

Unit 1 Test Alg 1

Multiple Choice

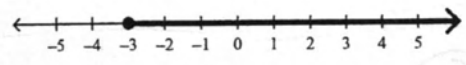
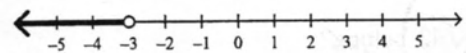
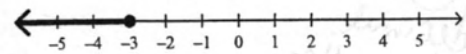
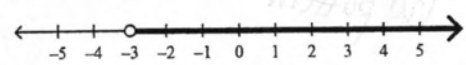
Identify the choice that best completes the statement or answers the question. Write the letter of your answer on the line provided to the left.

Write the set described.

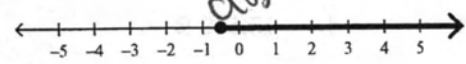
- C 1. D is the set of whole numbers less than 3.
 a. $D = \{0, 1, 2, 3, 4, 5, 6, 7\}$
 b. $D = \{0, 1\}$
 c. $D = \{0, 1, 2\}$
 d. $D = \{0, 1, 2, 3, 4, 5\}$

- B 2. What is the order of $\sqrt{5}$, -0.1 , $-\frac{5}{3}$, 0.7 , $\sqrt{2}$ from least to greatest?
 a. $0.7, \sqrt{2}, -\frac{5}{3}, \sqrt{5}, -0.1$
 b. $-\frac{5}{3}, -0.1, 0.7, \sqrt{2}, \sqrt{5}$
 c. $-0.1, 0.7, \sqrt{2}, \sqrt{5}, -\frac{5}{3}$
 d. $\sqrt{5}, \sqrt{2}, 0.7, -\frac{5}{3}, -0.1$

What is the graph of the inequality?

- A 3. $x \geq -3$
 a. 
 b. 
 c. 
 d. 

What inequality represents the graph?

- B 4. 
 a. $m \geq \frac{1}{2}$
 b. $m \geq -\frac{1}{2}$
 c. $m < -\frac{1}{2}$
 d. $m \leq -\frac{1}{2}$

greater than
Which number is a solution of the inequality?

D

5. $m > \frac{7}{12}$

- a. -5 b. -1 c. -9 d. 1

A

6. You made two deposits to your bank account this month. One deposit was \$17.92, and the second deposit was \$15.33. Your balance at the end of the month is \$72.31, and you made no withdrawals. Write and evaluate an expression for your balance at the beginning of the month.

- a. $\$72.31 - \$17.92 - \$15.33$; \$39.06
b. $\$72.31 + (\$17.92 - \$15.33)$; \$74.90
c. $\$72.31 - (\$17.92 - \$15.33)$; \$69.72
d. $\$72.31 + \$17.92 + \$15.33$; \$105.56

B

7. John and 4 friends are going out for pizza for lunch. They split one pizza and 5 large drinks. The pizza cost \$10.00. They spend a total of \$18.75. Find the cost of one large drink.

- a. \$2.19 b. \$1.75 c. \$1.80 d. \$7.19

$$\frac{-10.00}{8.75 \div 5} = 1.75$$

A

8. $12 - 9z = -11 - 9z$

- a. no solution c. $-1\frac{5}{18}$
b. $-\frac{1}{9}$ d. infinitely many solutions

12 = -11
False

C

9. To which subsets of the real numbers does the number $\sqrt{42}$ belong?

- a. whole numbers, integers, rational numbers
b. whole numbers, natural numbers, integers
c. irrational numbers
d. rational numbers

decimal:
no pattern

A

10. A mountain climber ascends a mountain to its peak. The peak is 12,740 ft above sea level. The climber then descends 200 ft to meet a fellow climber. Find the climber's elevation above sea level after meeting the other climber.

- a. 12,540 ft b. 10,740 ft c. 12,940 ft d. -12,540 ft

$$\begin{array}{r} 12740 \\ - 200 \\ \hline \end{array}$$

B

11. Suppose you had d dollars in your bank account. You spent \$12 but have at least \$51 left. How much money did you have initially? Write and solve an inequality that represents this situation.

- a. $d + 12 \geq 51; d \geq 75$
- b. $d - 12 \geq 51; d \geq 63$

- c. $d - 12 > 51; d > 63$
- d. $d + 12 \leq 51; d \leq 75$

C

12. A student scored 83 and 91 on her first two quizzes. Write and solve a compound inequality to find the possible values for a third quiz score that would give her an average between 85 and 90, inclusive.

a. $90 \leq \frac{83 + 91 + n}{3} \leq 85; 96 \leq n \leq 81$

b. $85 \leq \frac{83 + 91}{2} + n \leq 90; -2 \leq n \leq 3$

c. $85 \leq \frac{83 + 91 + n}{3} \leq 90; 81 \leq n \leq 96$

d. $83 \leq \frac{85 + 91 + n}{3} \leq 90; 73 \leq n \leq 94$

B

13. Hannah wants to buy a \$540 camera. She can save \$35 each week from her paycheck. However, before Hannah can buy the camera, she must give her brother \$90 that she owes him. For how many weeks will Hannah need to save before she can pay back her brother and buy the camera?

- a. 21 weeks
- b. 18 weeks
- c. 20 weeks
- d. 17 weeks

$$\begin{array}{r} 540 \\ + 90 \\ \hline 630 \end{array} \quad 630 \div 35$$

Short Answer: Show all work for credit. Write your final answer on the line provided.

What is the solution of the equation?

