

# Comparing and Ordering Integers

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Score: \_\_\_\_\_ / 18

## Quick Review and Helpful Hints

On a number line, values *increase to the right*. Every positive number is greater than every negative number. For two negatives, the one *closer to zero* is greater (so  $-2 > -8$ ). Use  $<$ ,  $>$ , or  $=$  to compare.

▶ **Example:** Which is greater,  $-3$  or  $-7$ ? **Work:** On the number line,  $-3$  sits to the right of  $-7$  (closer to 0), so it is larger. ★ **Answer:**  $-3$



Larger values lie to the right.

### ◆ Practice Problems

Compare with  $<$ ,  $>$ , or  $=$ , or order as directed.

- |  |   |
|--|---|
| <p>1. <math>-3</math> ___ <math>5</math> _____</p> <p>2. <math>-2</math> ___ <math>-8</math> _____</p> <p>3. <math>0</math> ___ <math>-1</math> _____</p> <p>4. <math>-10</math> ___ <math>-4</math> _____</p> <p>5. <math>7</math> ___ <math>-7</math> _____</p> <p>6. <math>-5</math> ___ <math>-5</math> _____</p> <p>7. Greater of <math>-6</math> and <math>-2</math> _____</p> | <p>8. Least of <math>-3, -9, -1</math> _____</p> <p>9. Greatest of <math>-4, 0, -8</math> _____</p> <p>10. Order <math>-2, 3, -5</math> least to greatest _____</p> <p>11. <math>-100</math> ___ <math>-99</math> _____</p> <p>12. Greater of <math>0</math> and <math>-50</math> _____</p> <p>13. Least of <math>5, -5, 2, -2</math> _____</p> <p>14. <math>-1</math> ___ <math>1</math> _____</p> |
|--|---|

### ◆ Word Problems

15. Which temperature is warmer (greater):  $-3^\circ\text{F}$  or  $-8^\circ\text{F}$ ? \_\_\_\_\_
16. Order from coldest to warmest:  $2, -4, -1$ . \_\_\_\_\_
17. Which is deeper (more negative):  $-20$  ft or  $-35$  ft? \_\_\_\_\_
18. Compare a debt of  $-50$  and a debt of  $-20$ : which number is greater? \_\_\_\_\_



## Answer Keys

1.

2.

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### 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 Think of the number line: numbers get larger as you move right.  $-3$  is to the left of  $5$ , so the correct comparison is  $-3 < 5$ . So the final answer is  $<$ .

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 For two negative numbers, the one closer to  $0$  is greater because it is farther right.  $-2$  is closer to  $0$  than  $-8$ , so  $-2 > -8$ . So the final answer is  $>$ .

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  $0$  is greater than any negative number because it sits to the right of all negatives on the number line. Therefore  $0 > -1$ . So the final answer is  $>$ .

4. 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 Both numbers are negative, so compare their positions:  $-10$  is farther left than  $-4$ . Farther left means smaller, so  $-10 < -4$ . So the final answer is  $<$ .

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 A positive number is always greater than a negative number. Since  $7$  is positive and  $-7$  is negative,  $7 > -7$ . So the final answer is  $>$ .

6. The two numbers are exactly the same point on the number line. When values match, use the equal sign:  $-5 = -5$ .

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 To find the greater negative number, choose the one closer to  $0$ . Since  $-2$  is closer to  $0$  than  $-6$ , the greater number is  $-2$ . So the final answer is  $>$ .

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 Least means smallest, or farthest left on the number line. Among  $-3$ ,  $-9$ ,  $-1$ ,  $-9$  is farthest left, so it is least. So the final answer is  $<$ .

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 Zero is greater than any negative number because negatives are left of  $0$ . So among  $-4$ ,  $0$ ,  $-8$ , the greatest value is  $0$ . So the final answer is  $>$ .

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 Least to greatest means list from left to right on the number line. The order is  $-5$  first, then  $-2$ , then  $3$ . So the final answer is  $-5, -2, 3$ .

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 With negative numbers, the number with the larger absolute size is actually smaller.  $-100$  is farther left than  $-99$ , so  $-100 < -99$ . So the final answer is  $<$ .

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 Zero is greater than a negative number because  $0$  is to the right of negative values. Between  $0$  and  $-50$ , the greater number is  $0$ . So the final answer is  $>$ .

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 Least means the smallest value, not the smallest absolute value. Of  $5$ ,  $-5$ ,  $2$ ,  $-2$ ,  $-5$  is farthest left, so it is least. So the final answer is  $<$ .

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  $-1$  is a negative number and  $1$  is positive. Since every negative is less than every positive,  $-1 < 1$ . So the final answer is  $<$ .

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 Warmer temperature means the greater number on the number line. Since  $-3$  is closer to  $0$  and to the right of  $-8$ ,  $-3^\circ\text{F}$  is warmer. So the final answer is  $>$ .

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 Coldest to warmest means least to greatest. The most negative temperature,  $-4^\circ$ , comes first, then  $-1^\circ$ , then  $2^\circ$ . So the final answer is  $-4, -1, 2$ .

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 Deeper below the surface means a more negative elevation. Since  $-35$  is farther below  $0$  than  $-20$ ,  $-35$  ft is deeper. So the final answer is  $<$ .

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 For debts, the greater number is the one closer to zero because it represents owing less. Since  $-20$  is closer to  $0$  than  $-50$ ,  $-20$  is greater. So the final answer is  $>$ .



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