Study Guide ~ Unit 0

Name: _____ Core: _____

1. Complete the correct operation.
   A. -4 + (-3) → -4+3 = -1
   B. 6 + (-11) → 6-11 = -5
   C. 112/-8 → -14
   D. -7 x -10 → 70
   E. 11(-4) → -44

2. Does 2(10y + 7) equal 20y +7?
   Circle One: YES or (NO) → 2(10y+7) → 20y+14

3. The table shows the maximum diving depth five students achieved. List the names in order from the deepest depth to the shallowest depth.

Student	Depth
Kamyous	-2 feet ← highest
Rodney	-46 feet ← lowest
Tarvaris	-25 feet
Charles	-31 feet
Zarius	-13 feet

*Think about a number line.

A. Kamyous, Zarius, Charles, Tarvaris, Rodney
B. Rodney, Tarvaris, Charles, Zarius, Kamyous
C. Kamyous, Zarius, Tarvaris, Charles, Rodney
(D.) Rodney, Charles, Tarvaris, Zarius, Kamyous

4. Simplify the expression. $|-3|+|-9| = 12$
   3 + 9

5. Simplify: $[(14 - 20 \div 4) + 1]^2$
   A. 100 B. 10 C. -18 D. 18
   → Look for my work on paper below

6. One winter day, the temperature ranged from a high of 40°F to a low of -5°F. By how many degrees did the temperature change? *highest minus lowest.
   40 - (-5) = 40 + 5 = 45
   (A.) 45°F B. 35°F C. 25°F D. 55°F

7. Which one of the following is an example of an irrational number?
   (A.) $\sqrt{13}$ B. $\sqrt{16}=4$ C. $\sqrt{25}=5$ D. $\sqrt{100}=10$
   → not a perfect square

8. Simplify.
   A) $\sqrt{16} = \pm 4$ B) $\sqrt[3]{27} = 3$ ($3 \cdot 3 \cdot 3 = 27$) C) $4^3 = 4 \cdot 4 \cdot 4 = 64$

9. Combine. $-4x + 2y - 3x + 2y + 5$ → $-4x - 3x + 2y + 2y + 5$
   $-7x + 4y + 5$

10. Combine. $2v - 3v + 5m$
    $-1v + 5m$
    $-v + 5m$

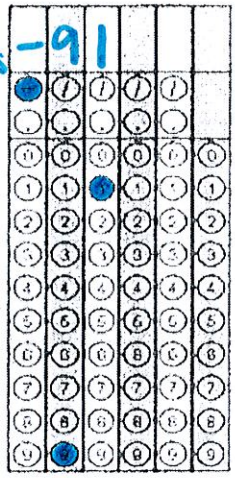
11. Write a verbal expression for $4x - 9$.
    9 less than 4 times a number x

12. Write an algebraic expression for two times a number, m, plus thirteen.
    2m + 13

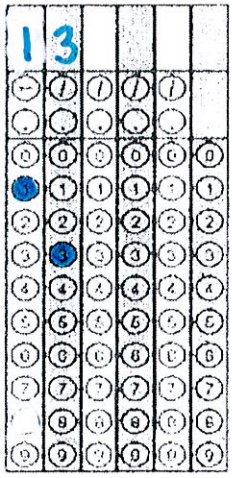
13. Which one of the following is NOT a characteristic of a rational number?
    A. It can be expressed as a fraction.
    (B.) It cannot be expressed as a fraction.
    C. It can be a repeating decimal.
    D. It can be a terminating decimal.

14. Which of the following is a characteristic of an irrational number?
    A. It has a repeating decimal.
    B. It consists of all square roots.
    (C.) It cannot be expressed as a fraction.
    D. It is a terminating decimal.

15. Simplify. $13(-4 - 3)$
    *Order of operations
    $13(-4-3)$
    $13(-7)$
    -91



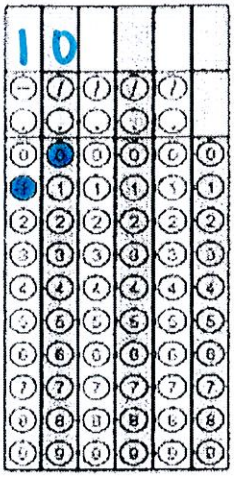
16. $3 + 5(10/2) - 15$
    $3 + 5(5) - 15$
    $3 + 25 - 15$
    $28 - 15$
    13



