

Grade 6 · Writing and Graphing Inequalities · Worksheet Answer Key

Common Core 6.EE.B.5, 6.EE.B.8 · mathovore.fr

This answer key gives complete solutions for the 20 inequalities problems. Each answer explains the substitution or the circle and the shading direction, and every final answer is in bold, so students can check their number lines and symbols.

Grade 6 Common Core: 6.EE.B.5 · 6.EE.B.8

Problem 1: Reading Inequality Symbols

- a. x is greater than 7
- b. y is less than or equal to 12
- c. 3 is less than n (n is greater than 3)
- d. p is greater than or equal to 0.5

Problem 2: Comparing Numbers

- a. $9 > 4$
- b. $2.5 = 2.50$ and $2.50 > 2.05$: $2.5 > 2.05$
- c. $\frac{3}{4} = 0.75$ and $\frac{7}{10} = 0.70$: $\frac{3}{4} > \frac{7}{10}$
- d. $\frac{1}{3}$ is about 0.333, which is greater than 0.3: $0.3 < \frac{1}{3}$

Problem 3: Compare More Numbers

- a. $15 > 12$
- b. $0.7 = 0.70$ and $0.70 > 0.65$: $0.7 > 0.65$
- c. $\frac{5}{8} = 0.625$ and $\frac{3}{5} = 0.6$: $\frac{5}{8} > \frac{3}{5}$
- d. 1.09 has 1 whole and 0.09; 1.9 has 1 whole and 0.9. $1.09 < 1.9$

Problem 4: Phrases to Inequalities

- a. "More than" does not include 18: $t > 18$
- b. "No more than" means 6 or less: $w \leq 6$
- c. "Fewer than" does not include 25: $k < 25$
- d. "No less than" means 2.5 or more: $b \geq 2.5$

Problem 5: Writing Inequalities

- a. $x > 9$

- b. $y < 15$
- c. $n \geq 20$
- d. $p \leq 3.5$

Problem 6: Testing Values

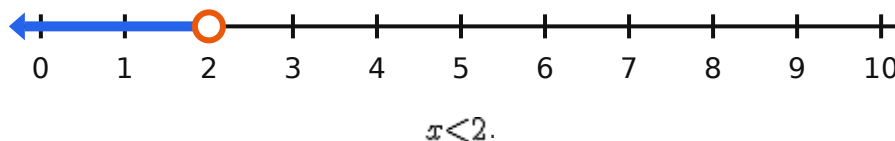
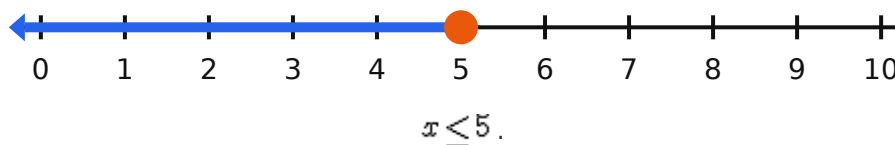
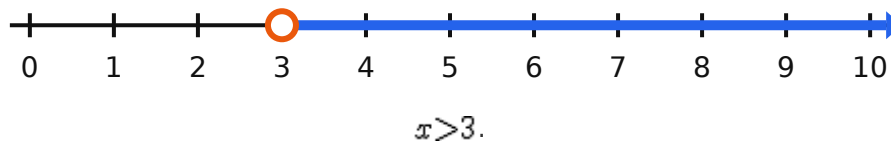
- a. $8 > 6$ is true. **Yes**
- b. $10 < 10$ is false. **No**
- c. $4 \geq 4$ is true. **Yes**
- d. $3 \leq 2.5$ is false. **No**

Problem 7: Pick the Solutions

- a. $1 < 6.5$ true; $4 < 6.5$ true; $6.5 < 6.5$ false; $9 < 6.5$ false. **1 and 4**
- b. $0 \geq 12$ false; $11.9 \geq 12$ false; $12 \geq 12$ true; $20 \geq 12$ true. **12 and 20**

