

Packet 2

Foundations  
of Algebra

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Name: \_\_\_\_\_

Date: \_\_\_\_\_

1. The formula  $C = \frac{5}{9}(F - 32)$  can be used to find the Celsius temperature (C) for a given Fahrenheit temperature (F). What Celsius temperature is equal to a Fahrenheit temperature of  $77^\circ$ ?
- A.  $8^\circ$       B.  $25^\circ$       C.  $45^\circ$       D.  $171^\circ$
2. If the temperature in Buffalo is  $23^\circ$  Fahrenheit, what is the temperature in degrees Celsius? [Use the formula  $C = \frac{5}{9}(F - 32)$ .]
- A.  $-5$       B.  $5$       C.  $-45$       D.  $45$
3. Julia went to the movies and bought one jumbo popcorn and two chocolate chip cookies for \$5.00. Marvin went to the same movie and bought one jumbo popcorn and four chocolate chip cookies for \$6.00. How much does one chocolate chip cookie cost?
- A. \$0.50      B. \$0.75      C. \$1.00      D. \$2.00
4. The lowest temperature recorded in the United States was  $-80^\circ$  Fahrenheit, at Prospect Creek, Alaska. The formula below can be used to convert degrees Fahrenheit ( $^\circ\text{F}$ ) to degrees Celsius ( $^\circ\text{C}$ ).
- $$^\circ\text{C} = \frac{^\circ\text{F} - 32}{1.8}$$
- What is  $-80^\circ$  Fahrenheit converted to the nearest whole degree Celsius?
- A.  $-62^\circ$  Celsius      B.  $-27^\circ$  Celsius  
C.  $27^\circ$  Celsius      D.  $62^\circ$  Celsius
5. The low temperature last week was  $-13^\circ$  Fahrenheit (F). What was the low temperature last week in degrees Celsius (C)? [ $C = \frac{5}{9}(F - 32)$ ]
- A.  $-45^\circ$       B.  $-32^\circ$       C.  $-25^\circ$       D.  $-18^\circ$

6. In this formula,  $C$  represents the total charge for babysitting and  $H$  represents the number of hours the child is kept. How much should Joe pay if his child is at the babysitting service for 3 hours?

$$C = \$5.25 + \$2.50H$$

- A. \$ 7.75      B. \$12.75      C. \$14.25      D. \$23.25

7. 

<b>Crickets and Temperature</b> <b>Algebraic Reasoning</b>
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The rate at which a cricket chirps is related to the temperature. The number of chirps that a cricket makes per minute can be approximated by the formula

$$c = 4T - 148$$

where

- $c$  is the number of chirps a cricket makes per minute, and
- $T$  is the temperature in degrees Fahrenheit.

Joe counts 22 chirps from a single cricket in 10 seconds. Based on the formula, what is the temperature in degrees Fahrenheit?

8. If  $V = \ell wh$ , what is the value of  $V$  when  $\ell = 2$ ,  $w = 3$ , and  $h = 4x$ ?
- A.  $9x$       B.  $24x$       C.  $5 + 4x$       D.  $6 + 4x$
9. If  $dx - 2 = h$ , then  $x$  is equal to
- A.  $h + \frac{2}{d}$       B.  $\frac{h-2}{d}$       C.  $\frac{h+2}{d}$       D.  $\frac{h}{d} + 2$
10. If  $3x + c = 4$ , then  $x$  equals
- A.  $4 - c$       B.  $\frac{4-c}{3}$       C.  $\frac{c-4}{3}$       D.  $c - 4$
11. If  $4x + y = H$ , then  $x$  is equal to
- A.  $\frac{H}{4} - y$       B.  $\frac{H}{4} + y$       C.  $\frac{H+y}{4}$       D.  $\frac{H-y}{4}$

12. If  $x + ay = b$ , then  $y$  equals

- A.  $\frac{b-x}{-a}$       B.  $\frac{b}{x+a}$   
C.  $b-x-a$       D.  $\frac{b-a}{x}$

13. If  $cx - d = f$ , then  $x$  is equal to

- A.  $f+d-c$       B.  $\frac{f-d}{c}$   
C.  $d+f$       D.  $\frac{f+d}{c}$

14. If  $9x + 2a = -3a + 4x$ , then  $x$  equals

- A. 1      B. 0      C.  $-a$       D.  $-5a$

15. In terms of  $c$ ,  $y$ , and  $a$ , what is the value of  $x$  in the equation  $2ax + 2y = c$ ?

- A.  $\frac{(c-y)}{a}$       B.  $\frac{(c-2y)}{2a}$   
C.  $c-2y-2a$       D.  $\frac{(c+2y)}{2a}$

16. If  $ac - b = 1$ , then  $c$  equals

- A.  $a-b+1$       B.  $b+1-a$   
C.  $1-a+b$       D.  $\frac{b+1}{a}$

17. When solved for  $y$ , the equation  $ay - b = c$  is equal to

- A.  $\frac{c-b}{a}$       B.  $\frac{c+a}{b}$       C.  $\frac{c+b}{y}$       D.  $\frac{c+b}{a}$

18. If  $9x + 2a = 3a - 4x$ , then  $x$  equals

- A.  $a$       B.  $-a$       C.  $\frac{5a}{12}$       D.  $\frac{a}{13}$

19. If  $\frac{y-b}{x-a} = m$ , then  $x$  is equal to

- A.  $\frac{y-b-am}{m}$       B.  $\frac{y-b+am}{m}$   
C.  $\frac{y-b+a}{m}$       D.  $y-b+am$

20. If  $bx - 2 = K$ , then  $x$  equals

- A.  $\frac{K}{b} + 2$       B.  $\frac{K-2}{b}$       C.  $\frac{2-K}{b}$       D.  $\frac{K+2}{b}$

21. The equation  $P = 2L + 2W$  is equivalent to

- A.  $L = \frac{P-2W}{2}$       B.  $L = \frac{P+2W}{2}$   
C.  $2L = \frac{P}{2W}$       D.  $L = P - W$

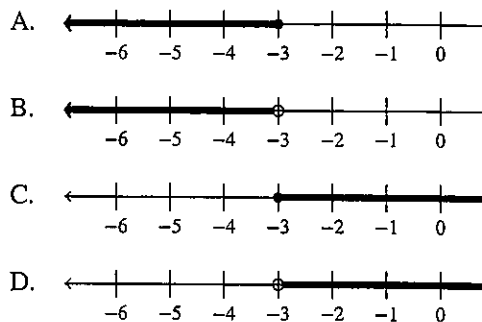
22. In the equation  $A = p + prt$ ,  $t$  is equivalent to

- A.  $\frac{A-pr}{p}$       B.  $\frac{A-p}{pr}$       C.  $\frac{A}{pr} - p$       D.  $\frac{A}{p} - pr$

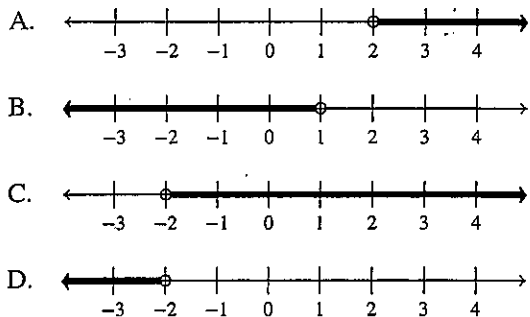
23. If  $\frac{x}{4} - \frac{a}{b} = 0$ ,  $b \neq 0$ , then  $x$  is equal to

- A.  $-\frac{a}{4b}$       B.  $\frac{a}{4b}$       C.  $-\frac{4a}{b}$       D.  $\frac{4a}{b}$

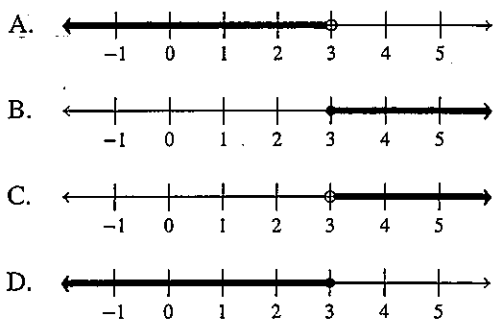
24. If the replacement set for  $x$  is the set of real numbers, which graph represents the inequality  $x + 6 \geq 3$ ?