17. Simplify. $|-4|+|6|$

$4+6$

$=10$



18. Solve.

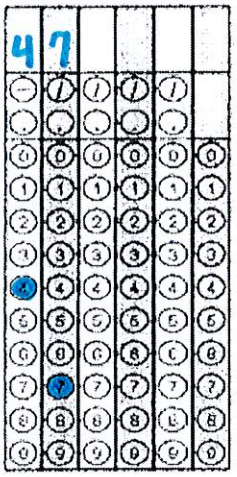
$45+16 \times 2 \div 4 - 6$

$45+32 \div 4 - 6$

$45+8-6$

$53-6$

47

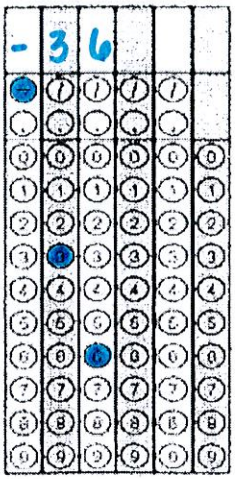


19. $-6(x+8)$ if $x = -2$

$-6((-2)+8)$

$-6(6)$

$=-36$



20. Distribute. $4(7 - 6b)$

A. $28 - 6b$ (B.) $28 - 24b$

C. $4b$ D. $28 + 24b$

$4(7-6b)$

$28-24b$

21. Distribute. $-3(1 - 5x)$

$-3+15x$ or $15x-3$

Match the vocabulary word to the correct definition.

22. B Coefficient
23. E Exponent/Power
24. F Like Terms
25. A Absolute Value
26. D Rational Numbers
27. G Integers
28. C Terminating

A. Distance from 0
B. a number multiplied by a variable.
C. To Stop
D. Any number that can be written as a fraction
E. shows how many times the base number will be multiplied by itself.
F. same variables, raised to same power
G. whole numbers and their opposites

True/False

If false, explain why on the line provided

29. T (F) All negative numbers are irrational.

Integers are rational; Ex. -7

30. (T) F Whole numbers, integers and 0 are rational.

31. (T) F Decimals that repeat or terminate are rational.

~~32. T F The additive inverse of a number is always positive.~~ Omit

33. T (F) The absolute value of a number is always positive.

0 is neither positive or negative.
Absolute value is always non-negative.

34. Place the following numbers in the correct category.

$4.\overline{5}$ -9 $7.293623\ldots$ $\frac{18}{0}$ $\sqrt{81}$

π $\frac{5}{8}$ 39 $\sqrt{-17}$ 6.9

Rational	Irrational	Non-Real
$4.\overline{5}$	$7.293623\ldots$	$\frac{18}{0}$
-9	π	$\sqrt{-17}$
$\sqrt{81}$		
$\frac{5}{8}$		
39		
6.9		

Write as a Fraction.

35) $.\overline{242} = \frac{242}{999}$

36) $.\overline{12} = \frac{12 \div 3}{99 \div 3} = \boxed{\frac{4}{33}}$

37) $.01\overline{8} = .01\overline{8} = 1.\overline{8}$ ← Multiply by 100

$1\frac{8}{9}$ ← Write as Mixed Number

$1\frac{8}{9} \div 100$ ← Divide by 100

$\frac{17}{9} \div \frac{100}{1} = \frac{17}{9} \cdot \frac{1}{100} = \boxed{\frac{17}{900}}$

Approximate.

38) $\sqrt{67}$ is between what two integers on the number line?

$\sqrt{64} = 8$, $\sqrt{67}$, $\sqrt{81} = 9$

8 and 9

39) $\sqrt{123}$ is between what two integers?

$\sqrt{121} = 11$, $\sqrt{123}$, $\sqrt{144} = 12$

11 and 12

Solve.

40) $.\overline{8} \times 4\frac{1}{3}$

$\frac{8}{9} \cdot 4\frac{1}{3}$

$\frac{8}{9} \cdot \frac{13}{3} = \boxed{\frac{104}{27}}$

$13 \times 8 = 104$

41) $3\frac{1}{3} \div .\overline{06}$

$3\frac{1}{3} \div \frac{06}{99}$

$3\frac{1}{3} \div \frac{6}{99} = \frac{10}{3} \div \frac{6}{99} = \frac{10}{3} \cdot \frac{99}{6} = \frac{990 \div 9}{18 \div 9} = \frac{110}{2} = \boxed{55}$

Study Guide~ Unit 0: Formal

STUDY ALL NOTES, EXAMPLES AND DEFINITIONS on Interactive Notebook Pages for: Real Number System, Absolute Value, Adding and Subtracting Integers, Multiplying and Dividing Integers, Introduction to Exponents and Roots, Order of Operations, Evaluating Expressions, Verbal Expressions, Combining Like Terms, Distributive Property, Fractions, Decimals, Percents, Repeating Decimals to Fractions, and Estimating Roots.

#5 $[(14-20\div4)+1]^2$

$[(14-5)+1]^2$

$[9+1]^2$

$[10]^2$

$\boxed{100}$