

Unit 4 Study Guide: Equations and Inequalities

Name: Key

Date: _____

Part 1: One Step Equations

Identify the solution of each equation from the list given. Circle the solution.

1. $s + 12 = 17$; (5) 6, 7
2. $44 = t - 10$; 52, 53, (54)
3. $4r = 40$; 8, 9, (10)
4. $28 \div w = 7$; 3, (4), 5

Solve each equation. Check your solution.

$$5. \begin{array}{r} 4 + k = 11 \\ -4 \quad | \quad -4 \\ \hline \end{array} \quad k = \underline{7}$$

$$6. \begin{array}{r} 8w = 80 \\ \frac{8}{8} \quad | \quad \frac{80}{8} \\ \hline \end{array} \quad w = \underline{10}$$

$$7. \begin{array}{r} a + 6 = 11 \\ -6 \quad | \quad -6 \\ \hline \end{array} \quad a = \underline{5}$$

$$8. \begin{array}{r} 17 = 9 + e \\ -9 \quad | \quad -9 \\ \hline \end{array} \quad e = \underline{8}$$

$$9. \begin{array}{r} 24 = j - 34 \\ +34 \quad | \quad +34 \\ \hline \end{array} \quad j = \underline{58}$$

$$10. \begin{array}{r} k - 12 = 4 \\ +12 \quad | \quad +12 \\ \hline \end{array} \quad k = \underline{16}$$

$$11. \begin{array}{r} 9b = 36 \\ \frac{9}{9} \quad | \quad \frac{36}{9} \\ \hline \end{array} \quad b = \underline{4}$$

$$12. \begin{array}{r} 80 = 10d \\ \frac{80}{10} \quad | \quad \frac{10d}{10} \\ \hline \end{array} \quad d = \underline{8}$$

$$13. \begin{array}{r} m \div 9 = 5 \\ \times 9 \quad | \quad \times 9 \\ \hline \end{array} \quad m = \underline{45}$$

$$14. \begin{array}{r} g \div 4 = 12 \\ \times 4 \quad | \quad \times 4 \\ \hline \end{array} \quad g = \underline{48}$$

Write an equation for each situation and solve it.

15. Fun Time Roller Coasters charges \$6 per ride. Joe spends \$54 on rides.

$$\underline{6x = 54}$$

$$\begin{array}{r} 6x = 54 \\ \frac{6x}{6} = \frac{54}{6} \\ \hline \end{array} \quad \underline{x = 9}$$

16. Bonnie has 27 more cans than Jackie. If she has 56 cans, write and solve an equation to find how many cans Jackie has.

$$\underline{27 + J = 56}$$

$$\begin{array}{r} 27 + J = 56 \\ -27 \quad | \quad -27 \\ \hline \end{array} \quad \underline{J = 29}$$

17. Cornelius is saving money to buy a jacket that costs \$47. He has already saved \$25. Write and solve an equation to find how much more money Cornelius needs to save.

$$\underline{25 + S = 47}$$

$$\begin{array}{r} 25 + S = 47 \\ -25 \quad | \quad -25 \\ \hline \end{array} \quad \underline{S = 22}$$

18. Keshav has \$250 in his account. This is \$75 more than his brother Nalin has in his account. Write and solve an addition equation to find the amount of money in Nalin's account.

$$\underline{75 + N = 250}$$

$$\begin{array}{r} 75 + N = 250 \\ -75 \quad | \quad -75 \\ \hline \end{array} \quad \underline{N = 175}$$

Part 2: Inequalities

Write an inequality for each sentence.

19. More than 40,000 fans attended the opening football game at the University of Florida.

$$x > 40,000$$

20. Her earnings were no more than \$86.

$$x \leq 86$$

21. A savings account balance is now less than \$550.

$$x < 550$$

22. The number of club members is at least 25.

$$x \geq 25$$

23. The spring calf class at the cattle show is for calves that weigh 825 pounds or less.

$$x \leq 825$$

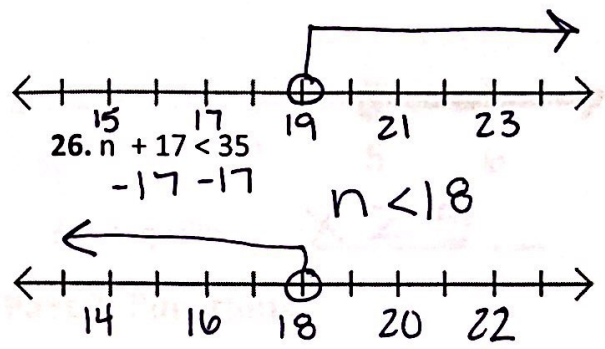
24. The minimum deposit for a new checking account is \$75.

$$x \geq 75$$

Solve each inequality. Plot your solution on the number line under the inequality.