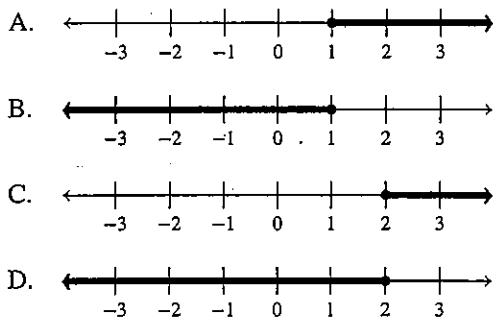
25. Which graph represents the solution set of the inequality  $4x > -8$ ?



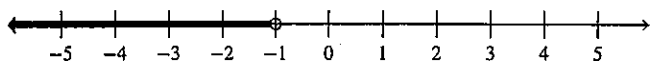
26. Which graph represent the solution of the inequality  $2x + 3 > 9$ ?



27. Which graph represents the solution set of  $2x + 1 \geq 3$ ?

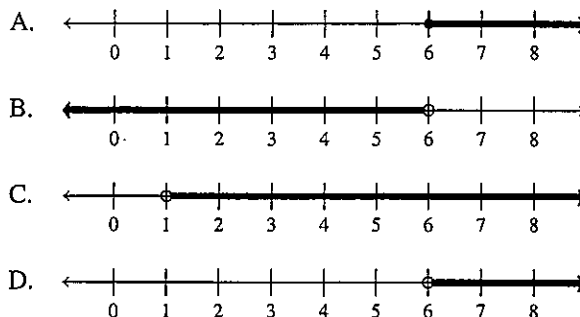


28. Which inequality is represented by the graph?

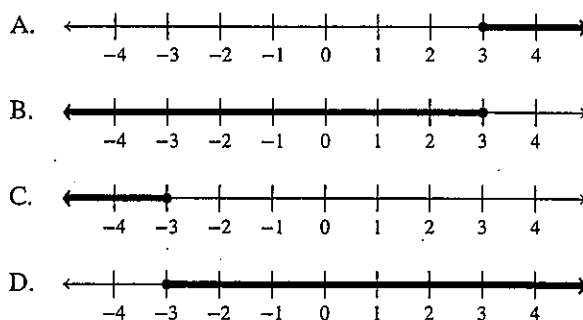


A.  $x > -1$  B.  $x \leq -1$  C.  $x < -1$  D.  $x \geq -1$

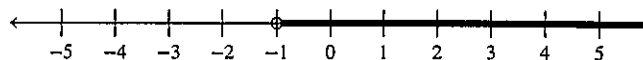
29. Which graph represents the solution set of the inequality  $2x - 5 > 7$ ?



30. Which graph represents the solution of the inequality  $-3x + 1 \leq 10$ ?

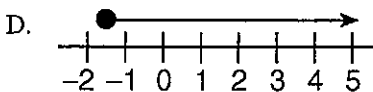
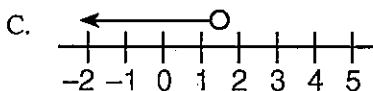
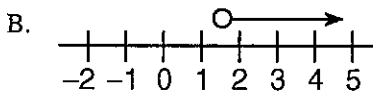
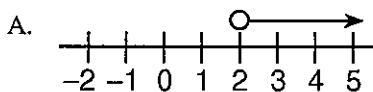


31. Which inequality is represented by the graph?

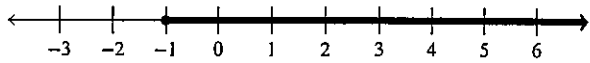


A.  $x > -1$  B.  $x < -1$  C.  $x \geq -1$  D.  $x \leq -1$

32. Which graph best represents the solution set for the inequality  $x > \sqrt{2}$ ?

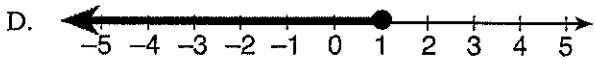
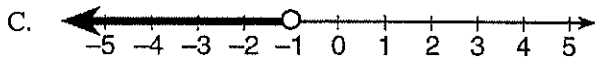
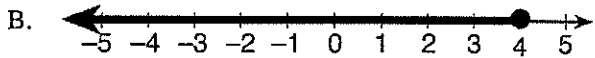
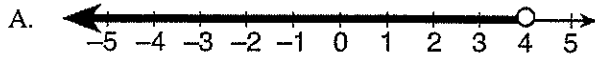


33. Which inequality is shown on the accompanying graph?

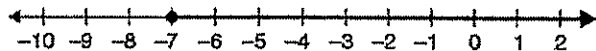


- A.  $x < -1$    B.  $x \leq -1$    C.  $x > -1$    D.  $x \geq -1$

34. Which graph represents the solution set of  $2x - 5 < 3$ ?



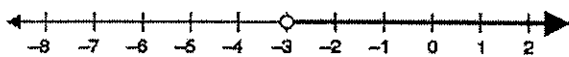
35. Use the graph below to answer the question that follows.



This graph is the solution set for which inequality?

- A.  $x - 14 > 7$                       B.  $x - 7 \geq 14$   
 C.  $2x \geq -14$                         D.  $14x \geq -2$

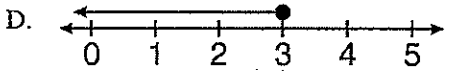
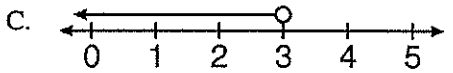
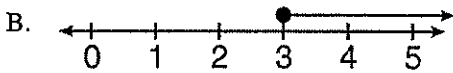
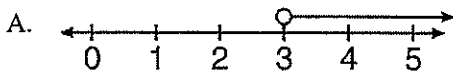
36. Use the line graph below to answer the question that follows.



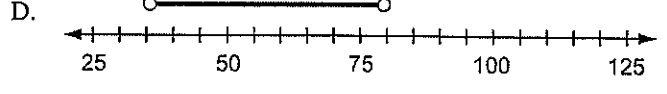
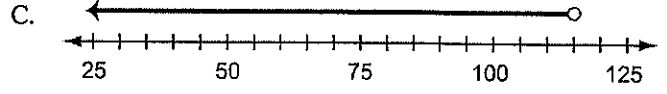
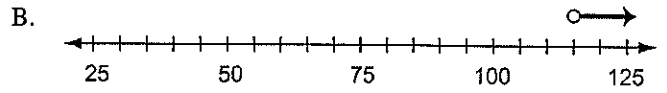
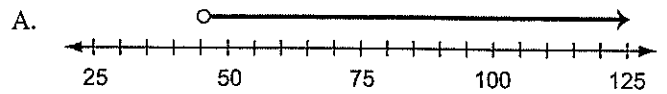
What is the solution set of the graph above?

- A.  $x < -3$    B.  $x \leq -3$    C.  $x > -3$    D.  $x^3 - 3$

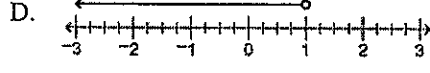
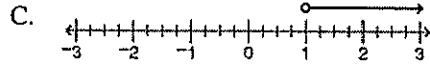
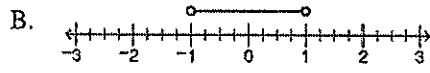
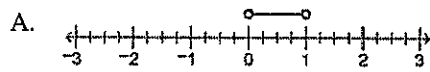
37. Which graph represents  $x \geq 3$ ?



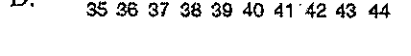
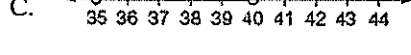
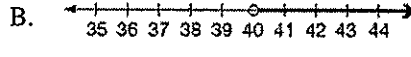
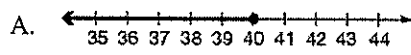
38. Gene has \$35. He will earn more than \$80 next week. He will use all his money to buy clothes. Which number line shows all the possible amounts of money, in dollars, he will have after next week to buy clothes?



39. The average high temperature on the first day of January in Don's hometown in Canada is 1 degree Fahrenheit. This year, the high temperature on the first day of January was less than 1 degree Fahrenheit. Which number line shows all the possible temperatures it could have been that day?



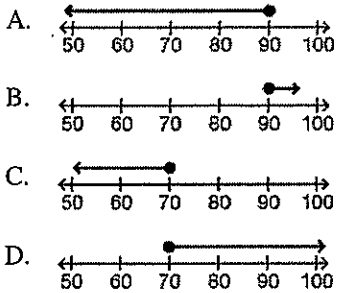
40. Casey worked no more than 40 hours each week. Which graph *best* represents the number of hours Casey worked each week?



41. The members of the school band need at least \$400 for a trip. They have received \$50 in donations and are selling pecans for \$5 a pound. The following inequality can be used to find the number of pounds of pecans,  $x$ , that will meet or exceed the band's goal of \$400.

