

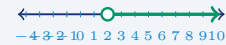
Graphing Single-Variable Inequalities

Name: _____ Date: _____ Score: _____ / 24

Quick Review and Helpful Hints

To graph an inequality on a number line, solve for the variable first if needed. Use an *open* circle for $<$ or $>$ (endpoint *not* included) and a *closed* circle for \leq or \geq (endpoint *included*). Then shade toward the numbers that make it true: to the right for “greater,” to the left for “less.”

▷ **Example:** Graph $x > 2$ on a number line. **Work:** This says x is greater than 2, and 2 itself is not included. So draw an open circle at 2 and shade everything to the right. ★ **Answer:** open circle at 2, shade right



$x > 2$: open circle at 2, shade right.

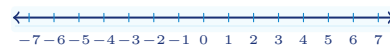
◆ Practice Problems

Solve if needed, then graph the solution on the provided number line.

1. $x > 3$



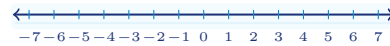
8. $x + 7 \geq 7$



2. $x \leq 5$



9. $3x \geq 9$



3. $x \geq -2$



10. $x - 1 < 2$



4. $x < 0$



11. $\frac{x}{2} > 3$



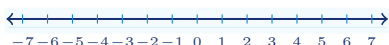
5. $x + 2 > 5$



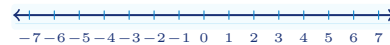
12. $x + 5 \leq 2$



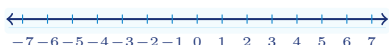
6. $x - 4 \leq 1$



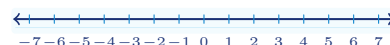
13. $4x > -8$



7. $2x < 8$



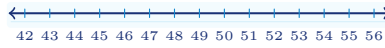
14. $x - 6 \geq -6$





◆ Word Problems

15. A ride requires you to be *taller than* 48 inches. Let h be height in inches. Write an inequality and graph it.



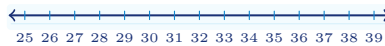
16. A parking garage allows vehicles *at most* 7 feet tall. Let t be height in feet. Write an inequality and graph it.



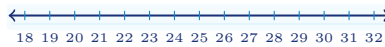
17. To pass a test, a student needs *at least* 60 points. Let p be points. Write an inequality and graph it.



18. The temperature stayed *below* 32°F all day. Let T be temperature. Write an inequality and graph it.



19. A coupon can be used when the order total is *at least* \$25. Let c be the cost in dollars. Write an inequality and graph it.



20. An elevator can hold *no more than* 12 people. Let n be the number of people. Write an inequality and graph it.



21. A child ticket is for ages *under* 13. Let a be age in years. Write an inequality and graph it.



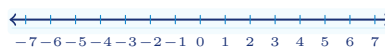
22. To enter the honors program, a score must be *greater than* 80. Let s be the score. Write an inequality and graph it.



23. A family wants to spend *at most* \$40 on snacks. Let b be the amount spent. Write an inequality and graph it.



24. A freezer should stay *below* 0°F. Let F be the temperature. Write an inequality and graph it.



Answer Keys

1. $x > 3$

2. $x \leq 5$

3. $x \geq -2$

4. $x < 0$

5. $x > 3$

6. $x \leq 5$

7. $x < 4$

8. $x \geq 0$

9. $x \geq 3$

10. $x < 3$

11. $x > 6$

12. $x \leq -3$

13. $x > -2$

14. $x \geq 0$

15. $h > 48$

16. $t \leq 7$

17. $p \geq 60$

18. $T < 32$

19. $c \geq 25$

20. $n \leq 12$

21. $a < 13$

22. $s > 80$

23. $b \leq 40$

24. $F < 0$



Graph Answer Sketches

Each short answer includes the matching number-line graph: open circles mean the endpoint is not included, closed circles mean it is included.

