# Answers and talk notes

Understand Inequalities and Their Solutions

### What your student is learning

Tonight we graph an inequality on a number line. We draw a circle at the boundary number and shade the side that works.

## Answers

Ask your student to explain before you look.

1. **B.** A closed circle. A closed circle, because 7 is included in $x \leq 7$.
2. **C.** An open circle. An open circle, because 2 is not included in $x > 2$.
3. **A.** Right of 4. Right of 4, because x is greater than 4.
4. **C.** $x < 3$. $x < 3$, because 3 is not included and the shading goes toward smaller numbers.
5. **D.** 5. 5 is a solution of $x < 6$, because 5 is less than 6.
6. **B.** $x \geq 8$. $x \geq 8$, because 8 is included and the shading goes toward larger numbers.

### Talk about it

Why is the circle at 7 closed in one graph and open in the other? Which side did you shade?

### Home mission

Line up 8 cups in a row. Number them 0 to 7 with sticky notes. Say "t ≥ 2." Flip the cups that work. Is cup 2 one of them? Which side is flipped?

### When they are stuck, ask

- What number is the boundary, where the shading starts?
- Does the symbol have a line under it? That tells us open or closed circle.
- Which way are the answers — bigger numbers or smaller numbers?

### Try not to say

- Always use a closed circle, it doesn't matter which symbol.
- Always shade to the right.
- $x < 5$ and $x \leq 5$ graph exactly the same way.