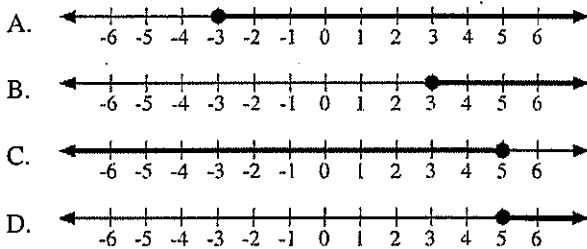
$$5x + 50 \geq 400$$

Which graph shows the number of pounds of pecans the band members need to sell to meet or exceed their goal?



42. Which graph below represents the solution to the inequality below?

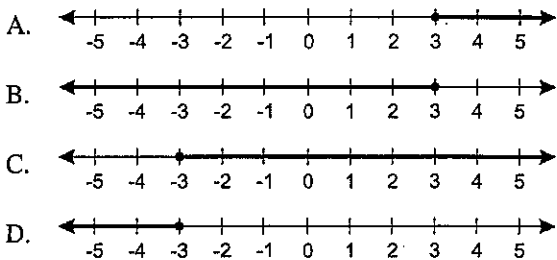
$$2(2x - 6) \geq x + 3$$



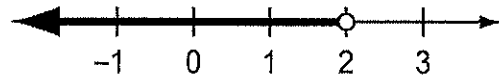
43. Use the inequality below to answer question(s).

$$5 - x \leq 8$$

Which graph represents the solution set for the inequality?



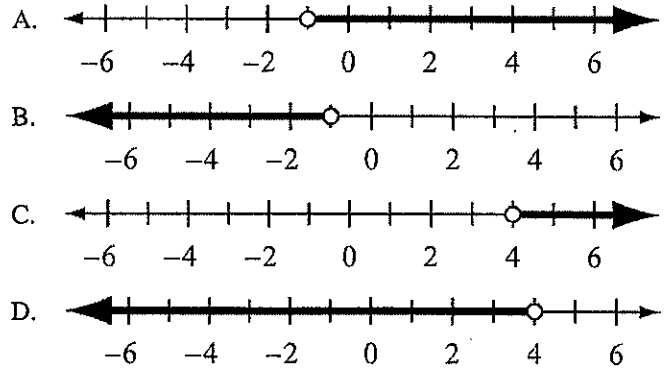
44. Which of the following inequalities is graphed on the number line below?



- A.  $x < 2$     B.  $x \leq 2$     C.  $x > 2$     D.  $x \geq 2$

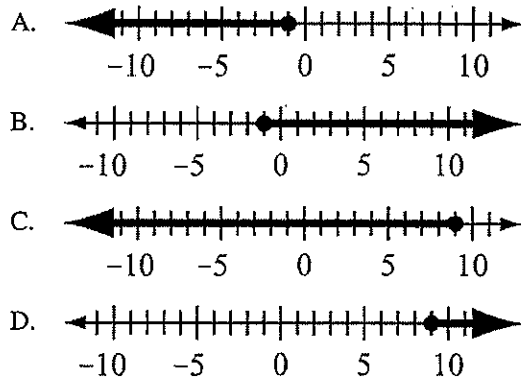
45. Which of the following graphs best represents the solution of the inequality below?

$$2x - 5 < 3$$



46. Which of the following graphs represents the solution of the inequality below?

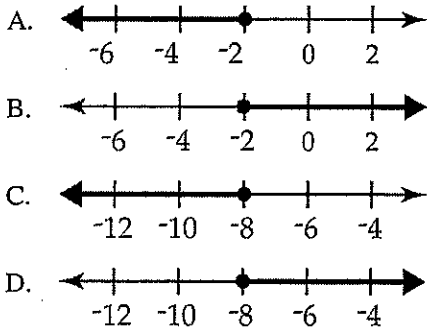
$$x - 5 \leq 4$$



47. Look at the inequality below.

$$12 - 4x \leq 20$$

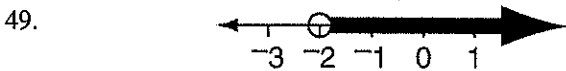
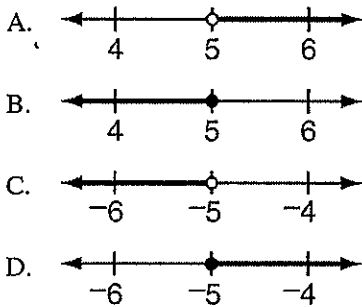
Which of these shows the solution to this inequality?



48. Study the inequality below.

$$x < -5$$

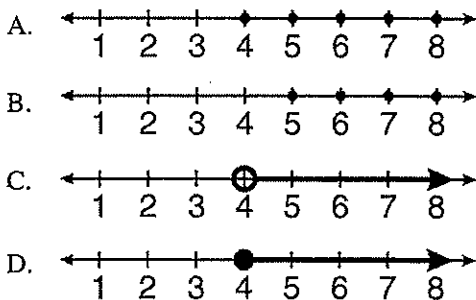
Which graph represents the solution of this inequality?



Which inequality describes this graph?

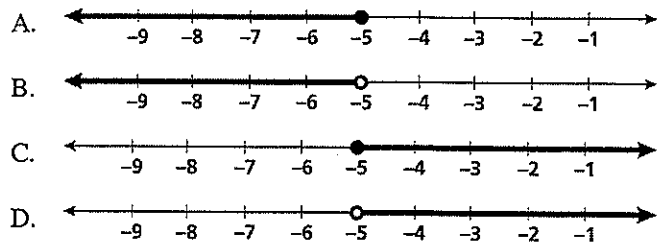
- A.  $x > -2$    B.  $x \geq 2$    C.  $x < 2$    D.  $x \leq -2$

50. Which graph shows the solution for the inequality  $x > 4$  when  $x$  is a real number?



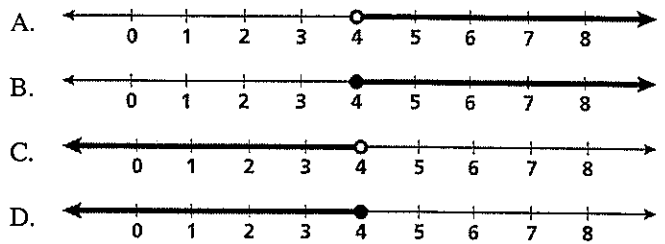
51. Which graph best represents the solution set for this inequality?

$$\frac{1}{3}x > -1$$

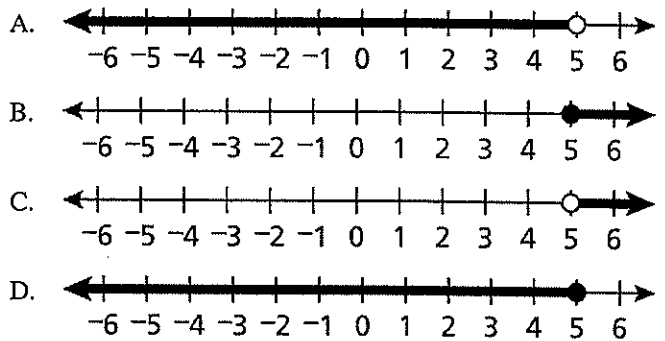


52. Which graph best represents the solution set for this inequality?

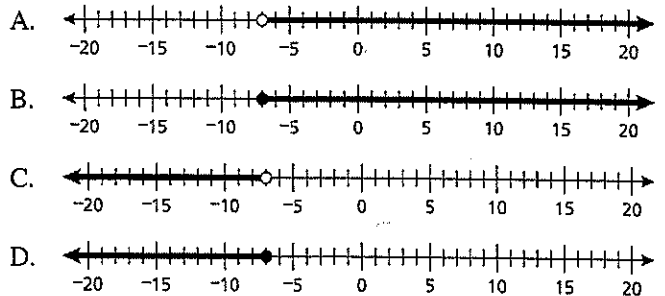
$$x - 4 \leq 0$$



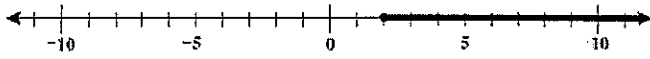
53. Which number line best represents  $\frac{x}{5} - 3 \leq -2$ ?



54. Which number line best represents  $-7 \leq x$ ?



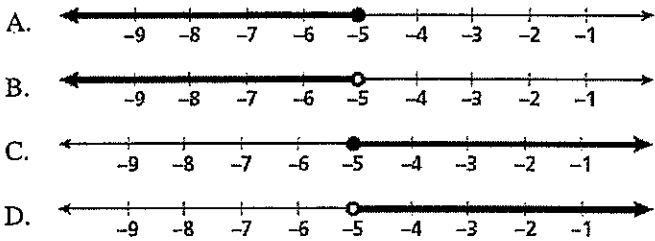
55. Which inequality is best represented by the graph on the number line below?