Problem 8: Graphing Inequalities

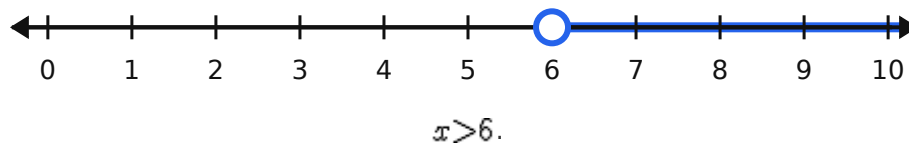
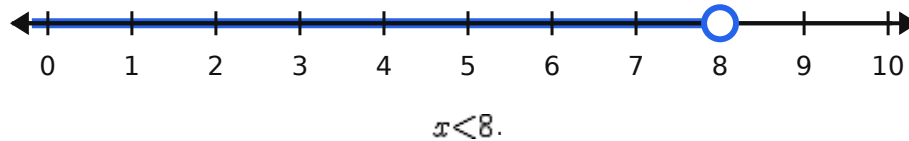
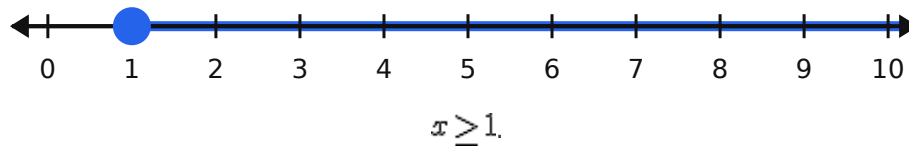
- a. Open circle at 3, shaded to the right. **See graph one.**
- b. Closed circle at 5, shaded to the left. **See graph two.**
- c. Open circle at 2, shaded to the left. **See graph three.**



Problem 9: Graph More Inequalities

- a. Closed circle at 1, shaded to the right. **See graph one.**

- b. Open circle at 8, shaded to the left. **See graph two.**
 c. Open circle at 6, shaded to the right. **See graph three.**



Problem 10: Reading Graphs

- a. Open circle at 4, shaded right: $x > 4$
 b. Closed circle at 7, shaded left: $x \leq 7$

Problem 11: Read More Graphs

- a. Open circle at 6, shaded left: $x < 6$
 b. Closed circle at 2, shaded right: $x \geq 2$
 c. Closed circle at 9, shaded left: $x \leq 9$

Problem 12: Substitute to Test

- a. $4+4=8 > 9$ false; $5+4=9 > 9$ false; $6+4=10 > 9$ true. **6**
 b. $3 \times 3 = 9 \leq 12$ true; $3 \times 4 = 12 \leq 12$ true; $3 \times 5 = 15 \leq 12$ false. **3 and 4**
 c. $\frac{8}{2} = 4 \geq 5$ false; $\frac{10}{2} = 5 \geq 5$ true; $\frac{12}{2} = 6 \geq 5$ true. **10 and 12**

Problem 13: Infinitely Many Solutions

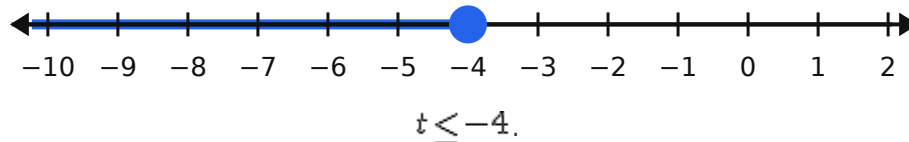
Check each number: $3 > 2.5$, $4 > 2.5$, and $2.6 > 2.5$ are true, so **3, 4, and 2.6** are solutions. The number 2.5 is not a solution because $2.5 > 2.5$ is false; neither is 2.

There are infinitely many solutions because after every solution, such as 2.6, 2.51, or 2.501,

there is always another number that is still greater than 2.5.

Problem 14: Freezer Temperature

- a. "At or below" includes -4 : $t \leq -4$
- b. $-6 \leq -4$ is true, since -6 is left of -4 . $-2 \leq -4$ is false. -6°F is a solution; -2°F is not.
- c. Closed circle at -4 , shaded to the left. **See graph.**



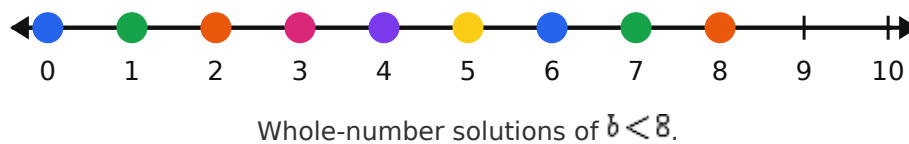
Problem 15: Little League Ages

At most 12 includes 12, so the inequality is $a \leq 12$.