14. $\frac{3p}{5} + \frac{8}{5} = 1$

$p = -1$

mult
LCD 5

$$\begin{array}{r} 3p + 8 = 5 \\ \underline{-8} \quad \underline{-8} \\ 3p = -3 \end{array}$$

$$\begin{array}{r} 3p = -3 \\ \underline{\div 3} \quad \underline{\div 3} \\ p = -1 \end{array}$$

$p = -1$

$p = -1$

What is the solution of the equation?

15. $-4x - 9 = -5 - 6x$

$$\begin{array}{r|l} +6x & +6x \\ \hline 2x - 9 = -5 & \\ +9 & +9 \\ \hline 2x = 4 & \\ \hline \frac{2x}{2} = \frac{4}{2} & = 2 \end{array}$$

$x = 2$

What is the solution of the equation?

16. $5(10x - 10) = -5(-4x + 4)$

$$\begin{array}{r|l} 50x - 50 = 20x - 20 & \\ -20x & -20x \\ \hline 30x - 50 = -20 & \\ +50 & +50 \\ \hline 30x = 30 & \\ \hline \frac{30x}{30} = \frac{30}{30} & = 1 \end{array}$$

$x = 1$

17. What equation do you get when you solve $z - m = z + bx$ for x ?

$$\begin{array}{r|l} -z & -z \\ \hline -m = bx & \\ \hline \frac{-m}{b} = x & \end{array}$$

$x = \frac{-m}{b}$

What is the solution of the equation?

18. $\frac{(b+8)}{-3} = -15$

$$\begin{array}{r|l} -3(b+8) = -3(-15) & \\ \hline b+8 = 45 & \\ -8 & -8 \\ \hline b = 37 & \end{array}$$

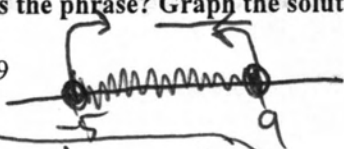
$b = 37$

What compound inequality represents the phrase? Graph the solutions.

19. all real numbers at least -5 and at most 9
Intersection

$$x \geq -5 \text{ and } x \leq 9$$

$$-5 \leq x \leq 9$$



What are the solutions of the inequality? Graph and check the solutions.

20. $\frac{x}{4} \leq 2$

$$\frac{x}{4} \leq 2$$

$$-4 \left(\frac{x}{4} \right) \leq -4(2)$$

$$* \left(\frac{x}{-4} \right) \leq -8$$

$$x \geq -8$$



What are the solutions of the inequality?

21. $12 + 10w \geq 8(w + 12)$

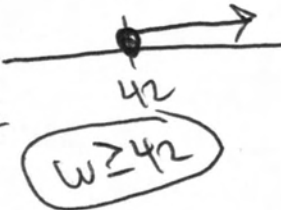
$$12 + 10w \geq 8w + 96$$

$$\frac{-8w}{-8w} \quad \frac{-8w}{-8w}$$

$$\frac{12 + 2w}{-12} \geq \frac{96}{-12}$$

$$\frac{2w}{2} \geq \frac{84}{2}$$

$$w \geq 42$$



What are the solutions of the compound inequality? Graph the solutions.

22. $2x - 2 < -12$ or $2x + 3 > 7$

$$2x - 2 < -12$$

$$\frac{+2}{+2} \quad \frac{+2}{+2}$$

$$\frac{2x}{2} < \frac{-10}{2}$$

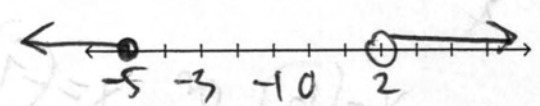
$$x < -5$$

$$2x + 3 > 7$$

$$\frac{-3}{-3} \quad \frac{-3}{-3}$$

$$\frac{2x}{2} > \frac{4}{2}$$

$$x > 2$$



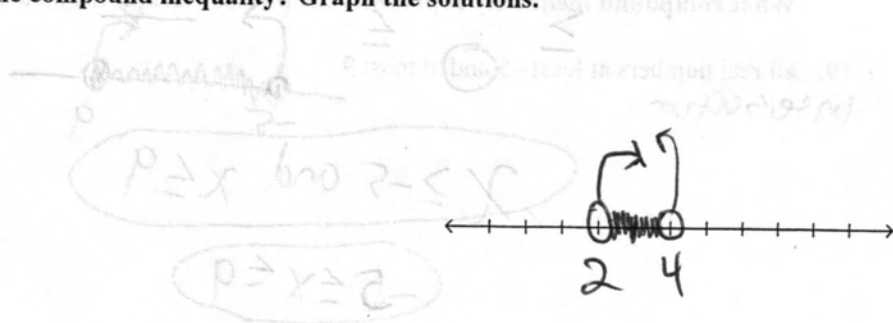
What are the solutions of the compound inequality? Graph the solutions.

23. $-2 < 4x - 10 < 6$

and

$$\begin{array}{r|l|l|l} +10 & +10 & +10 & \\ \hline 8 & 4x & 16 & \\ 4 & 4 & 4 & \\ \hline 2 & x & 4 & \end{array}$$

$2 < x < 4$



What are the solutions of the equation? Graph and check the solutions.

24. $|x| + 9 = 7$

$$\begin{array}{r} -9 \\ -9 \\ \hline |x| = -2 \end{array}$$

neg dist

No solution



25. $|2x + 1| - 3 = 10$

$$\begin{array}{r} +3 \\ +3 \\ \hline |2x+1| = 13 \end{array}$$

$$\begin{array}{r|l|l} 2x+1 \neq 13 & \text{or} & 2x+1 = -13 \\ -1 & & -1 \\ \hline 2x & \neq & 12 \\ 2 & & 2 \end{array}$$

$x = 6$ or $x = -7$