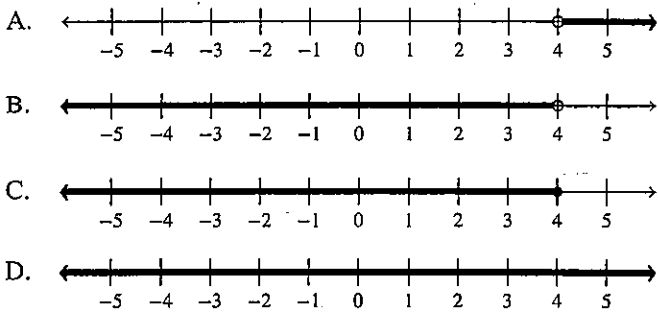
- A.  $x \leq 2$                       B.  $x + 2 \geq 0$   
 C.  $3x - 1 \leq 5$                 D.  $2x + 12 \geq 16$

56. Which graph best represents the solution set for the following inequality?

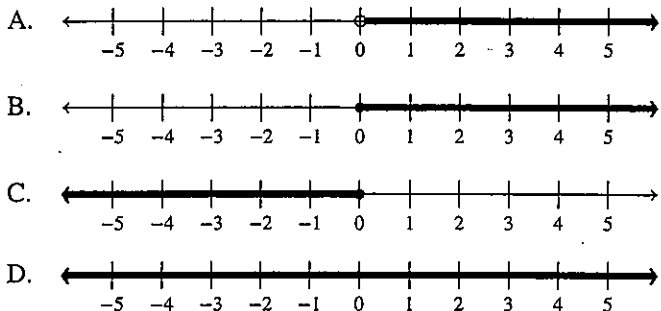
$$5b + 4 \leq -6 + 3b$$



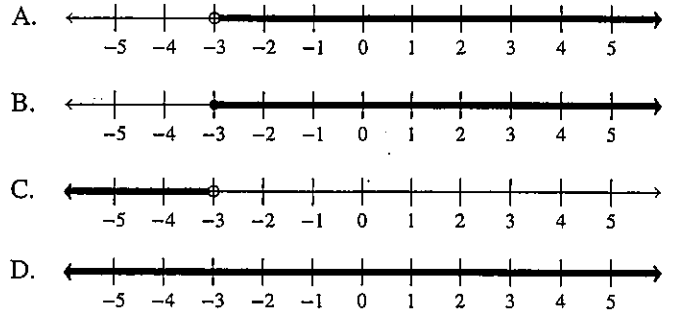
57. Which graph represents all real numbers less than 4?



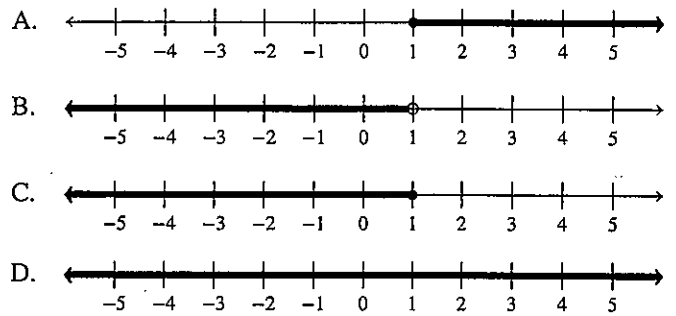
58. Which graph represents all real numbers greater than 0?



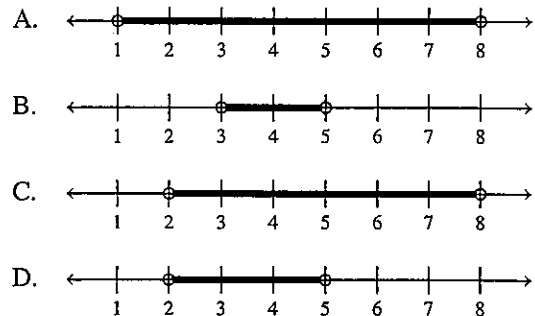
59. Which graph represents all real numbers greater than or equal to  $-3$ ?



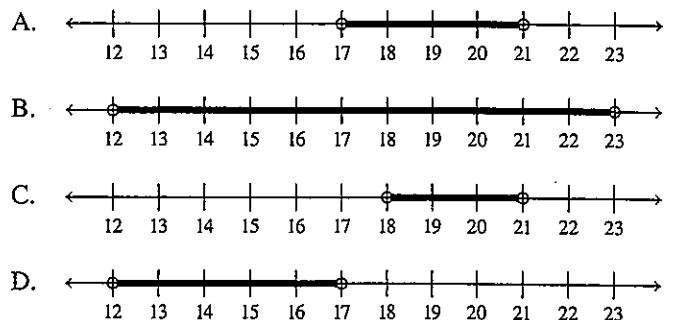
60. Which graph represents all real numbers less than or equal to 1?



61. Which number line shows the graph of all numbers that are greater than 2 and less than 5?

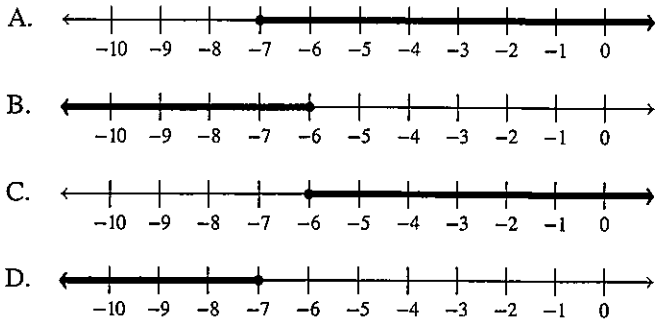


62. Which number line shows the graph of all numbers that are greater than 17 and less than 21?

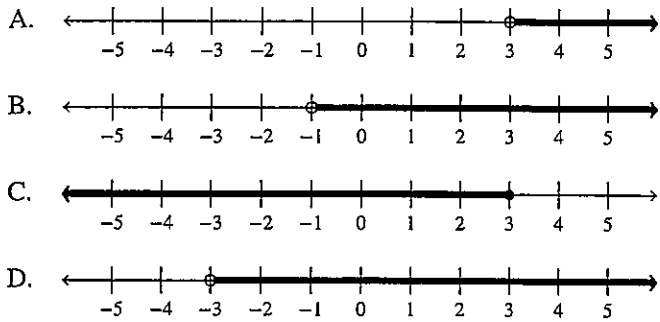




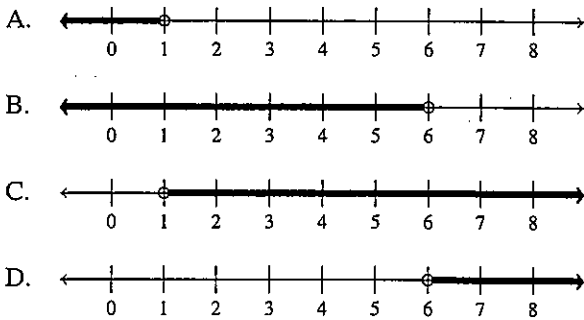
63. Which graph represents the solution of the inequality  $4 - x \geq 10$ ?



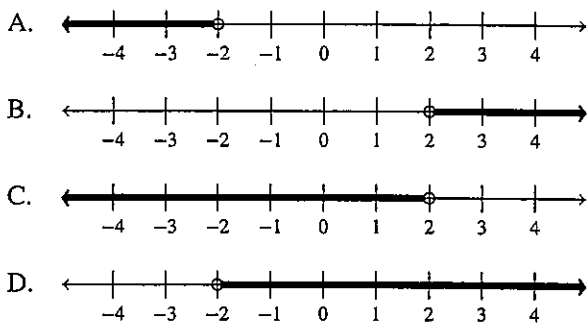
64. Which graph represents the solution to  $x - 2 > 1$ ?



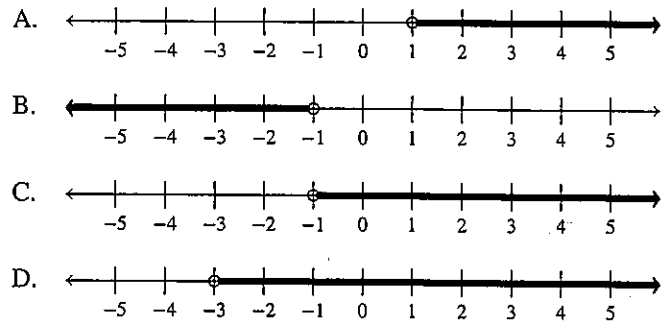
65. What is the solution to the inequality  $2x - 5 > 7$ ?