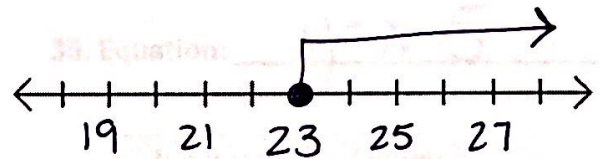
$$25. \frac{14n}{14} > \frac{266}{14}$$

$$n > 19$$



$$27. \frac{6x}{6} \geq \frac{138}{6}$$

$$x \geq 23$$

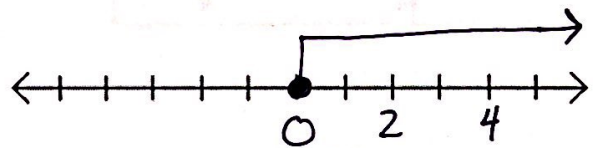


$$28. 2 \leq x + 2$$

$$-2 \quad -2$$

$$0 \leq x$$

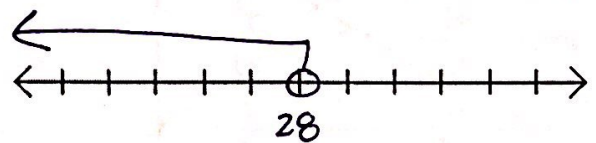
$$x \geq 0$$



$$29. b - 26 < 2$$

$$+26 \quad +26$$

$$b < 28$$

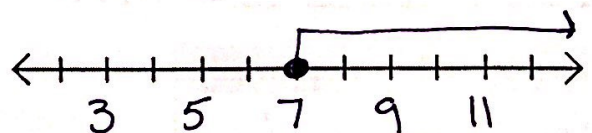


$$30. 18 \leq r + 11$$

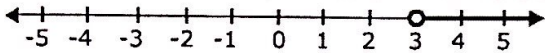
$$-11 \quad -11$$

$$7 \leq r$$

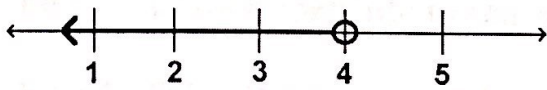
$$r \geq 7$$



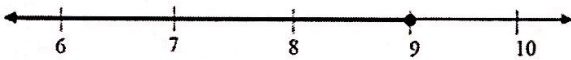
Write the inequality shown by each graph:



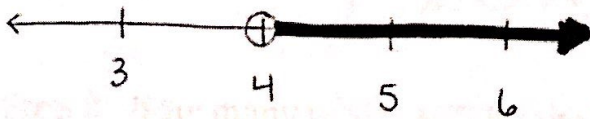
31. Inequality: $x > 3$



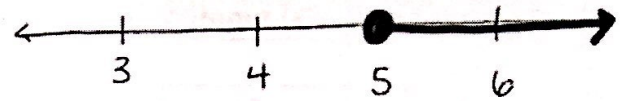
32. Inequality: $x < 4$



33. Inequality: $x \leq 9$



34. Inequality: $x > 4$



35. Inequality: $x \geq 5$

Part 3: Functions

Write an equation for each function table and find the value for the missing output.

36. Equation: $y = x - 5$

Input (x)	Output (y)
5	0
6	1
7	2
8	3
9	4

37. Equation: $y =$

Input (x)	Output (y)
2	14
4	16
6	18
8	20
10	22

38. Equation: $y = x - 4$

Input (x)	Output (y)
4	0
5	1
6	2
7	3
9	5

39. Equation:

$$y = 11x$$

Input (x)	Output (y)
1	11
2	22
3	33
4	44
6	66

Practice Free Response

Mark has been earning money by mowing his neighbors' lawns. His goal for the summer is to have \$1,200 in his savings account. If he charges \$20 per lawn each time he mows, how long will it take him to reach his goal?

Step 1: Fill in the function table below:

Lawns Mowed	10	20	30	40	50	60	70
Amount in Savings	200	400	600	800	1000	1200	1400

Step 2: Write an equation to show the relationship between the number of lawns he mows and how much is in his savings account.

$$y = 20x$$

Step 3: How many ~~weeks~~ lawns will it take Mark to reach his goal?

60 ~~weeks~~
lawns