

Unit 1 Day 10 HW Study Guide

Name: KEY

(#1-4) Number Sets & Closure.

1. State a number which is an integer but not a whole number. any negative integer

-2

2. State a number that is a whole number but not an integer.

does not exist!
every whole # is an integer

3. TRUE or FALSE: Negative integers are closed under multiplication? If FALSE, provide a counter example.

$$\begin{array}{l} -2 \times -4 = 8 \\ \uparrow \\ \text{positive} \\ \text{integer} \end{array}$$

4. TRUE or FALSE: Rational numbers are closed under subtraction. If FALSE, provide a counter example.

(#5-9) Order of Operations Review. Simplify the expressions.

$$\begin{array}{l} 5. \quad 7 \cdot 6 + 5 \div 5 \\ 42 + 5 \div 5 \\ 42 + 1 \\ \textcircled{43} \end{array}$$

$$\begin{array}{l} 6. \quad 5 - (7 - (2 - 4)^2) \\ 5 - (7 - (-2)^2) \\ 5 - (7 - 4) \\ 5 - 3 \\ \textcircled{2} \end{array}$$

$$7. \quad \frac{16 - 4 \div 4}{20 \div 4} = \frac{16 - 1}{5} = \frac{15}{5} = \textcircled{3}$$

$$\begin{array}{l} 8. \quad 3 - [8 + (3 - 5)^2] \\ 3 - [8 + (-2)^2] \\ 3 - [8 + 4] \\ 3 - 12 \\ \textcircled{-9} \end{array}$$

$$\begin{array}{l} 9. \quad 15 \div 5 + (5 + 3) \div 4 \\ 15 \div 5 + 8 \div 4 \\ 3 + 8 \div 4 \\ 3 + 2 \\ \textcircled{5} \end{array}$$

(#10-17) Solving Linear Equations. Solve the equation for the given variable. Check your answer!

$$\begin{array}{l} 10. \quad 5x - 2(4x + 3) = 9 \\ 5x - 8x - 6 = 9 \\ -3x - 6 = 9 \\ -3x = 15 \\ \boxed{x = -5} \end{array}$$

$$\begin{array}{l} 11. \quad 4y - (y - 4) = -20 \\ 4y - y + 4 = -20 \\ 3y + 4 = -20 \\ 3y = -24 \\ \boxed{y = -8} \end{array}$$

$$\begin{array}{l} 12. \quad 3x - 2(3x + 3) = 9 - 3x - 15 \\ 3x - 6x - 6 = 9 - 3x - 15 \\ -3x - 6 = -3x - 6 \\ -6 = -6 \\ \text{TRUE!} \\ \boxed{\text{all real \#s}} \end{array}$$

$$\begin{array}{l} 13. \quad 2x - 2 = 4x + 6 \\ -2x - 2 = 6 \\ -2x = 8 \\ \boxed{x = -4} \end{array}$$

$$\begin{array}{l} 14. \quad 9x - 8 + 4x = 7x + 16 \\ 13x - 8 = 7x + 16 \\ 6x = 24 \\ \boxed{x = 4} \end{array}$$

$$\begin{array}{l} 15. \quad -2(x - 1) + 5x = 2(2x - 1) \\ -2x + 2 + 5x = 4x - 2 \\ 3x + 2 = 4x - 2 \\ -x = -4 \\ \boxed{x = 4} \end{array}$$

$$16. -3(2x-4) = \frac{1}{2}(-12x+6)$$

$$-6x+12 = -6x+3$$

$$12=3$$

False!

No solution

$$17. \frac{8}{2} \cdot \frac{2}{3} (3x-6) = 2x \cdot \frac{3}{2}$$

$$3x-6 = 3x$$

$$-6=0$$

No solution

$$2 \cdot 5t - 3$$

(#18-26) Proportions/Percentages.

$$18. \frac{x-5}{-3} = \frac{2x}{-8}$$

$$-6x = -8(x-5)$$

$$-6x = -8x + 40$$

$$2x = 40$$

$$x = 20$$

$$19. \frac{10}{7} = \frac{-5x}{7}$$

$$-5x = 10$$

$$x = -2$$

$$20. \frac{5t-3}{-2} = \frac{t+3}{2}$$

$$2(5t-3) = -2(t+3)$$

$$10t-6 = -2t-6$$

$$12t-6 = -6$$

$$\frac{12t}{12} = \frac{0}{12}$$

$$t = 0$$

21. 3 is to 10 as 33 is to x.

$$\frac{3}{10} = \frac{33}{x}$$

$$x = 110$$

22. What is 15% of 30?

$$\frac{x}{30} = \frac{15}{100}$$

$$4.5$$

$$.15 \cdot 30 = x$$

23. 80 is 30% of what number?

$$\frac{80}{x} = \frac{30}{100}$$

$$266.67$$

$$.30x = 80$$

24. What is 13% of 16?

$$2.08$$

25. 64 is what percent of 56?

$$114\%$$

26. 17 out of 23 is what percent?

$$74\%$$

(#27 - 32) Solving Literal Equations. Solve for y in terms of x.

$$27. 3x - 6y = 18$$

$$-6y = -3x + 18$$

$$y = \frac{1}{2}x - 3$$

$$28. -2x + y = -3$$

$$y = 2x - 3$$

$$29. 4x - \frac{1}{2}y + 2 = 6 - 2$$

$$8x - y + 4 = 12$$

$$-y = -8x + 8$$

$$y = 8x - 8$$

$$30. \text{Solve for } a: \frac{r}{a} = d \cdot a$$

$$r = a \cdot a$$

$$\frac{r}{a} = a$$

$$\frac{r}{a} = a$$

$$31. \text{Solve for } y: \frac{\text{lumma}}{\text{lumma}} y = \text{th} \cdot \text{lumma}$$

$$y = \text{lummath}$$

$$\text{ü}$$

$$32. \text{Solve for } L: P = 2L + 2W$$

$$2L = P - 2W$$

$$L = \frac{1}{2}P - W$$

Don't forget about Applications (word problems) ... they'll be on the test, too! ☺