

Chapter 1 Test Review

Form G

Do you know HOW?

Write an algebraic expression for each phrase.

- 12 more than 5 times c
- 1 less than the quotient of a number n and 6
- 12 times the quantity 15 minus a number d

$$\begin{aligned} 5c + 12 \\ \frac{n}{6} - 1 \\ 12(15 - d) \end{aligned}$$

Simplify each expression.

$$4. 22 + (3^2 - 4^2)$$

$$22 + (9 - 16)$$

$$22 - 7$$

$$\boxed{15}$$

$$5. \pm\sqrt{169}$$

$$\boxed{\pm 13}$$

$$6. (3^3 - 19)^2$$

$$(27 - 19)^2$$

$$8^2$$

$$\boxed{64}$$

$$7. \frac{3}{4} + \frac{2}{5}$$

$$\frac{15}{20} + \frac{8}{20} = \frac{23}{20}$$

$$\boxed{\frac{23}{20}}$$

$$8. -10 - (-2) \cdot (-4)^3$$

$$-10 + 2 \cdot (-64)$$

$$-10 + (-128)$$

$$\boxed{-138}$$

$$9. \left(-\frac{3}{4}\right)^3$$

$$\left(\frac{3}{4}\right) \cdot \left(-\frac{3}{4}\right) \cdot \left(-\frac{3}{4}\right)$$

$$\boxed{-\frac{27}{64}}$$

$$10. 5^2 \div 2$$

$$25 \div 2$$

$$\boxed{\frac{25}{2} \text{ (or } 12.5)}$$

$$11. \frac{3}{8} \cdot \frac{5}{7} \cdot \frac{6^3}{15}$$

$$\frac{9}{84} = \frac{3}{28}$$

$$\boxed{\frac{3}{28}}$$

Evaluate each expression for the given values of the variables.

$$12. 5x + 2y^2 - y^3; x = 2 \text{ and } y = 4$$

$$5(2) + 2(4)^2 - (4)^3$$

$$10 + 2(16) - 64$$

$$10 + 32 - 64$$

$$\boxed{-22}$$

$$13. u + 3v^2 - 2u^3; u = -1 \text{ and } v = -3$$

$$-1 + 3(-3)^2 - 2(-1)^3$$

$$-1 + 3(9) - 2(-1)$$

$$-1 + 27 + 2$$

$$\boxed{28}$$

16. Name the subset(s) of the real numbers to which each number belongs.

$$\sqrt{1.1} = \sqrt{\frac{11}{10}}$$

$$\boxed{\text{IRRATIONAL}}$$

$$-1 \quad \boxed{\text{RATIONAL \& INTEGERS}}$$

$$\frac{1}{2} \quad \boxed{\text{RATIONAL}}$$

17. Estimate $\sqrt{118}$ to the tenths place. $\boxed{10.9}$



* 18. Which property is illustrated by $-8 + 0 = -8$?

$$\boxed{\text{IDENTITY PROPERTY OF ADDITION}}$$

19. Are the following expressions equivalent? Explain.

$$\frac{28mn}{7n} \text{ and } 4m \quad \boxed{\text{YES:}} \quad \frac{28}{7} \cdot m \cdot \frac{n}{n} = 4 \cdot m \cdot 1 = 4m$$

Chapter 1 Chapter Test ^{REVIEW} (continued)

Form G

20. Is the ordered pair $(-8, -7)$ a solution to the equation $3x + 10 = 2y$?

Show your work.

YES

$$3(-8) + 10 = 2(-7)$$

$$-24 + 10 = -14$$

$$-14 = -14$$

21. Is the ordered pair $(5, 0)$ a solution to the equation $4x + 20 = 12y$?

Show your work.

NO

$$4(5) + 20 = 12(0)$$

$$20 + 20 = 0$$

$$40 = 0$$

22. If a negative number has an exponent, can it ever be negative when it is simplified?

Explain.

YES $(-5)^3 = (-5)(-5)(-5) = -125$ W/ ODD EXPONENT

* 23. Is division commutative? Provide an example to justify your answer.

NO:

$$8 \div 4 \neq 4 \div 8$$

$$2 \neq \frac{1}{2}$$

Simplify each expression.