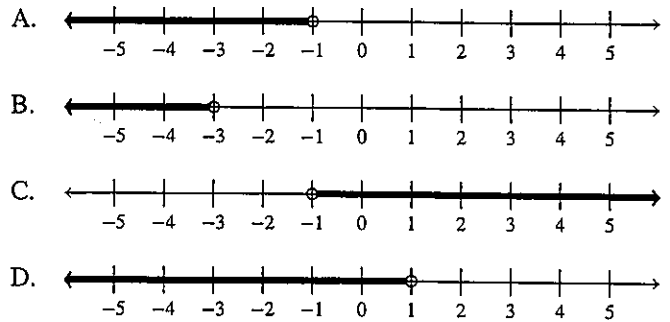
66. What is the solution to the inequality  $3x + 4 > -2$ ?



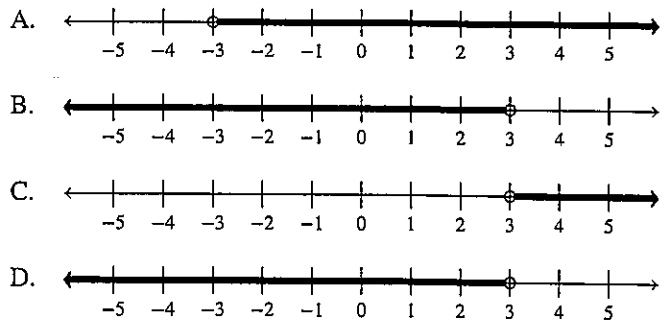
67. Which graph represents the solution to  $3x - 2 > 1$ ?



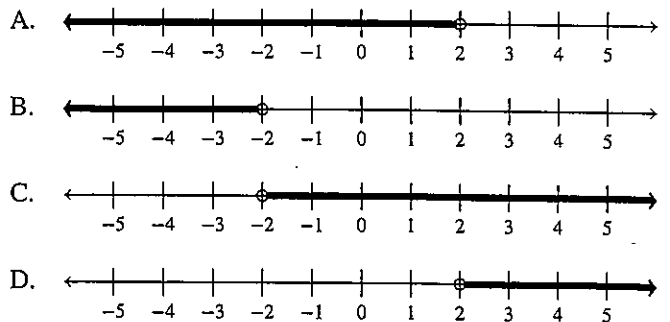
68. Which graph represents the solution to  $2x + 4 < 2$ ?



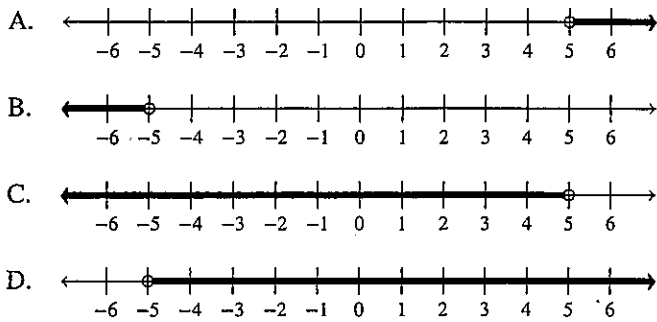
69. Which graph represents the solution to  $4x - 1 > 2x + 5$ ?



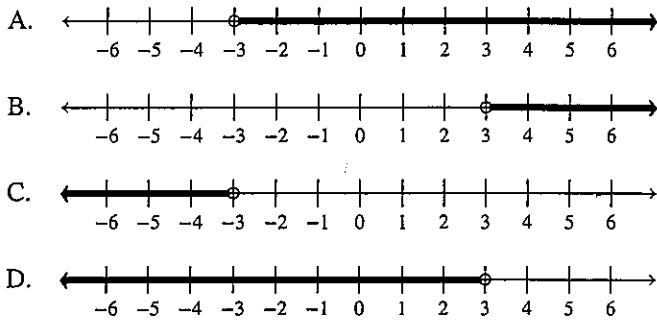
70. Which graph represents the solution to  $2q - 3 > 5q + 3$ ?



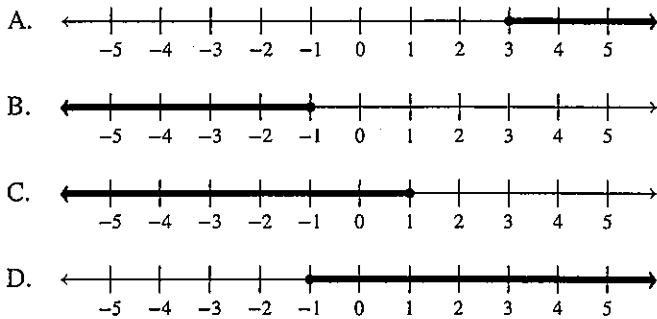
71. Which graph represents the solution to  $3p - 7 < 5p + 3$ ?



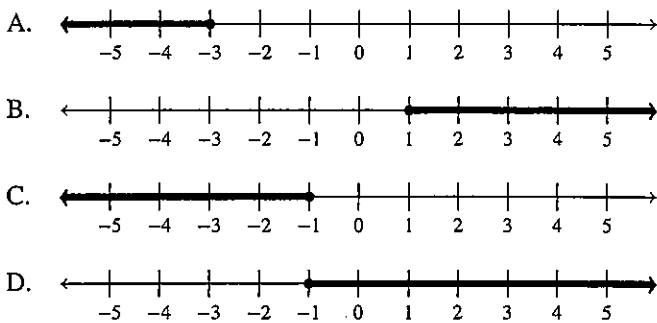
72. Which graph represents the solution to  $2k + 8 < 5k - 1$ ?



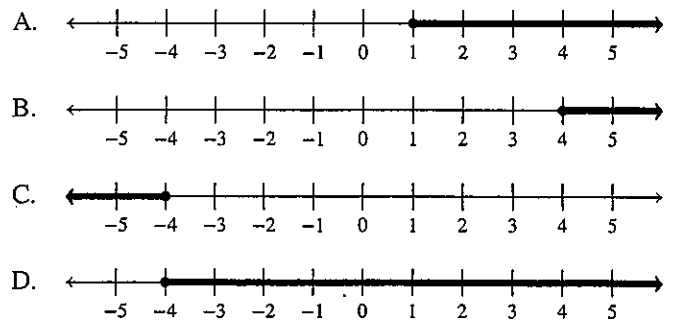
73. Which graph represents the solution to  $3x - 2 \geq 4x - 1$ ?



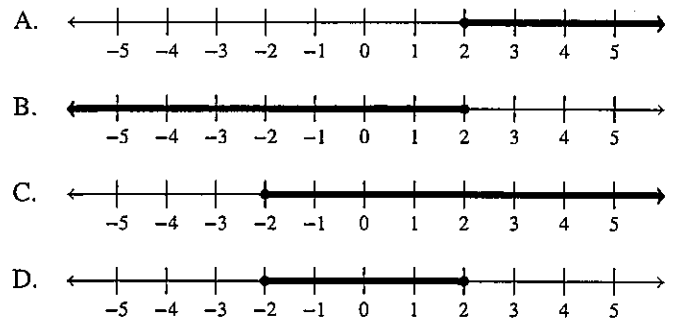
74. Which graph represents the solution to  $5x + 2 \leq 2x - 1$ ?



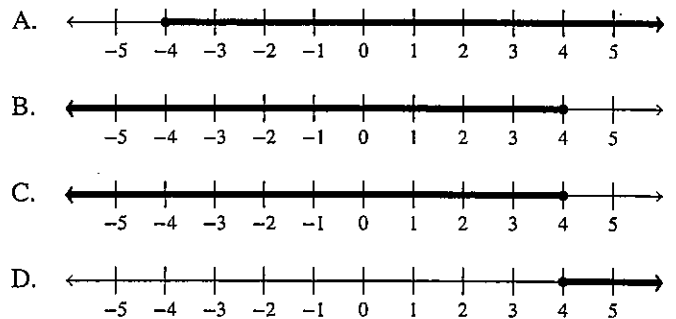
75. Which graph represents the solution to  $2p + 3 \geq p - 1$ ?



