

Unit 2 Test Review

Solve each equation.

1) $-18 = -9(-10 + x)$

$-18 = 90 - 9x$
 $-90 -90$

$12 = x$

$-108 = -9x$
 $-9 -9$

3) $-112 = 8 - 6(2r + 8)$

$-112 = 8 - 12r - 48$

$-72 = -12r$
 $-12 -12$

$-112 = -12r - 40$
 $+40 +40$

$6 = r$

5) $6a + 23 = 6(a + 2)$

$6a + 23 = 6a + 12$
 $-6a -6a$

no solution

$23 = 12$

2) $-1 = \frac{x+10}{10}$

$-10 = x+10$
 $-10 -10$

$-20 = x$

4) $-2x - 30 = -6(4x - 6)$

$-2x - 30 = -24x + 36$
 $+24x +30 +24x +30$

$x = 3$

$\frac{22x}{22} = \frac{66}{22}$

6) $4(4 - 8n) - 2 = 6(5 - 4n)$

$16 - 32n - 2 = 30 - 24n$

$-16 = 8n$
 $8 8$

$14 - 32n = 30 - 24n$
 $+32n +32n$

$-2 = n$

$14 = 30 + 8n$
 $-30 -30$

Solve each inequality and graph its solution.

7) $-266 > 14n$



$-19 > n$

$n < -19$

8) $3 + 4x > 51$



$-3 -3$
 $4x > 48$
 $\frac{4x}{4} \frac{48}{4}$
 $x > 12$

9) $\frac{r}{3} - 1 \leq -6$



$+1 +1$

$3 \times \frac{r}{3} \leq -5 \times 3$

$r \leq -15$

10) $-2(-7n - 7) > -84$



$14n + 14 > -84$
 $-14 -14$
 $14n > -98$
 $\frac{14n}{14} \frac{-98}{14}$
 $n > -7$

11) $-364 > -7(4 - 8a)$



$-364 > -28 + 56a$
 $+28 +28$

$-6 > a$
 $a < -6$

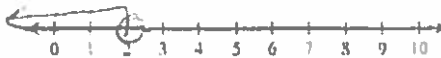
$-336 > 56a$
 $\frac{-336}{56} \frac{56a}{56}$

12) $8 + 4n < 6(8n - 6)$



$8 + 4n < 48n - 36$
 $-4n -4n$
 $8 < 44n - 36$
 $+36 +36$
 $\frac{44 < 44n}{44 44}$
 $1 < n$
 $n > 1$

13) $-38 - 8x < 6(4 - 6x) - 6$



$-38 - 8x < 24 - 36x - 6$
 $-38 - 8x < 18 - 36x$
 $+36x +36x$

$x < 2$

$-38 + 28x < 18$
 $+38 +38$

$28x < 56$

14) $7x - 4(x - 8) > 4(x + 5)$



$7x - 4x + 32 > 4x + 20$
 $3x + 32 > 4x + 20$
 $-3x -3x$
 $32 > x + 20$
 $-20 -20$

$12 > x$

6

15) $-3(x+4) \leq -5(2x-6)$



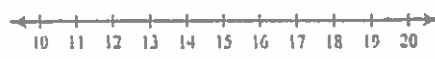
$$\begin{aligned} -3x-12 &\leq -10x+30 \\ +10x+12 &+10x+12 \\ \frac{7x}{7} &\leq \frac{42}{7} \quad x \leq 6 \end{aligned}$$

17) $-3(1+2p)-6 \geq -9-6p$



$$\begin{aligned} -3-6p-6 &\geq -9-6p \\ -9-6p &\geq -9-6p \\ +6p &+6p \\ -9 &\geq -9 \\ \text{IMS} \end{aligned}$$

16) $-3+8b > 3(b-1)+5b$



$$\begin{aligned} -3+8b &> 3b-3+5b \\ +3 &+3 \\ \frac{8b}{-8b} &> \frac{8b}{-8b} \\ 0 &> 0 \end{aligned}$$

no solution

18) solve for x.

$$ax + b > c$$

$$\frac{ax}{a} > \frac{c-b}{a}$$

$$x > \frac{c-b}{a}$$

19) solve for x.

$$ax - b = -cx + d$$

$$ax + cx - b = d$$

$$ax + cx = d + b$$

$$x(a+c) = \frac{d+b}{a+c}$$

$$x = \frac{d+b}{a+c}$$

21) solve for x.

$$5(ax+b) = -3$$

$$5ax + 5b = -3$$

$$\frac{5ax}{5a} = \frac{-3-5b}{5a}$$

$$x = \frac{-3-5b}{5a}$$

23) solve for y.

$$4x - 3y = 9$$

$$-4x - 3y = 9$$

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

$$y = \frac{4}{3}x - 3$$

what equation form is this?

