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7-2-14

TEST 1 SU14 MATH 65-083 CRN: 10113;

Write on white or graph paper pages stapled to test sheet.

1. Evaluate  $(p + q)/(q - 14)$  for  $p = 0$  and  $q = 13$ .
2. If  $b = 6$  ft and  $h = 8$  ft for a *triangle*, what is the area?
3. Factor:  $10 - 10x - 30y - 30z$
4. Factor:  $120a + 60b$
5. Find the prime factorization of 400.
6. ADD THE TWO FRACTIONS, THREE HALVES PLUS THREE FOURTHS:  $3/2 + 3/4$
7. Divide and simplify if possible:  $(2/3) \div (3/10)$ . This means  $2/3$  divided by  $3/10$ .
8. (a) Is this sentence TRUE OR FALSE?  $-997 < -998$ . Write TRUE OR FALSE.  
(b) List in order from least to greatest, from left to right.  
 $13, -17, 14, 2, 3, \sqrt{5}, -998$
9. Find the opposite of 59.15
10. Combine like terms:  $-2 - 6t + 10 + 2t + 5 - 7t$
11. Combine like terms:  $-5y - (-3x) + 9x - (-1) - 2y - (-9)$
12. Combine like terms:  $5y - (-4x) + 8x - (-5) - 3y - 7 + 3x$
13. (a) Find  $-(-x)$  when  $x = 8$ . (b) Find  $-(-(-x))$  when  $x = 14$ .  
(c) Find  $-(-(-(-x)))$  when  $x = -77$ .
14. Multiply the three fractions:  $(-\frac{7}{4}) * (-\frac{3}{5}) * (\frac{1}{3})$
15. What is the reciprocal of  $\frac{53}{10}$ ? Check your answer.
16. Simplify  $3^2 + 4^2 + 15 \div 3$
17. Simplify:  $4^2 + 4^2 \div 2 * 2^2$
18. Evaluate:  $9 - 4x^2$  for  $x = -2$
19. Solve for y.  $\frac{y}{5} = \frac{2}{11}$ .
20. Solve for x:  $4(3 + 4x) - 6 - 8x = 38$ . HINT: DISTRIBUTE AND COLLECT LIKE TERMS AS NEEDED. Then solve for x using addition *or* subtraction *and* division.

21. Solve for  $w$  :  $B = 6w - 6N$

22. Solve for  $h$ :

$$W = \frac{1}{2}ah - \frac{1}{2}bh - \frac{1}{2}ch$$

23. Sec. 2.3 Solve for  $m$ .  $n = y + 3(x + m)$

24. Sec. 2.4

- (a) 15 is what percent of 30? Translate this AND SOLVE.  
 (b) What number is 30 % of 90? Translate this AND SOLVE.

25. Translate. Three less than twice a number is 17.

26. What is the solution to the *correct* answer to previous problem?

27. The perimeter of a rectangle is  $P = 28$  m. The length  $L$  is 2 m more than the width  $W$ . What is the width  $W$ ? What is the length  $L$ ?

28. A car race extends for a total distance of 400 miles, *starting* at Station A and *ending* at Station B. If a “muscle” car is *three times* as far from Station A as from Station B, then what is the car’s distance from Station B? What must be the distance of the car from station A?

29. The formula for the sum of three internal angles of a triangle is  $x + y + z = 180$ .

- \* Let the second angle  $y$  be twice the first angle  $x$ .
- \* Let the third angle  $z$  be 20 less than the first angle  $x$ .

- (a) What is the first angle  $x$ ?  
 (b) What is the second angle  $y$ ?  
 (c) What is the third angle  $z$ ?

BELOW, for section 2.6 labelled problems, solve and graph on a *horizontal number line*.

30. Sec. 2.6. Solve and graph.  $7 + 4y < 31$

31. Sec. 2.6 Solve and graph.  $20 < -4x$

32. SEC. 2.6 SUBSTITUTE THE NUMBER INTO THE INEQUALITY  $x < 11$ . IF THE NUMBER IS A SOLUTION, WRITE “YES”; IF NOT, WRITE “NO”. Assuming  $x < 11$ ,  
 (a) 10.99 (b) 11.001 (c) 11 (d) - 11

33. SEC. 2.6. SOLVE AND GRAPH:  $(x + 3) + 7 > 3(x - 2) - 12$

34. SEC. 2.7. RJ'S PLUMBING AND HEATING CHARGES \$50 PLUS \$80 PER HOUR FOR EMERGENCY SERVICE. CHARLOTTE'S FAMILY REMEMBERS BEING BILLED AT LEAST \$210 FOR AN EMERGENCY CALL. HOW LONG (IN HOURS) WAS RJ'S SERVICE AT THEIR HOME?

35. SEC. 2.7. LESLIE'S FIRST FOUR QUIZ GRADES ARE 73, 75, 89 AND 91. FOR *WHAT SCORE* ON THE 5<sup>TH</sup> QUIZ WILL HER AVERAGE QUIZ GRADE BE AT LEAST 85?

