Math 085 - Test 2a
March 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. Solve the equation: $-53x + 543 = 1444$

$-543 \quad -543$

$-53x = 901$

$x = \frac{901}{-53} = -17$

2. Evaluate the following expression: $\frac{16^2 - 24 \cdot 23}{3 \cdot 4 + 5^2}$

$= \frac{256 - 552}{12 + 25} = \frac{-296}{37}$

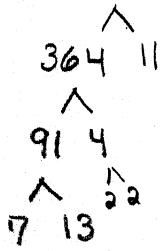
$= -8$

3. Compute each of the following.

(a) $23,011 - (-60,432)$ = 83,443

(b) $(-15)(9)(-29)(-17)$ = −66,555

4. Find the prime factorization of 4004.



$4004 = 2^2 \cdot 7 \cdot 11 \cdot 13$

5. Determine four multiples of 1773.

$1 \times 1773 = 1773$

$2 \times 1773 = 3546$

$3 \times 1773 = 5319$

$4 \times 1773 = 7092$

Math 085 - Test 2b
March 6, 2013

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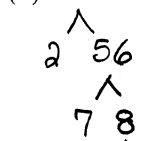
Part II - Solve each problem. Show all work to receive full credit. Supply explanations where necessary. CALCULATORS ARE NOT ALLOWED ON THIS PORTION OF THE TEST.

1. (2 points) List all the factors of 24.

   1, 2, 3, 4, 6, 8, 12, 24

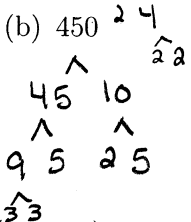
2. (3 points) Find the prime factorization of each number.

   (a) 112

   $112 = 2^4 \cdot 7$

   (b) 450

   $450 = 2 \cdot 3^2 \cdot 5^2$

3. (1 point) List the terms: $3x^2 - 7x + 2x^2$

   $3x^2, -7x, 2x^2$

4. (1 point) On January 17, the temperature dropped from 21°F to −6°F. By how many degrees did the temperature drop?

   $21 - (-6) = 27°$

5. (2 points) Use the distributive property to remove the parentheses. Then ~~simplify~~ by combining like terms.

   $2(x + 5y) + 7(2y - 3x)$

   Simplify

   $2x + 10y + 14y - 21x$

   $24y - 19x$

6. (6 points) Use divisibilty tests for each of the following problems.

(a) Circle each number that is divisible by 2. END WITH 0, 2, 4, 6, 8

(142) (6676) 10101 3693

(b) Circle each number that is divisible by 5. END WITH 0, 5

6751 (3005) 2086 (90)

(c) Circle each number that is divisible by 10. END WITH 0

762 (7620) 700,002 (110,110)

(d) Circle each number that is divisible by 3. DIGITS ADD UP TO MULTIPLE OF 3

(342) 8173 (10101) (3693)

9 19 3 21

(e) Circle each number that is divisible by 9. DIGITS ADD UP TO MULTIPLE OF 9

111 (792) (30303) (14,643)

3 18 9 18

(f) Circle each number that is divisible by 6. DIVISIBLE BY 2 & 3

530 3333 (162) (5514)

8 NOT BY 2 9 15

NOT BY 3

7. (3 points) Simplify each expression by combining like terms.

(a) $-17x + x$

$= -16x$

(b) $a + 3b + 5a - 2 + b$

$= 6a + 4b - 2$

(c) $8x^2 + 3y - 2x^2 - 2y$

$= 6x^2 + y$

8. (4 points) Solve each equation.

(a) $13 = 3 + 2x$

$-3 \quad -3$

$\frac{10}{2} = \frac{2x}{2}$ $\qquad x = 5$

(b) $5 - y = 7$

$-5 \quad -5$

$\frac{-y}{-1} = \frac{2}{-1}$ $\qquad y = -2$

(c) $\frac{-4x}{-4} = \frac{36}{-4}$

$x = -9$

(d) $2w - 7 + w = 5 - 12$

$3w - 7 = -7$

$+7 \quad +7$

$\frac{3w}{3} = \frac{0}{3}$

$w = 0$

9. (2 points) Evaluate $\frac{n^2 - p}{2}$ when $n = 9$ and $p = 5$.

$\frac{9^2 - 5}{2} = \frac{81 - 5}{2} = \frac{76}{2} = \underline{38}$

10. (2 points) Evaluate each expression.

(a) $9 - |7 - 3^2|$ $= 9 - |7 - 9| = 9 - |-2|$

$= 9 - 2 = \underline{7}$

(b) $\frac{100 - 6^2}{(-5)^2 - 3^2}$ $= \frac{100 - 36}{25 - 9} = \frac{64}{16} = \underline{4}$

11. (4 points) Compute each of the following.

(a) $8 - (-10)$ $8 + 10 = \underline{18}$

(b) $-9 \times (-4)$ $= 9 \times 4 = \underline{36}$

(c) $7 + (-19)$ $= -(19 - 7) = \underline{-12}$

(d) $45 \div (-5)$ $= -(45 \div 5) = \underline{-9}$

Part III - Circle the best answer for each problem. Each problem is worth 2 points.
CALCULATORS ARE NOT ALLOWED ON THIS PORTION OF THE TEST.

1. Which one of the these numbers is a composite number?

   (a) 1
   (b) 23
   (c) 17
   (d) 39 3×13

2. What is the opposite of -7?

   (a) -7
   (b) 7 $-(-7) = 7$
   (c) $1/7$
   (d) 0

3. Two negative numbers are added. Which of the following is true?

   (a) The result is a positive number.
   (b) The result is a negative number.
   (c) The sign of the result depends on the numbers.

4. Which one of these numbers is prime?

   (a) 21
   (b) 99
   (c) 51
   (d) 31

5. Evaluate $-(-x)$ when $x = -5$.

   (a) -5
   (b) 5 $-(-(-5)) = -5$
   (c) $-(-5)$
   (d) 0