: $4.19 + 1.8(x - 6.2) = 5.7x + 16.32$

$4.19 + 1.8x - 11.16 = 5.7x + 16.32$

$-6.97 + 1.8x = 5.7x + 16.32$

$-23.29 = 3.9x \Rightarrow x = -5.9718$ (ROUNDED)

4. Find the area of a triangle whose height is 14.352 in and whose base measures 6.64 in.

$A = \frac{1}{2}bh = \frac{1}{2}(14.352)(6.64)$

$= 47.64864\ \text{in}^2$

5. Find the decimal form of $\frac{97}{113}$. Round to the nearest hundred-thousandth.

$\frac{97}{113} = 0.85840708\ldots$

≈ 0.85841

Math 085 - Test 5b
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Part II - Solve each problem. Show all work to receive full credit. Supply explanations where necessary. CALCULATORS ARE NOT ALLOWED ON THIS PORTION OF THE TEST.

1. (2 points) Write each number as a fraction in mixed-number form. Do not reduce to lowest terms.

   (a) -4.389 $-4\frac{389}{1000}$

   (b) 72.00135 $72\frac{135}{100000}$

2. (2 points) Write each number in decimal notation.

   (a) $5\frac{55}{100}$ 5.55

   (b) $-65\frac{18}{10000}$ -65.0018

3. (2 points) Arrange the following numbers in order from least to greatest.

   -0.989, -0.898, -1.009, -1.09, -0.098

   $-1.09, -1.009, -0.989, -0.898, -0.098$

4. (2 points) Round each number to the indicated place.

   (a) 4.674891 to the nearest thousnadth 4.675

   (b) 0.08543 to the nearest tenth 0.1

5. (2 points) Compute each of the following.

   (a) $4.6989 + 31.77592$

   $$\begin{array}{r} 4.6989 \\ +\ 31.77592 \\ \hline 36.47482 \end{array}$$

   36.47482

   (b) $\underbrace{-9.0432 + 4.7687}_{\text{Neg!}}$

   $$\begin{array}{r} {\scriptstyle 8\ 9\ 3\ 12} \\ 9.0432 \\ -\ 4.7687 \\ \hline -4.2745 \end{array}$$

   -4.2745

6. (2 points) Combine like terms.

(a) $7.1x + 5.4y + 1.2x + 6.8y$

$7.1 + 1.2 = 8.3$ $\quad$ $5.4 + 6.8 = 12.2$

$8.3x + 12.2y$

(b) $3.2r - 4.1t - 5.6t - 1.9r$

$3.2 - 1.9 = 1.3$ $\quad$ $4.1 + 5.6 = 9.7$

$1.3r - 9.7t$

7. (4 points) Carry out the indicated operation.

(a) 0.4536×0.01

2 PLACES RIGHT $\quad$ 0.004536

(b) $13.456 \div 1000$

3 PLACES RIGHT $\quad$ 0.013456

(c) 9.882×1000

3 PLACES LEFT $\quad$ 9882

(d) $0.005412 \div 0.00001$

5 PLACES LEFT $\quad$ 541.2

8. (2 points) A rectangular room measures 6.92 m by 5.63 m. Find the area of the room.

$$\begin{array}{r} 6.92 \\ \times\ 5.63 \\ \hline 2076 \\ 4152 \\ 3460 \\ \hline 38.9596 \end{array}$$

$A = \ell \times w = 38.9596\ \text{m}^2$

9. (2 points) Carry out the indicated operation.

(a) $6.45 \times (-3.6)$

$$\begin{array}{r} 6.45 \\ \times\ 3.6 \\ \hline 3870 \\ 1935 \\ \hline 23.220 \end{array}$$

-23.22

(b) $2.5221 \div 4.2$

$$\begin{array}{r} 0.6005 \\ 42\overline{)25.221000\ldots} \\ 252 \\ \hline 0210 \\ 210 \\ \hline 0 \end{array}$$

0.6005

10. (2 points) Write each fraction in decimal form. Find exact values. Do not round.