36. PLOT EACH POINT: (1, 1), (2, -2), (4, 0); USE ATTACHED GRAPH PAPER.

37. EXTRA CREDIT:

(A) PLOT EACH POINT: (1, 3) AND (3, 5).

(B) DRAW A LINE CAREFULLY THROUGH THESE TWO POINTS.

(C) FROM YOUR GRAPH, WHAT IS THE Y-INTERCEPT OF THE LINE?



(11.)

$$-5y - (-3x) + 9x - (-1) - 2y - (-9)$$

$$-5y + 3x + 9x + 1 + (-2y) + 9$$

$$\underbrace{\hspace{10em}}_{12x}$$

$$-7y + 12x + 10$$

$$(12.) = 12x - 7y + 10$$

$$5y - (-4x) + 8x - (-5) - 3y - 7 + 3x$$

$$= 5y + 4x + 8x + 5 + (-3y) + (-7) + 3x$$

$$\underbrace{\hspace{10em}}_{15x}$$

$$15x + 2y - 2$$

$$(13.) (a.) -(-x); x=8$$

$$(b.) -(-x) = 8$$

$$-(-(-x)); x=14$$

$$-(-(-x)) = -14$$

$$(c.) -(-(-(-x))); x=-77$$

$$\text{ANSWER} = -77$$

(12.)

(14.)  $(\frac{7}{4}) \cdot (-\frac{3}{5}) \cdot (-\frac{1}{3})$   
 $= + \frac{21}{60} = \frac{7}{20}$

(15.)  $\frac{10}{53}$

(16.)  $3^2 + 4^2 + 15 \div 3$   
 $= 9 + 16 + 5$   
 $= 25 + 5$   
 $= \boxed{30}$

(17.)  $4^2 + 4^2 \div 2 \cdot 2^2$   
 $= 16 + 16 \div 2 \cdot 4$   
 $= 16 + 8 \cdot 4$   
 $= 16 + 32$   
 $= 48$

(18.)  $9 - 4x^2$   
 $= 9 - 4(-2)^2$   
 $= 9 - 4 \cdot 4$   
 $= 9 - 16$   
 $= -7$

(19.)  $\frac{x}{5} = \frac{2}{11}$

$5 \cdot \frac{x}{5} = 5 \cdot \frac{2}{11}$   
 $x = \frac{10}{11}$

(20.)  $4(3+4x) - 6 - 8x = 38$   
 $12 + 16x - 6 - 8x = 38$   
 $6 + 8x = 38$

(20)

$$8x = 32$$

(21)  $x = 4$

$$B = 6W + 6N$$

$$B + 6N = 6W$$

$$\frac{B + 6N}{6} = W$$

$$\frac{B}{6} + N = W$$

(22)

$$W = \frac{1}{2}ah - \frac{1}{2}bh - \frac{1}{2}ch$$

$$2W = ah - bh - ch$$

$$\Sigma W = (a - b - c)h$$

$$\frac{\Sigma W}{a - b - c} = h$$

(23)

$$n = y + 3(x + m)$$

$$n = y + 3x + 3m$$

$$n - y - 3x = 3m$$

$$\frac{n - y - 3x}{3} = m$$

(24) (a)

$$15 = x - 30$$

$$0.50 = x$$

$$x = 50\%$$

(b)

$$x = (0.30)(90)$$

$$x = 27$$

25.

$$2x - 3 = 17$$

$$2x = 20$$

$$x = 10$$

26.

27.

$$28 = 2L + 2W$$

$$28 = 2(W+2) + 2W$$

$$28 = 2W + 4 + 2W$$

$$28 = 4W + 4$$

$$24 = 4W$$

$$6 = W$$

$$8 = L$$

28.

$$3d + d = 400$$

$$4d = 400$$

$$d = 100 \text{ from B.}$$

28.

$$3d = 300 \text{ FROM A.}$$

15

29.  $x + y + z = 180$

$$x + 2x + x - 20 = 180$$

$$4x - 20 = 180$$

$$4x = 200$$

$$x = 50$$

$$2x = 100$$

$$x - 20 = 30$$

30.  $7 + 4y < 31$

$$4y < 24$$

$$y < 6$$

31.

$$20 < -4x$$

$$-5 > x$$

32.  $10.99 < 11$  yes

$$11.001 < 11$$
 NO

$$11 < 11$$
 NO

$$-11 < 11$$
 yes

# Test 1

33.

$$\begin{aligned}
 (x+3)+7 &> 3(x-2)-12 \\
 x+3+7 &> 3x-6-12 \\
 x+10 &> 3x-18 \\
 28 &> 2x \\
 14 &> x
 \end{aligned}$$



34.

$$\begin{aligned}
 210 &< 50 + 80t \\
 160 &< 80t \\
 2h &< t
 \end{aligned}$$

35.

$$\begin{aligned}
 \frac{73+25+89+91+x}{5} &> 85 \\
 \frac{328+x}{5} &> 85 \\
 328+x &> 425
 \end{aligned}$$

$x > 97$

$$\begin{array}{r}
 425 \\
 -328 \\
 \hline
 97
 \end{array}$$

36.

37. Y-intercept

