## Topic Check In - 6.04 Algebraic inequalities

1. Put the correct sign <, >, ≤ or ≥ in the box.

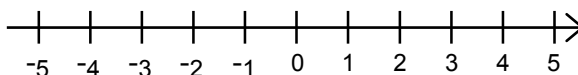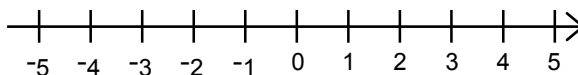   5 ☐ 4

2. Put the correct sign <, >, ≤ or ≥ in the box.

   -4 ☐ -3

3. Write as an inequality, $x$ is less than or equal to 8.

4. Show on a number line $x < 2$.

   

5. Show on a number line $^-1 \leq x < 3$.

   

6. Using $y$ to represent age in years, explain in words $y \geq 18$.

7. $x < 2$. Joe says the largest value $x$ can take is 1.9.
   Explain why Joe is wrong.

8. $x$ is an integer where $^-4 \leq x < 3$.
   Zoe says there are 7 possible values for $x$. Explain why Zoe is correct.

9. $x^2 < 16$ and $x \leq {}^-1$.
   Rewrite these two inequalities as a single inequality.

10. A survey is conducted on the topic of reading.
    The following question and responses are used.

    How many hours on average do you read per week?

    | Less than 2 hours | Between 2 and 4 hours | Over 4 hours |
    |---|---|---|
    | ☐ | ☐ | ☐ |

    Using $h$ to represent the number of hours, rewrite the responses using inequalities.

### Extension

You are going on a field trip and need to choose where to go. The theme park costs a £100 fee plus £10 per student. The concert costs a £250 fee plus £5 per student. How many students need to go on the trip in order for the concert to be the better deal?
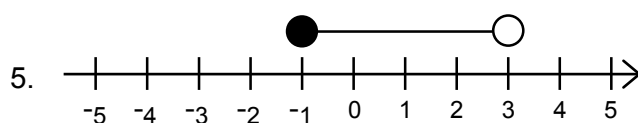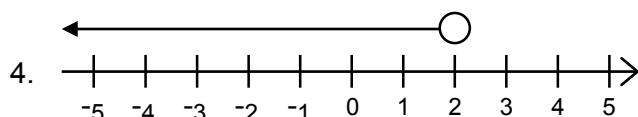
## Answers

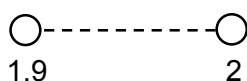1.  5 $\boxed{>}$ 4

2.  ⁻4 $\boxed{<}$ ⁻3

3.  $x \leq 8$

4.  

5.  

6.  Aged 18 or over or $y$ is greater than or equal to 18.

7.  Although 1.9 is a correct value within the stated range it is not the largest.

    

    1.9                2

    It could be 1.91 or 1.92, 1.99, 1.999, 1.9999999.
    To get the mark it must be clear that there are values between 1.9 and 2.

8.  The 7 values are ⁻4, ⁻3, ⁻2, ⁻1, 0, 1, and 2 (but not 3).

9.  ⁻4 < $x \leq$ ⁻1

10. $h < 2$     $2 \leq h \leq 4$     $h > 4$


## Extension

More than 30 people ($100 + 10x > 250 + 5x$)

| Assessment Objective | Qu. | Topic | R | A | G |
|---|---|---|---|---|---|
| AO1 | 1 | Use inequality symbols. | | | |
| AO1 | 2 | Use inequality symbols with negative numbers. | | | |
| AO1 | 3 | Write an inequality from words. | | | |
| AO1 | 4 | Show a simple inequality on a number line. | | | |
| AO1 | 5 | Show an inequality range on a number line. | | | |
| AO2 | 6 | Write an inequality in words. | | | |
| AO2 | 7 | Understand an inequality involving decimals. | | | |
| AO2 | 8 | Understand an inequality involving integers. | | | |
| AO3 | 9 | Write two inequalities as a single inequality. | | | |
| AO3 | 10 | Use inequalities to describe continuous data. | | | |

| Assessment Objective | Qu. | Topic | R | A | G |
|---|---|---|---|---|---|
| AO1 | 1 | Use inequality symbols. | | | |
| AO1 | 2 | Use inequality symbols with negative numbers. | | | |
| AO1 | 3 | Write an inequality from words. | | | |
| AO1 | 4 | Show a simple inequality on a number line. | | | |
| AO1 | 5 | Show an inequality range on a number line. | | | |
| AO2 | 6 | Write an inequality in words. | | | |
| AO2 | 7 | Understand an inequality involving decimals. | | | |
| AO2 | 8 | Understand an inequality involving integers. | | | |
| AO3 | 9 | Write two inequalities as a single inequality. | | | |
| AO3 | 10 | Use inequalities to describe continuous data. | | | |

| Assessment Objective | Qu. | Topic | R | A | G |
|---|---|---|---|---|---|
| AO1 | 1 | Use inequality symbols. | | | |
| AO1 | 2 | Use inequality symbols with negative numbers. | | | |
| AO1 | 3 | Write an inequality from words. | | | |
| AO1 | 4 | Show a simple inequality on a number line. | | | |
| AO1 | 5 | Show an inequality range on a number line. | | | |
| AO2 | 6 | Write an inequality in words. | | | |
| AO2 | 7 | Understand an inequality involving decimals. | | | |
| AO2 | 8 | Understand an inequality involving integers. | | | |
| AO3 | 9 | Write two inequalities as a single inequality. | | | |
| AO3 | 10 | Use inequalities to describe continuous data. | | | |

| Assessment Objective | Qu. | Topic | R | A | G |
|---|---|---|---|---|---|
| AO1 | 1 | Use inequality symbols. | | | |
| AO1 | 2 | Use inequality symbols with negative numbers. | | | |
| AO1 | 3 | Write an inequality from words. | | | |
| AO1 | 4 | Show a simple inequality on a number line. | | | |
| AO1 | 5 | Show an inequality range on a number line. | | | |
| AO2 | 6 | Write an inequality in words. | | | |
| AO2 | 7 | Understand an inequality involving decimals. | | | |
| AO2 | 8 | Understand an inequality involving integers. | | | |
| AO3 | 9 | Write two inequalities as a single inequality. | | | |
| AO3 | 10 | Use inequalities to describe continuous data. | | | |

OCR
Oxford Cambridge and RSA