Algebra 1 Name:_____

Unit 1 Test Review Date:_____ Period:____

Remember to study your notes and homework. Show all work to receive credit!!

1. If $(3, y)$ is a solution to the inequality $5x - 3y \leq 18$, which of the following is a possible value of y? (NOT)

   A. 1
   B. -1
   C. -5
   D. 5

   plug in $x=3$

   $5(3) - 3y \leq 18$

   $15 - 3y \leq 18$

   $-15 \quad -15$

   $\frac{-3y}{-3} \leq \frac{3}{-3}$ ← divided by neg, FLIP

   $y \geq -1$

2. If $3(x+5) - 10 = -2(x+10)$, what is the value of x?

   $3x + 15 - 10 = -2x - 20$

   $3x + 5 = -2x - 20$

   $+2x \quad +2x$

   $5x + 5 = -20$

   $-5 \quad -5$

   $\frac{5x}{5} = \frac{-25}{5}$

   $x = -5$

3. Simplify the algebraic expression $3(x-1) - 4(2x+2) + 0.5(-6x+4)$.

   $3x - 3 - 8x - 8 + (-3x) + 2$

   $-8x - 9$

4. The sum of two consecutive even integers is 26. Find the two integers.

   1st = x

   2nd = x+2

   1st + 2nd = 26

   $x + x + 2 = 26$

   $2x + 2 = 26$

   $-2 \quad -2$

   $\frac{2x}{2} = \frac{24}{2}$

   $x = 12$

   12 & 14

5. Solve the following inequality for x.

   $-3(x-5) > 45$

   $-3x + 15 > 45$

   $-15 \quad -15$

   $-3x > 30$

   $\frac{-3x}{-3} > \frac{30}{-3}$ FLIP

   $x < -10$

6. Kenny's scores on his last 5 math tests are 85, 92, 81, 92, and 80. What is the score he must get on the next test if he wants his average to be exactly 86?

   $\frac{85 + 92 + 81 + 92 + 80 + \text{next test}}{6} = 86$

   $\frac{430 + x}{6} = 86 \cdot 6$

   $430 + x = 516$

   $-430 \quad -430$

   86

7. Seven times the quantity of a number and 5 is greater than two times the quantity five less than a number. Solve for the number.

   $7(x+5) > 2(x-5)$

   $7x + 35 > 2x - 10$

   $-2x \quad -2x$

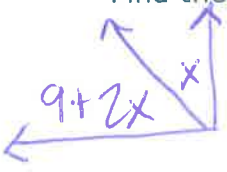
   $5x + 35 > -10$

   $-35 \quad -35$

   $\frac{5x}{5} > \frac{-45}{5}$

   $x > -9$

8. Two angles are complementary. The larger angle is nine more than twice the smaller angle. Find the measure of the larger angle.

   $x + 9 + 2x = 90$

   $3x + 9 = 90$

   $-9 \quad -9$

   $\frac{3x}{3} = \frac{81}{3}$

   $x = 27$

   larger angle: $9 + 2(27) = 63°$

9. Which of the inequalities below represents the second step of the solution process?

B

Step 1: $5(x-2) \le -3(2x-6)$
Step 2: $5x-10 \le -6x+18$
Step 3: $11x \le 28$
Step 4: $x \le \frac{28}{11}$

A. $5x+10 \le -6x+18$
B. $5x-10 \le -6x+18$
C. $5x-10 \le -6x-18$
D. $5x-10 \le 6x+18$

10. Solve the following equation for y:

$2x-5y=15$
$-2x \quad -2x$
$\frac{-5y}{-5} = \frac{15-2x}{-5}$
$y = \frac{15-2x}{-5}$

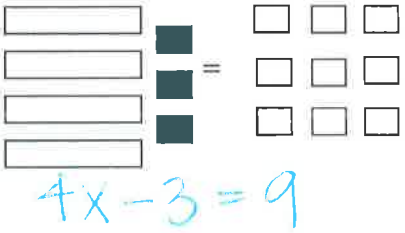
OR $y = \frac{2}{5}x - 3$

11. Solve the following equation for x.

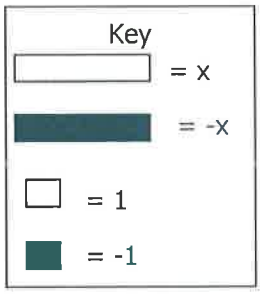
$\frac{8-4x}{2} = (-2x+3)2$
$8-4x = 2(-2x+3)$
$8-4x = -4x+6$
$+4x \quad +4x$
$8 \neq 6$

NO SOLUTION

12. An equation is modeled below using algebraic tiles

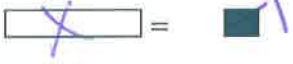
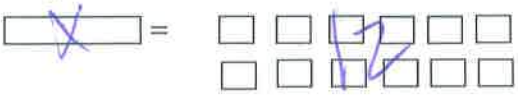
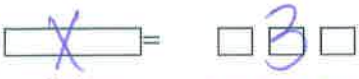


$4x-3=9$



Which of the following models the solution to the above equation?