Slope-intercept

form ($y = mx + b$)

20) solve for a.

$$F = ma$$

$$E = a$$

solve for x.

22) $\frac{ax - bx + cx + dx}{2} = -3 \times 2$

$$ax - bx + cx + dx = -6$$

$$\frac{x(a-b+c+d)}{a-b+c+d} = \frac{-6}{a-b+c+d}$$

$$x = \frac{-6}{a-b+c+d}$$

24) Chad sold half of his stamp collection and then bought 16 more. He now has 36. With how many did he begin?

$$\frac{x}{2} + 16 = 36$$

$$-16 -16$$

$$2 \cdot \frac{x}{2} = 20 \cdot 2$$

$$x = 40$$

40 stamps

25) Anthony is 4 less than 2 times my age.

$$2x - 4$$

x

17. Simplify $-5\sqrt{45}$
- a. $-15\sqrt{5}$
 - b. $-3\sqrt{5}$
 - c. $-25\sqrt{9}$
 - d. $-\sqrt{5}$

$-5\sqrt{9 \cdot 5}$
 $-5 \cdot 3\sqrt{5}$
 $-15\sqrt{5}$

18. Becky determined her mother's age is 3 less than three times her age. If x represents Becky's age, which expression represents her mother's age?

- a. $4x-3$
- b. $3x-3$
- c. $3-3x$
- d. $3(x-3)$

$3x-3$

19. Solve the inequality for x and graph the solution on the provided number line.

a. $-x - (3 - 2x) > 4x - 2(x - 7) - 2x$
 $-x - 3 + 2x > 4x - 2x + 14 - 2x$
 $-3 + x > 14$
 $x > 17$

20. Solve the inequality. $-5x + 4 > -1 - 5(x + 2)$

$-5x + 4 > -1 - 5x - 10$
 $-5x + 4 > -11 - 5x$
 $+5x$
 $4 > -11$

a. What did you notice when solving?
 Enclosed up with no variables and a true statement

b. What does this mean?

infinitely many solutions

Directions:

Today you will be taking the GSE Algebra I, Unit 1 assessment on Relationships Between Quantities and Expression.

You will have 60 minutes to complete the assessment.

Do your best work. Read each question carefully. For each selected-response item, indicate the best answer. For each constructed-response item, provide the most detailed and accurate response possible. Be sure to record your responses, legibly, on the answer document provided. The standard for each assessment item is referenced above the item.

You may use scratch paper to complete your work. The use of a scientific or graphing calculator may be necessary to solve some assessment items.

N.RN.2

1. Given that $(\sqrt[3]{5})^3 = 5$, what must be the value of $\sqrt[3]{5}$?

- a. 5
- b. $\frac{3}{5}$
- c. $5\frac{1}{3}$
- d. $3\sqrt{5}$

N.Q.1

2. The time it takes to fill a tank depends upon the rate at which the water is flowing. It takes 40 minutes to fill the tank at the rate of 3 gallons per minute. How many minutes will it take to fill the tank at the rate of 4 gallons per minute?

- a. $\frac{40}{12}$
- b. 30
- c. 50
- d. $53\frac{1}{3}$

A.SSE.1

3. Clarissa rents a booth to sell her necklaces at a craft fair. She uses the function $y = cx - k$ to determine the profit she will make if she sells different numbers of necklaces at the craft fair. The expression part $cx - k$ of the function has c and k representing constants. Additionally, c is the constant coefficient of x . What did Clarissa most likely use k to represent?

- a. The cost per necklace
- b. The revenue per necklace
- c. The cost of participating in the craft fair
- d. The revenue from participating in the craft fair