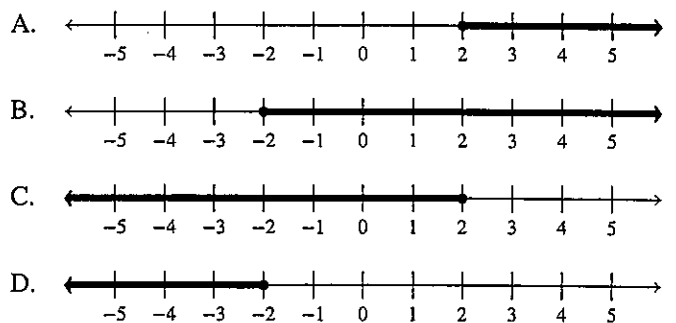
76. Which graph represents the solution to  $2q + 3 \geq 3q + 1$ ?



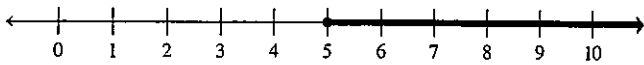
77. Which graph represents the solution to  $2m - 6 \leq 6m + 10$ ?



78. Which graph represents the solution to  $2a + 1 \geq 4a - 3$ ?

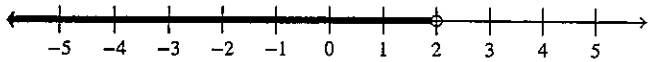


79. Which statement describes the interval indicated on the number line?



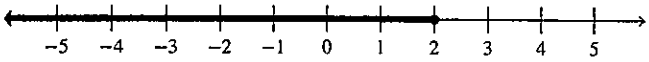
- A. The set of all real numbers less than 5  
 B. The set of all real numbers greater than 5  
 C. The set of all real numbers greater than or equal to 5  
 D. The set of integers greater than 5

80. Which statement describes the interval indicated on the number line?



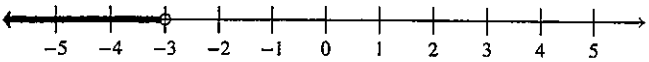
- A. The set of all real numbers less than 2  
 B. The set of all real numbers greater than or equal to 2  
 C. The set of all real numbers less than or equal to 2  
 D. The set of integers greater than 2

81. Which inequality is shown on the number line?



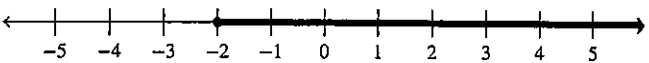
- A.  $x > 2$     B.  $x < 2$     C.  $x \geq 2$     D.  $x \leq 2$

82. Which inequality is shown on the number line?



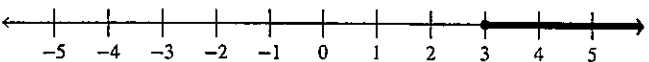
- A.  $x \geq -3$     B.  $x \leq -3$     C.  $x > -3$     D.  $x < -3$

83. Which inequality is displayed on the number line?



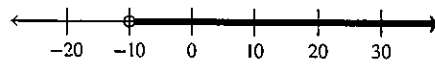
- A.  $x > -2$     B.  $x < -2$     C.  $x \geq -2$     D.  $x \leq -2$

84. Which inequality is displayed on the number line?



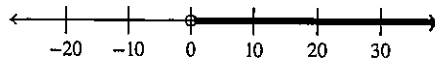
- A.  $x \geq 3$     B.  $x \leq 3$     C.  $x > 3$     D.  $x < 3$

85. Which inequality describes the graph?



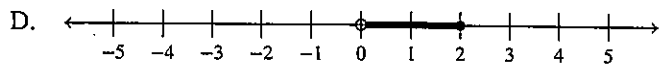
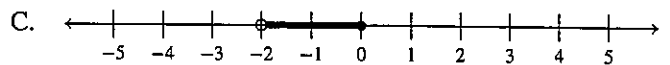
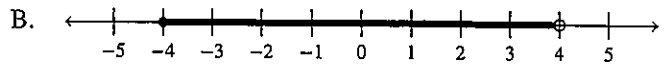
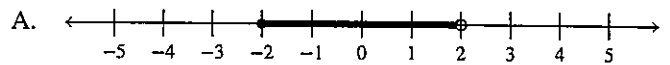
- A.  $x \geq -10$     B.  $x > -10$     C.  $x < -10$     D.  $x \leq -10$

86. Which inequality describes the graph?

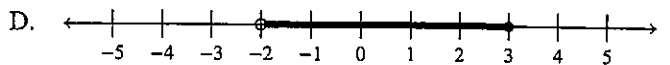
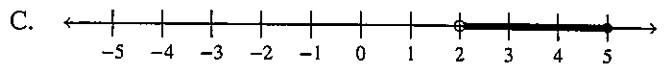
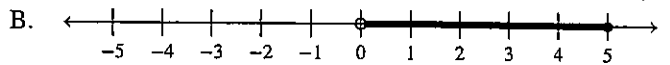
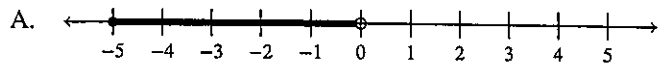


- A.  $x \leq 0$     B.  $x < 0$     C.  $x > 0$     D.  $x \geq 0$

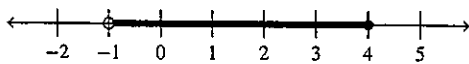
87. Solve:  $4 < 2x + 4 \leq 8$



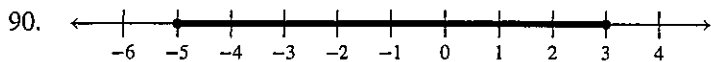
88. Solve:  $-1 < 3x + 5 \leq 14$



89. Which inequality is represented by the accompanying graph?



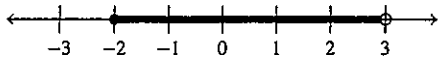
- A.  $-1 \leq x \leq 4$                       B.  $-1 < x < 4$   
 C.  $-1 < x \leq 4$                         D.  $-1 \leq x < 4$



Which inequality is represented by the graph?

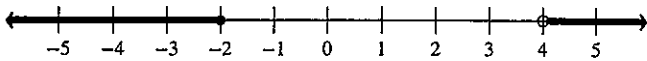
- A.  $-5 \geq x$  or  $x \geq 3$       B.  $-5 \geq x$  or  $x \geq 3$   
 C.  $-5 \geq x \geq 3$                 D.  $-5 \leq x \leq 3$

91. Which inequality is represented by the accompanying graph?

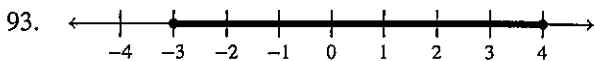


- A.  $-2 \leq x < 3$                 B.  $-2 \leq x \leq 3$   
 C.  $2 < x < 3$                  D.  $-2 < x \leq 3$

92. Which inequality is represented by the accompanying graph?

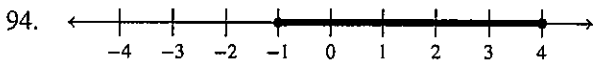


- A.  $x < -2$  and  $x \geq 4$       B.  $x \leq -2$  and  $x > 4$   
 C.  $x \leq -2$  or  $x > 4$         D.  $x < -2$  or  $x \geq 4$



Which of the following inequalities represents the graph?

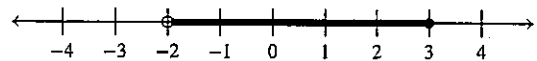
- A.  $-3 \geq x \geq 4$                 B.  $-3 < x < 4$   
 C.  $-3 \leq x \leq 4$                 D.  $-3 > x > 4$



Which of the following inequalities represents the graph?