$4x-3=9$
$+3 \quad +3$
$\frac{4x}{4} = \frac{12}{4}$
$x=3$

A. 
B. 
C. 
D. 
E. 

13. Write the following verbal expression as an algebraic expression.
"Thirty less than the product of a number and six"

$6x-30$

14. If $2a+3>12+6a$, which of the following is a value of a?

I. -4 ✓
II. -1.5
III. $\frac{9}{2}$
IV. -8 ✓

A. I and II only
B. II and III only
C. I and IV only
D. None of these

$2a+3>12+6a$
$-2a \quad -2a$
$3>12+4a$
$-12 \quad -12$
$-9>4a$
$\frac{-9}{4}>\frac{4a}{4}$
$-\frac{9}{4}>a$

$a<-2.25$

15. If $-5.9m+19.8>4.8+1.6m$, find the value of m.

$+5.9m \quad +5.9m$
$19.8>4.8+7.5m$
$-4.8 \quad -4.8$
$\frac{15}{7.5}>\frac{7.5m}{7.5}$

$2>m$

16. A basketball was dropped from the top of the bleachers. The distance, d, that the basketball traveled for time, t, is given by the equation, $d=\frac{1}{2}gt^2$. Solve the formula for g.

$\frac{d}{t^2}=\frac{\frac{1}{2}gt^2}{t^2}$
$2\cdot\frac{d}{t^2}=\frac{1}{2}g\cdot 2$

$\frac{2d}{t^2}=g$

17. The sum of two consecutive odd integers is 36. Find the integers

1st + 2nd = 36
1st = x
2nd = x+2

$x+x+2=36$
$2x+2=36$
$-2 \quad -2$
$\frac{2x}{2}=\frac{34}{2}$
$x=17$

17, 19

18. If $\frac{6x-9}{3}=2x-3$, what is the value of x?

A. $x=0$
B. Infinite solutions
C. No solution
D. $x=\frac{3}{2}$

$3\cdot\frac{6x-9}{3}=(2x-3)3$
$6x-9=3(2x-3)$
$6x-9=6x-9$
$-6x \quad -6x$
$-9=-9$ ✓

19. The United States uses the Fahrenheit system for temperature whereas the United Kingdom uses the Celsius system. The formula $F=\frac{9C}{5}+32$ can be used to convert from temperatures in Celsius, *C* to Fahrenheit, *F*. Solve the equation above for *C*, degrees Celsius.

$F=\frac{9C}{5}+32$
$-32 \quad -32$
$5(F-32)=\frac{9C}{5}\cdot 5$
$\frac{5(F-32)}{9}=\frac{9C}{9}$

$\frac{5(F-32)}{9}=C$

20. Solve the inequality for n.

$6n-(2n+6)\geq 2(3n+2)$

$6n-2n-6\geq 6n+4$

$4n-6\geq 6n+4$

$-4n \quad -4n$

$-6\geq 2n+4$

$-4 \quad -4$

$\frac{-10}{2}\geq\frac{2n}{2}$

$-5\geq n$

21. Translate the following verbal sentence into an algebraic equation.

Twice the sum of a number and four is equal to the quotient of the same number and three.

A. $2(n+4)=\frac{n}{3}$

B. $2(n+4)=3n$

C. $2n+4=\frac{n}{3}$

D. $2(n+4)=3n$

22. Three times the sum of a number and 4 is the same as 18 more than the same number. What is the number?

$3(x+4)=18+x$

$3x+12=18+x$

$-x \quad -x$

$2x+12=18$

$-12 \quad -12$

$\frac{2x}{2}=\frac{6}{2}$

$x=3$

23. A student tried to solve the following equation but made a mistake.

Step 1:	$9-5(2x+1)=-28$
Step 2:	$4(2x+1)=-28$
Step 3:	$8x+4=-28$
Step 4:	$8x=-32$
Step 5:	$x=-4$

distribute first!

In which step did the mistake first appear?

A. Step 2
B. Step 3
C. Step 4
D. Step 5

24. What is the solution to the following equation?

$3(x+11)-6=-4(x+2)$

$3x+33-6=-4x-8$

$3x+27=-4x-8$

$+4x \quad +4x$

$7x+27=-8$

$-27 \quad -27$

$\frac{7x}{7}=\frac{-35}{7}$

$x=-5$

25. On the first day of the month, Jessica had \$900 in her savings account and started spending \$10 a week. Her friend Karina had \$500 and started saving \$15 a week. After how many weeks will the friends have the same amount?

equal!

Round your answer to the nearest tenth.

Jessica: $900-10x$

Karina: $500+15x$

$900-10x=500+15x$

$+10x \quad +10x$

$900=500+25x$

$-500 \quad -500$

$\frac{400}{25}=\frac{25x}{25}$

16 weeks