$12 \leq 12$ is true, so $a = 12$ is a solution. $13 \leq 12$ is false, so $a = 13$ is not.

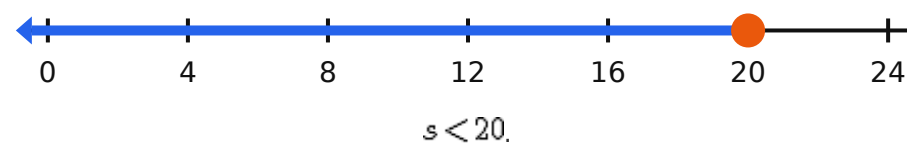
Problem 16: Library Books

- a. "At most 8" includes 8: $b \leq 8$
- b. $8 \leq 8$ is true and $9 \leq 8$ is false. $b = 8$ is a solution; $b = 9$ is not.
- c. Books are whole numbers, so graph single dots. **0, 1, 2, 3, 4, 5, 6, 7, 8**



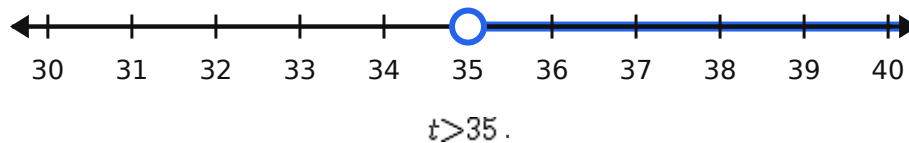
Problem 17: Spending Limit

- a. She can spend up to \$20, so $s \leq 20$.
- b. $18.75 \leq 20$ is true, so **\$18.75 is a solution**. $21 \leq 20$ is false, so **\$21 is not**.
- c. Closed circle at 20, shaded to the left toward 0. **See graph.**



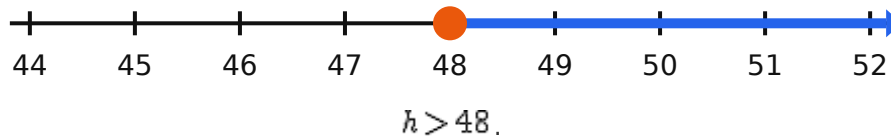
Problem 18: Free Shipping

- a. "More than 35" does not include 35: $t > 35$
- b. $34.99 > 35$ false; $35 > 35$ false; $35.01 > 35$ true. **Only Ethan gets free shipping.**
- c. Open circle at 35, shaded to the right. **See graph.**



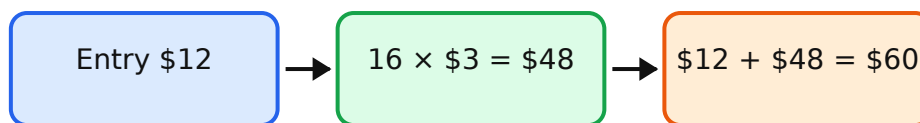
Problem 19: Roller Coaster

- a. $h \geq 48$
- b. $45.5 \geq 48$ is false; $48 \geq 48$ and $51 \geq 48$ are true. **Aisha and Noah can ride.**
- c. Closed circle at 48, shaded to the right. **See graph.**
- d. $45.5 + x = 48$, so $x = 48 - 45.5 = 2.5$ **inches**



Problem 20: County Fair Budget

- a. Entry plus tickets must be at most \$60: $12 + 3r \leq 60$
- b. $r = 15$: $12 + 45 = 57 \leq 60$ true. $r = 16$: $12 + 48 = 60 \leq 60$ true. $r = 17$: $12 + 51 = 63 \leq 60$ false. **15 and 16 work; 17 does not.**
- c. Since 16 works and 17 does not, the greatest whole number is 16. **16 ride tickets**



Noah spends exactly \$60.