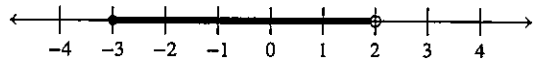
- A.  $-1 \geq x \geq 4$                 B.  $-1 \leq x \leq 4$   
 C.  $-1 < x < 4$                  D.  $-1 > x > 4$

95. Which inequality is represented by the accompanying graph?



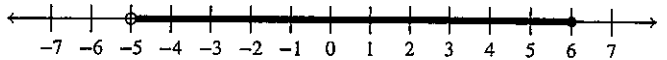
- A.  $-2 < x \leq 3$                 B.  $-2 \leq x \leq 3$   
 C.  $-2 \leq x < 3$                 D.  $-2 < x < 3$

96. Which open sentence is represented by the graph?



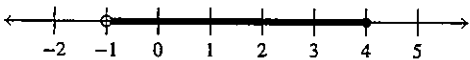
- A.  $-3 < x < 2$                  B.  $-3 \leq x < 2$   
 C.  $-3 \leq x \leq 2$                 D.  $-3 < x \leq 2$

97. Which inequality is represented by the graph?



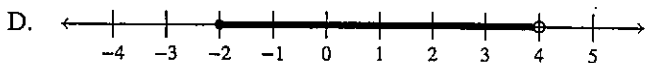
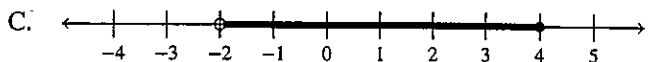
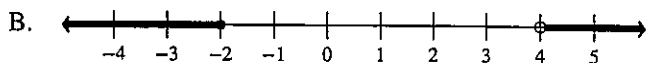
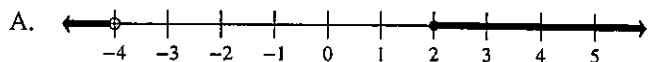
- A.  $-5 < x < 6$                  B.  $-5 \leq x \leq 6$   
 C.  $-5 \leq x < 6$                 D.  $-5 < x \leq 6$

98. Which inequality is represented by the accompanying graph?

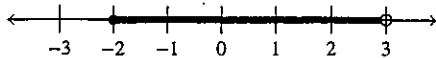


- A.  $-1 \leq x \leq 4$                 B.  $-1 < x < 4$   
 C.  $-1 < x \leq 4$                 D.  $-1 \leq x < 4$

99. Which graph shows the solution set of  $-2 \leq x < 4$ ?

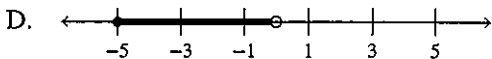
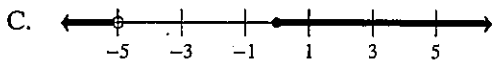
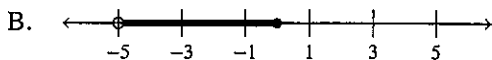
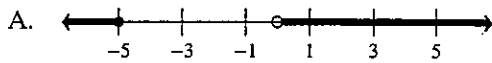


100. Which inequality is represented by the accompanying graph?

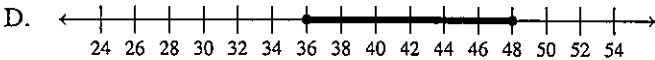
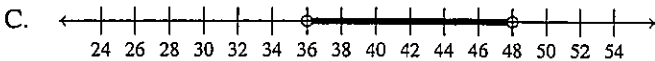
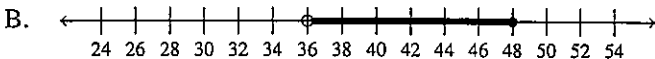
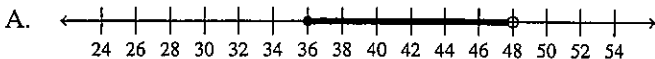


- A.  $-2 \leq x < 3$       B.  $-2 \leq x \leq 3$   
 C.  $2 < x < 3$       D.  $-2 < x \leq 3$

101. Which graph represents the open sentence  $-5 \leq x < 0$ ?



102. In order to be admitted for a certain ride at an amusement park, a child must be greater than or equal to 36 inches tall and less than 48 inches tall. Which graph represents these conditions?



103. The inequality  $3x + 2 > x + 8$  is equivalent to

- A.  $x > -\frac{3}{2}$     B.  $x > \frac{3}{2}$     C.  $x > 3$     D.  $x < 3$

104. The smallest whole number that satisfies the inequality  $3x - 1 > 2$  is

- A. 1      B. 2      C. 3      D. 0

105. If  $x$  is a positive integer, then the solution set of  $4x + 2 < 14$  is

- A. {1}      B. {1, 2}  
 C. {1, 2, 3}      D. {1, 2, 3, 4}

106. Which inequality is the solution of  $5x - 1 < 29$ ?

- A.  $x > 7$     B.  $x < 7\frac{1}{4}$     C.  $x < 6$     D.  $x > 5\frac{3}{5}$

107. The inequality  $2x > x + 7$  is equivalent to

- A.  $x > 7$     B.  $x < 7$     C.  $x = 7$     D.  $x > \frac{7}{3}$

108. Which is the *smallest* integer that makes the inequality  $2x + 3 > 5$  true?

- A. 1      B. 2      C. 5      D. -4

109. Which number is not a member of the solution set of  $5x \leq 23$ ?

- A. 0      B. -4.7    C. 4.6    D. 4.7

110. Which inequality is equivalent to  $2x + 6 > 2$ ?

- A.  $x > -2$     B.  $x < -2$     C.  $x > 2$     D.  $x < 2$

111. Which is the greatest integer that makes the inequality  $3 - 2x > 9$  a true statement?

- A. -2      B. 2      C. 5      D. -4

112. One member of the solution set of  $3x - 1 \geq 4$  is

- A. 1      B.  $\frac{2}{3}$       C.  $\frac{5}{3}$       D.  $-\frac{4}{3}$

113. The expression  $5 \leq x - 2$  is equivalent to

- A.  $x \leq 7$     B.  $x \geq 7$     C.  $x \geq 3$     D.  $x \geq \frac{5}{2}$

114. Which inequality is equivalent to  $\frac{3x}{2} - 6 < 9$ ?

- A.  $x < 7$     B.  $x < 2$     C.  $x < 8$     D.  $x < 10$

115. Which inequality is the solution of  $x + 78 \geq 14$ ?
- A.  $x \geq 92$     B.  $x \geq 64$     C.  $x \geq -64$     D.  $x \leq -92$
116. Which number is *not* a member of the solution set of the inequality  $4x \geq 18$ ?
- A. 4.4    B. 4.5    C. 4.6    D. 4.7
117. Which inequality is equivalent to  $\frac{2}{3}x - 5 < 11$ ?
- A.  $x < 6$     B.  $x < 9$     C.  $x < 16$     D.  $x < 24$
118. Which element is in the solution set for the inequality  $5x - 2 < 8$ ?
- A. 0    B. 2    C. 3    D. 5
119. Which inequality is equivalent to  $2x - 1 > 5$ ?
- A.  $x > 6$     B.  $x > 2$     C.  $x < 3$     D.  $x > 3$
120. Which statement is equivalent to the inequality  $9 - 4x \leq 3x - 5$ ?
- A.  $x > -2$     B.  $x < 2$     C.  $x \leq -2$     D.  $x \geq 2$
121. In the set of positive integers, what is the solution set of the inequality  $2x - 3 < 5$ ?
- A.  $\{0, 1, 2, 3\}$     B.  $\{1, 2, 3\}$   
 C.  $\{0, 1, 2, 3, 4\}$     D.  $\{1, 2, 3, 4\}$
122. Which number is in the solution set of the inequality  $5x + 3 > 38$ ?
- A. 5    B. 6    C. 7    D. 8
123. Students in a ninth grade class measured their heights,  $h$ , in centimeters. The height of the shortest student was 155 cm, and the height of the tallest student was 190 cm. Which inequality represents the range of heights?
- A.  $155 < h < 190$     B.  $155 \leq h \leq 190$   
 C.  $h \geq 155$  or  $h \leq 190$     D.  $h > 155$  or  $h < 190$
124. Which value of  $x$  is in the solution set of the inequality  $-4x + 2 > 10$ ?
- A. -2    B. 2    C. 3    D. -4
125. Roger is having a picnic for 78 guests. He plans to serve each guest at least one hot dog. If each package,  $p$ , contains eight hot dogs, which inequality could be used to determine how many packages of hot dogs Roger will need to buy?
- A.  $p \geq 78$     B.  $8p \geq 78$   
 C.  $8 + p \geq 78$     D.  $78 - p \geq 8$
126. What is the solution of  $3(2m - 1) \leq 4m + 7$ ?
- A.  $m \leq 5$     B.  $m \geq 5$     C.  $m \leq 4$     D.  $m \geq 4$
127. Which of the following could be a correct procedure for solving the inequality shown below?
- $$4x + 6 \leq 6x + 15$$
- A.  $4x + 6 \leq 6x + 15$   
 $-2x + 6 \leq 15$   
 $-2x \leq 9$   
 $x \geq -\frac{9}{2}$
- B.  $4x + 6 \leq 6x + 15$   
 $-2x + 6 \leq 15$   
 $-2x \leq 11$   
 $7x \geq -\frac{21}{2}$
- C.  $4x + 6 \leq 6x + 15$   
 $-2x + 6 \leq 15$   
 $-2x \leq 9$   
 $x \leq -\frac{9}{2}$
- D.  $4x + 6 \leq 6x + 15$   
 $-2x + 6 \leq 15$   
 $-2x \leq 9$   
 $x \geq -\frac{21}{2}$
128. Which of the following are inverse operations?
- A. multiplication and addition  
 B. square root and division  
 C. subtraction and taking square root  
 D. addition and subtraction

129. Which is a correct procedure for solving the linear inequality below?

$$2y + 8 > 4 - 6y$$

- A.  $2y + 8 > 4 - 6y$   
 $-4y + 8 > 4$   
 $-4y > -4$   
 $y > 1$
- B.  $2y + 8 > 4 - 6y$   
 $8y + 8 > 4$   
 $8y > -4$   
 $y > -\frac{1}{2}$
- C.  $2y + 8 > 4 - 6y$   
 $-4y + 8 > 4$   
 $-4y > -4$   
 $y < 1$
- D.  $2y + 8 > 4 - 6y$   
 $8y + 8 > 4$   
 $8y > -4$   
 $y < -\frac{1}{2}$

130. If  $21 \times 7 = 7 \times a$ , what is the value of  $a$ ?

- A. 3      B. 7      C. 14      D. 21

131. What is the solution to the inequality  $x - 5 > 14$ ?

- A.  $x > 9$       B.  $x > 19$       C.  $x < 9$       D.  $x < 19$

132. Look at the inequality below.

$$-2x \leq 6$$

Which of these *best* describes the solution of this inequality?