24. $3(2x + 4) - 9$

$$6x + 12 - 9$$

$$6x + 3$$

25. $15x - 4(-3 - 2x)$

$$15x + 12 + 8x$$

$$23x + 12$$

26. $-\frac{1}{4}(-4 - 2p)$

$$1 + \frac{1}{2}p$$

Do you UNDERSTAND?

* 27. **Open-Ended** Write an equation that can be solved correctly in two different ways. Demonstrate both methods.

(WE DIDN'T COVER SOLVING EQUATIONS IN THIS CHAPTER)

* 28. **Reasoning** Find the value of $22 \div 2 + 9 - 4^2 + 18$. Then change one operation sign and add one set of grouping symbols so that the value of the expression is 36.

$$22 \div 2 + 9 - 4^2 + 18$$

$$11 + 9 - 16 + 18$$

$$20 - 16 + 18$$

$$4 + 18 = 22$$

$$22 \div (2 + 9) + 16 + 18$$

$$22 \div 11 + 16 + 18$$

$$2 + 16 + 18$$

$$16 + 18 = 36$$

29. **Writing** Describe the difference between the set of whole numbers and the set of natural numbers.

WHOLE NUMBERS CONTAIN ZERO

SAME SIGN
ADD AND
KEEP SIGN
DIFFERENT SIGNS
SUBTRACT AND KEEP
SIGN OF "BIGGER" ONE

30. **Writing** Describe the process for finding the sum of two numbers with the same sign and the sum of two numbers with different signs.

SAME SIGN - ADD ABSOLUTE VALUES, ATTACH COMMON SIGN
DIFFERENT SIGNS - SUBTRACT SMALLER ABS. VALUE FROM LARGER ABSOLUTE VALUE, ATTACH SIGN OF LARGER ABSOLUTE VALUE

31. What is the difference between an expression and an equation?

"EQUALS" SIGN, INDICATING EQUIVALENCE BETWEEN TWO EXPRESSIONS

32. Create 2 examples of equations that use both division and subtraction and have a solution of -1.

$$\frac{x}{2} - 3 = -\frac{7}{2}$$

$$\frac{-4x - 7}{3} = -1$$

CHAPTER 1 TEST REVIEW

33. Chef Boyardee has made $26 \frac{2}{3}$ cups of ravioli for 40 of his friends. He wants to give each friend $\frac{3}{5}$ of a cup. Does he have enough ravioli for everybody? If yes, then how much extra does he have? If no, then how much more does he need?

HAS
 $26 \frac{2}{3}$
 $\frac{80}{3}$

NEEDS
 $40 \cdot \frac{3}{5} = 24$ (or $\frac{12}{1}$)

$\frac{80}{3} - \frac{72}{3} = \frac{8}{3}$ EXTRA
OR $2 \frac{2}{3}$

YES, HE HAS ENOUGH.
HE HAS $2 \frac{2}{3}$ EXTRA CUPS

34. What is the reciprocal of $5 \frac{1}{3}$?

$5 \frac{1}{3} = \frac{16}{3}$ RECIPROCAL = $\frac{3}{16}$

35. Describe the difference between the multiplicative inverse and the reciprocal.

NO DIFFERENCE

36. What is the constant term in the expression $5x^2 + 4x + 8$?

8

37. Write the word phrase for the equation $3x + 8 = 16 \div x$

Eight more than three times a number x is equal to the quotient of 16 and a number x.

38. Write the perfect squares for the numbers 1-15.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	4	9	16	25	36	49	64	81	100	121	144	169	196	225

39. Prove that .23 is a Rational number.

$.23 = \frac{23}{100}$ A RATIO WRITTEN WITH INTEGERS IN THE NUMERATOR AND DENOMINATOR

40. 2 DVD's cost Joe \$18. 3 DVD's costs \$27 dollars. 4 DVD's cost \$36. 5 DVD's cost \$45.

- Create a chart of the data labeling the number of DVD's as x and the cost as y.
- Use the chart to create an equation that represents the data.
- Use the equation to predict how much 17 DVD's would cost.

#	COST
x	y
2	18
3	27
4	36
5	45

$2x = 18$ $3x = 27$ $4x = 36$ $5x = 45$
... always 9 times the # of DVD's bought...

$y = 9x$

$y = 9(17)$
 $y = 153$

$9(20-3)$
 $180 - 27$

