Inequalities in Context

Let's explore situations that compare values.

1.1 Inequalities

Place a < or > to correctly complete the inequality.

1. 5 _____ 10

2. 5 _____ -10

3. -5 _____ -10

4. $\frac{1}{5}$ _____ $\frac{1}{10}$

5. $\frac{-1}{5}$ _____ $\frac{-1}{10}$

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1.2 Sweater Weather

Elena and Lin are planning a cold-weather camping trip. They are studying gear they might need, including jackets and sleeping bags. Here is what they learned about some different equipment.

- A down jacket is rated as comfortable when the temperature is between -20°F and 20°F.
- A down sleeping bag is rated as comfortable when the temperature is -20°F or above.
- A synthetic sleeping bag is rated as comfortable when the temperature is 20°F or above.

1. What are 2 examples of temperatures in which it would be comfortable to wear the down jacket?

2. Which gear would comfortable to use when the temperature is -16.5°F?

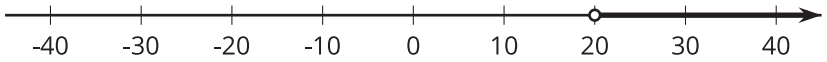
3. Is it possible to list all the temperatures in which the down jacket would be comfortable? Explain your reasoning.

4. Which item's comfort rating matches each inequality?
   a. $x \geq 20$
   b. $-20 \leq x$
   c. $-20 \leq x$ and $x \leq 20$

5. Here are five graphs of inequalities. Match each of the situations in this activity to a graph.

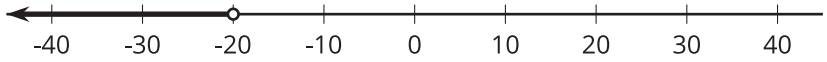
A

B

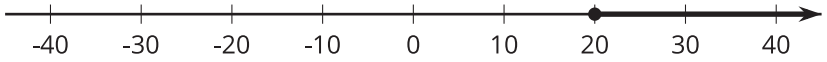


C

D



E



6. Are there any temperatures at which using the sleeping bags and the jacket would all be comfortable?

7. Write one or more inequalities representing the range of temperatures in your area in the winter. Which gear, if any, would you recommend based on that?

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1.3 Representing Inequalities

For each statement, write an inequality to represent it. If a variable is used, be prepared to explain what it represents.

1. Han has 5 pencils, and Andre has 8.

2. Noah has more books than Kiran has.

3. Clare has more than $200 in her savings account.

4. The most the mechanic will charge for an oil change is $60.

5. Diego scored 1,200 points in a game, breaking the record for highest score.

6. Jada is younger than Tyler.

7. Animal World has at least 400 different species of animals.

8. Mai's bowling score is more than Clare's and Han's combined.