Geom 1-2 (E)
Algebra Review - 2018

Name: KEY

Period: ____

Change the following sentences into mathematical statements (expressions, equations, or inequalities).

1.) Five less than the square root of a number ***y***. $\sqrt{y} - 5$

2.) Twenty more than five times a number ***x*** is equal to one hundred. $5x + 20 = 100$

3.) The ~~difference~~ QUOTIENT between ***a*** and ***b*** is at least seventeen. $a \div b \geq 17$ | $\frac{a}{b} \geq 17$

4.) The cube of a number ***w*** is more than the sum of a number ***f*** and 2. $w^3 > f + 2$

Simplify the following expressions.

5.) $17 - 4 + 3^2$

$17 - 4 + 9$

$\boxed{22}$

6.) $\sqrt{10^2 - 8^2}$

$\sqrt{100 - 64}$

$\sqrt{36}$

$\boxed{6}$

7.) $\frac{4 - 5 \cdot 4}{-2^2}$

$4 - 20$

-4

$\frac{-16}{-4}$

$\boxed{4}$

8.) $7 - 2\left(4^2 \div 8 \cdot 2\right)$

$7 - 2(16 \div 8 \cdot 2)$

$7 - 2(2 \cdot 2)$

$7 - 8$

$\boxed{-1}$

Solve the following inequalities and graph the solutions on a number line.

9.) $-17 + 4x \geq -13$

$+17 \quad +17$

$4x \geq 4$

$x \geq 1$

10.) $6x - 12 > 10x + 20$

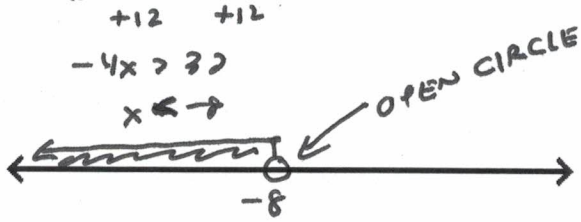
$-10x \quad -10x$

$-4x - 12 > 20$

$+12 \quad +12$

$-4x > 32$

$x < -8$



Solve the following systems of linear equations. Use any method.

11.) $\begin{cases} x = 4y + 3 \\ 2x + 3y = 10 \end{cases}$

SUBSTITUTION

$2(4y + 3) + 3y = 10$

$8y + 6 + 3y = 10$

$11y = 4$

$\boxed{y = \frac{4}{11}}$

$x = 4\left(\frac{4}{11}\right) + 3$

$x = \frac{16}{11} + 3$

$\boxed{x = 4\frac{5}{11}}$

12.) $\begin{cases} 2x + 3y = 180 \\ -(2x + y = 90) \end{cases} \times -1$

ELIMINATION

$2y = 90$

$\boxed{y = 45}$

$2x + 45 = 90$

$2x = 45$

$\boxed{x = 22.5}$

In problems 11-18, solve the equations. If your answer is not an integer, express it as reduced fraction.

13.) $p-1=5p+3p-8$

$p-1=8p-8$

$-7p=-7$

$p=1$

14.) $5x-3(2x+7)=12$

$5x-6x-21=12$

$-x=33$

$x=-33$

15.) $\frac{2}{3}(6w-9)=-(2w-5)$

$4w-6=-2w+5$

$6w=11$

$w=\frac{11}{6}$

16.) $180-y=5(90-y)$

$180-y=450-5y$

$4y=270$

$y=67.5$

17.) $g+(2g+1)+(3g-7)=180$

$6g-6=180$

$6g=186$

$g=31$

18.) $\frac{n-6}{n-7}=\frac{9}{2}$

$2(n-6)=9(n-7)$

$2n-12=9n-63$

$-7n=-51$

$n=\frac{51}{7}$

Factor the following quadratic expressions.

19.) x^2-5x-6

$(x-6)(x+1)$

DO NOT SOLVE!

20.) $2x^2+3x-20$

$(2x-5)(x+4)$

DO NOT SOLVE!

Factor and solve.

21.) $2x^2-3x-5=0$

$(2x-5)(x+1)=0$

$2x-5=0$ $x+1=0$

$x=\frac{5}{2}$ $x=-1$

22.) $n^2+7n+15=5$

$n^2+7n+10=0$

$(n+5)(n+2)=0$

$n+5=0$ $n+2=0$

$n=-5$ $n=-2$

*23.) $8x^2+21=-59x$

$8x^2+59x+21=0$

$(8x+3)(x+7)=0$

$8x+3=0$ $x+7=0$

$x=-\frac{3}{8}$ $x=-7$