- A.  $x \geq -3$       B.  $x \leq -3$       C.  $x \geq 3$       D.  $x \leq 3$

133. Solve for  $g$ .

$$21g > 105$$

- A.  $g > 5$       B.  $g = 5$       C.  $g < 5$

134. What is the solution of the inequality  $\frac{3}{8}x > 9$ ?

- A.  $x > 216$       B.  $x > 72$       C.  $x > 24$       D.  $x > 14$

135. What must be true about a number  $y$  so that  $5 \cdot y < 5$ ?

- A.  $y > 5$       B.  $y = 5$       C.  $y = 1$       D.  $y < 1$

136. Look at the inequality shown below.

$$n > 18 \div 3$$

In which set are *all* the numbers solutions of the inequality?

- A. {6, 5, 4, 3, 2, 1, 0}      B. {18, 9, 6, 3, 2, 1}
- C. {21, 16, 10, 9, 7}      D. {30, 24, 18, 12, 6}

137. Look at the inequality below.

$$25 + 15 < g$$

Which value of  $g$  makes the inequality true?

- A. 15      B. 25      C. 40      D. 50

138. Look at the replacement set below.

$$\{0, 4, 5, 13\}$$

Which number from the replacement set is a solution of the inequality  $8 \geq 5 + x$ ?

- A. 0      B. 4      C. 5      D. 13

139. What is the solution set of the inequality  $8n < 32$ ?

- A.  $n < 4$       B.  $n < 24$       C.  $n < 40$       D.  $n < 256$

140. An inequality is shown below.

$$12w > 132$$

What is the solution set of the inequality?

- A.  $w > 11$       B.  $w > 120$       C.  $w < 11$       D.  $w < 120$

141. What is the solution of  $\frac{x}{3} > -3$ ?

- A.  $x < -1$       B.  $x > -1$       C.  $x < -9$       D.  $x > -9$

142. What are all values of  $x$  for which the inequality  $5x + \frac{5}{3} \leq -2x - \frac{2}{3}$  is true?

- A.  $x \leq -\frac{7}{9}$       B.  $x \leq -\frac{1}{3}$       C.  $x \geq 0$       D.  $x \geq \frac{7}{3}$

159. In the inequality  $\frac{1}{2}x - 5 \geq 20$ , what is the value of  $x$ ?

- A.  $x \geq 7.5$                       B.  $x \geq 12.5$   
C.  $x \geq 30$                         D.  $x \geq 50$

160. Solve for  $x$ :  $2x + 5 < 17$

- A.  $x > 6$     B.  $x < 6$     C.  $x > 10$     D.  $x < 10$

161. Which is the value of  $x$  when  $6x + 12 > 0$ ?

- A.  $x < -2$     B.  $x < 2$     C.  $x > 2$     D.  $x > -2$

162. What is the value of  $x$  when  $3x < -2x + 15$ ?

- A.  $x > 3$     B.  $x < 3$     C.  $x < 15$     D.  $x > 15$

163. Larry has 7 more dimes than nickels, for a total value of \$1.45. If  $n$  represents the number of nickels, which equation could be used to find the number of nickels Larry has?

- A.  $n + (n + 7) = 145$               B.  $5n + 5(n + 7) = 145$   
C.  $5n + 10(n + 7) = 145$         D.  $15(n + n + 7) = 145$

164. The statement "The sum of twice a number and 18 is greater than 25" can be expressed as

- A.  $2n + 18 = 25$                       B.  $2(n + 18) > 25$   
C.  $2(n + 18) > 50$                       D.  $2n + 18 > 25$

165. Which equation could be used to solve the problem below?

If three times a number is increased by 24, the result is 4 less than seven times the number.

- A.  $3(x + 24) = 7x - 4$               B.  $3x + 24 = 4 - 7x$   
C.  $3x + 24 = 7x - 4$                       D.  $27x = 7x - 4$

166. Which equation can be used to solve the problem below?

If four times a number is increased by 15, the result is three less than six times the number. Find the number.

- A.  $4(x + 15) = 6x - 3$               B.  $4x + 15 = 6(x - 3)$   
C.  $4x + 15 = 6x - 3$                       D.  $4x + 15 = 3 - 6x$

167. Mrs. Smith wrote "Eight less than three times a number is greater than fifteen" on the board. If  $x$  represents the number, which inequality is a correct translation of this statement?

- A.  $3x - 8 > 15$                               B.  $3x - 8 < 15$   
C.  $8 - 3x > 15$                               D.  $8 - 3x < 15$

168. Rhonda has \$1.35 in nickels and dimes in her pocket. If she has six more dimes than nickels, which equation can be used to determine  $x$ , the number of nickels she has?

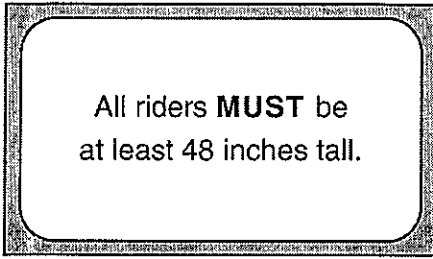
- A.  $0.05(x + 6) + 0.10x = 1.35$   
B.  $0.05x + 0.10(x + 6) = 1.35$   
C.  $0.05 + 0.10(6x) = 1.35$   
D.  $0.15(x + 6) = 1.35$

169. Marie currently has a collection of 58 stamps. If she buys  $s$  stamps each week for  $w$  weeks, which expression represents the total number of stamps she will have?

- A.  $58sw$                                       B.  $58 + sw$   
C.  $58s + w$                                 D.  $58 + s + w$



170. The sign shown below is posted in front of a roller coaster ride at the Wadsworth County Fairgrounds.



If  $h$  represents the height of a rider in inches, what is a correct translation of the statement on this sign?

- A.  $h < 48$    B.  $h > 48$    C.  $h \leq 48$    D.  $h \geq 48$
171. The ninth grade class at a local high school needs to purchase a park permit for \$250.00 for their upcoming class picnic. Each ninth grader attending the picnic pays \$0.75. Each guest pays \$1.25. If 200 ninth graders attend the picnic, which inequality can be used to determine the number of guests,  $x$ , needed to cover the cost of the permit?

- A.  $0.75x - (1.25)(200) \geq 250.00$   
B.  $0.75x + (1.25)(200) \geq 250.00$   
C.  $(0.75)(200) - 1.25x \geq 250.00$   
D.  $(0.75)(200) + 1.25x \geq 250.00$

172. The length of a rectangle is 15 and its width is  $w$ . The perimeter of the rectangle is, *at most*, 50. Which inequality can be used to find the longest possible width?

- A.  $30 + 2w < 50$                       B.  $30 + 2w \leq 50$   
C.  $30 + 2w > 50$                       D.  $30 + 2w \geq 50$

173. Carol plans to sell twice as many magazine subscriptions as Jennifer. If Carol and Jennifer need to sell at least 90 subscriptions in all, which inequality could be used to determine how many subscriptions,  $x$ , Jennifer needs to sell?

- A.  $x \geq 45$                                       B.  $2x \geq 90$   
C.  $2x - x \geq 90$                               D.  $2x + x \geq 90$

174. If Angelina's weekly allowance is  $d$  dollars, which expression represents her allowance, in dollars, for  $x$  weeks?

- A.  $dx$                       B.  $7dx$                       C.  $x + 7d$                       D.  $\frac{d}{x}$