1. $x > 3$

2. $x \leq 5$

3. $x \geq -2$

4. $x < 0$

5. $x > 3$

6. $x \leq 5$

7. $x < 4$

8. $x \geq 0$

9. $x \geq 3$

10. $x < 3$

11. $x > 6$

12. $x \leq -3$

13. $x > -2$

14. $x \geq 0$

15. $h > 48$

16. $t \leq 7$

17. $p \geq 60$

18. $T < 32$

19. $c \geq 25$

20. $n \leq 12$

21. $a < 13$

22. $s > 80$

23. $b \leq 40$

24. $F < 0$



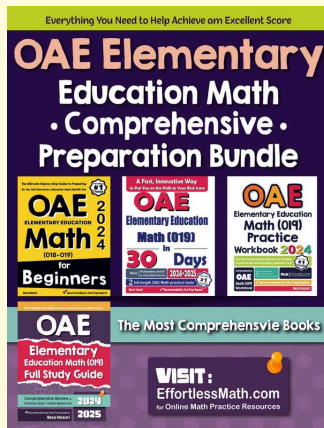
Step-by-Step Explanations

1. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is The variable is already isolated: $x > 3$. Use an open circle at 3 because 3 is not included, then shade right toward larger numbers. So the final answer is $x > 3$.
2. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is The \leq symbol includes the endpoint, so put a closed circle at 5 and shade left for all numbers less than or equal to 5. So the final answer is $x \leq 5$.
3. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is The \geq symbol includes -2 . Put a closed circle at -2 and shade right because the solution is all numbers at least -2 . So the final answer is $x \geq -2$.
4. Strict less-than does not include the endpoint. Put an open circle at 0 and shade left.
5. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Subtract 2 from both sides: $x > 3$. Put an open circle at 3 and shade right. So the final answer is $x > 3$.
6. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Add 4 to both sides: $x \leq 5$. Put a closed circle at 5 and shade left. So the final answer is $x \leq 5$.
7. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Divide both sides by positive 2: $x < 4$. Put an open circle at 4 and shade left. So the final answer is $x < 4$.
8. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Subtract 7 from both sides: $x \geq 0$. Put a closed circle at 0 and shade right. So the final answer is $x \geq 0$.
9. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Divide both sides by positive 3: $x \geq 3$. Put a closed circle at 3 and shade right. So the final answer is $x \geq 3$.
10. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Add 1 to both sides: $x < 3$. Put an open circle at 3 and shade left. So the final answer is $x < 3$.
11. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Multiply both sides by positive 2: $x > 6$. Put an open circle at 6 and shade right. So the final answer is $x > 6$.
12. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Subtract 5 from both sides: $x \leq -3$. Put a closed circle at -3 and shade left. So the final answer is $x \leq -3$.
13. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Divide both sides by positive 4: $x > -2$. Put an open circle at -2 and shade right. So the final answer is $x > -2$.
14. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Add 6 to both sides: $x \geq 0$. Put a closed circle at 0 and shade right. So the final answer is $x \geq 0$.
15. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is "Taller than" is strict, so $h > 48$. Put an open circle at 48 and shade right. So the final answer is $h > 48$.
16. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is "At most" means \leq , so $t \leq 7$. Put a closed circle at 7 and shade left. So the final answer is $t \leq 7$.
17. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is "At least" means \geq , so $p \geq 60$. Put a closed circle at 60 and shade right. So the final answer is $p \geq 60$.
18. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is "Below" is strict, so $T < 32$. Put an open circle at 32 and shade left. So the final answer is $T < 32$.
19. Step by step: Read the phrase first. "At least" means the endpoint is included, so the inequality is $c \geq 25$. On the number line, put a closed circle at 25 and shade right.
20. Take it one move at a time: "No more than" means the value can be 12 or less, so $n \leq 12$. Use a closed circle at 12 and shade left.
21. The word "under" is strict, so 13 is not included. Write $a < 13$, then graph it with an open circle at 13 and shading to the left.
22. "Greater than" is also strict, so the score must be more than 80. Write $s > 80$, use an open circle at 80, and shade right.
23. For "at most," the endpoint is allowed. That gives $b \leq 40$, so the graph needs a closed circle at 40 and shading left.
24. "Below" means the temperature must be less than 0, not equal to 0. Write $F < 0$, draw an open circle at 0, and shade left.



Keep Building OAE Elementary Education Math (019) Skills

Recommended Effortless Math resources

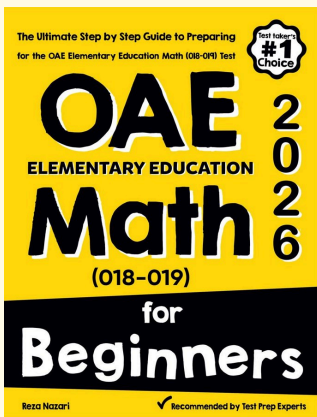


OAE Elementary Education Math Comprehensive Preparation Bundle



Scan Me
Download Instantly

STUDENT FAVORITE - OAE Elementary Education Math (019) for Beginners



OAE Elementary Education Math (019) for Beginners 2026

Step-by-step lessons, topic practice, and full review support for students who want a calm path through OAE Elementary Education Math (019) preparation.

A strong companion for self-study, tutoring, homework, and targeted review.



PDF Edition
Scan Me
Download Instantly