(a) $\frac{67}{25}$

$$\begin{array}{r} 2.68 \\ 25\overline{)67} \\ 50 \\ \hline 170 \\ 150 \\ \hline 200 \\ 200 \\ \hline 0 \end{array}$$

$\boxed{2.68}$

(b) $\frac{7}{8}$

$$\begin{array}{r} .875 \\ 8\overline{)7.0} \\ 64 \\ \hline 60 \\ 56 \end{array} \rightarrow \begin{array}{r} 40 \\ 40 \\ \hline 0 \end{array}$$

$\boxed{0.875}$

11. (1 point) Compute: $3.2(1.2^2 + 8.7)$

$= 3.2(1.44 + 8.7)$

$= 3.2(10.14)$

$= \boxed{32.448}$

$$\begin{array}{r} 1.44 \\ +\ 8.7 \\ \hline 10.14 \end{array} \qquad \begin{array}{r} 10.14 \\ 3.2 \\ \hline 2028 \\ 3042\ \\ \hline 32.448 \end{array}$$

12. (6 points) Solve each equation. Write your solutions in decimal form.

(a) $3x + 4 = 11x - 6$

$10 = 8x \Rightarrow x = \frac{10}{8} = \frac{5}{4} = 1\frac{1}{4} = \boxed{1.25}$

(b) $2r - 7 = 12(r - 3)$

$2r - 7 = 12r - 36$

$29 = 10r \Rightarrow \boxed{r = 2.9}$

(c) $9(x - 4) + 13 = 4x - 23$

$9x - 36 + 13 = 4x - 23$

$9x - 23 = 4x - 23 \rightarrow 5x = 0$

$\Rightarrow \boxed{x = 0}$

13. (1 point) Claire bought a book for \$16.95 plus \$0.85 sales tax. She paid with a \$20 bill. How much change did she receive?

$$\begin{array}{r} 16.95 \\ +\ 0.85 \\ \hline 17.80 \end{array} \qquad \begin{array}{r} 20.00 \\ -\ 17.80 \\ \hline 2.20 \end{array}$$

$\boxed{\$2.20}$

14. (1 point) Find and simplify the ratio of $6\frac{3}{10}$ to $1\frac{4}{5}$.

$$\frac{63}{10} \Big/ \frac{9}{5} = \frac{63}{10_2} \times \frac{5^1}{9_1} = \boxed{\frac{7}{2}}$$

15. (1 point) Cage-free chicken eggs cost \$2.80 per dozen. How much does each egg cost?

$$12\overline{)2.80} \quad 24 \quad 40 \quad -36 \quad 40\ldots$$

$0.2\overline{3} \approx \$0.23$

16. (2 points) Use the Pythagorean theorem to find the length of the hypotenuse of a right triangle whose legs have the given lengths.

(a) $a = 5, b = 12$

$5^2 + 12^2 = 169 \Rightarrow c^2 = 169 \Rightarrow \boxed{c = 13}$

(b) $a = 6, b = 8$

$6^2 + 8^2 = 36 + 64 = 100 \Rightarrow c^2 = 100 \Rightarrow \boxed{c = 10}$

17. (2 points) Solve each proportion.

(a) $\frac{1.2}{4} = \frac{x}{9}$

$4x = 10.8$

$\boxed{x = 2.7}$

$$4\overline{)10.8} \quad 8 \quad 28 \quad 28 \quad 0$$

$$1.2 \times .9 \quad 1.08$$

(b) $\frac{8}{12} = \frac{20}{x}$

$8x = 240$

$\boxed{x = 30}$

18. (1 point) What is 10% of 8.57?

$0.10 \times 8.57 = \boxed{0.857}$

19. (1 point) Write 0.625 in percent notation.

$\boxed{62.5\%}$

20. (2 points) Sally and Joe are running on a track. Sally runs 4 laps for every 3 that Joe runs. After Sally has run 20 laps, how many has Joe run?

$\frac{4}{3} = \frac{20}{x} \Rightarrow 4x = 60$

$\boxed{x = 15}$

JOE RUNS 15 LAPS.