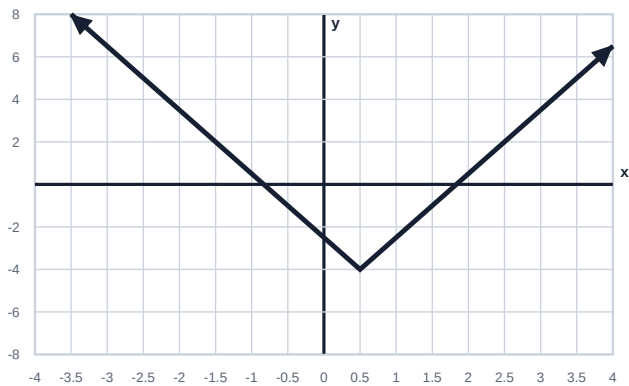


Determining Continuity from Graphs

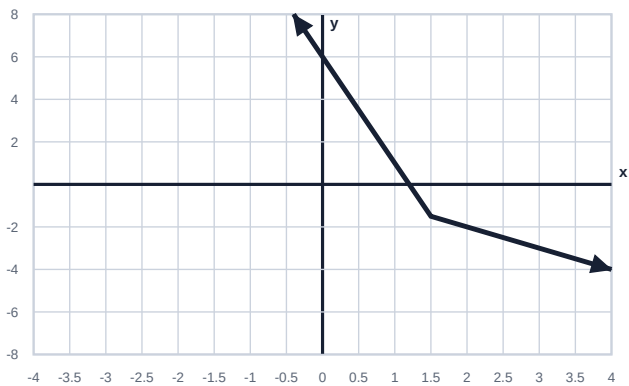
Use each supplied graph to find maximal open intervals of two-sided continuity. Only the shown discontinuities occur; arrows indicate continuation.

1. Read the graph. Find maximal continuity intervals.



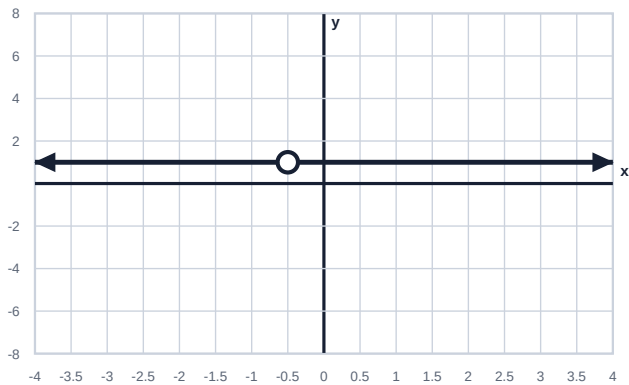
Intervals: _____

2. Read the graph. Find maximal continuity intervals.



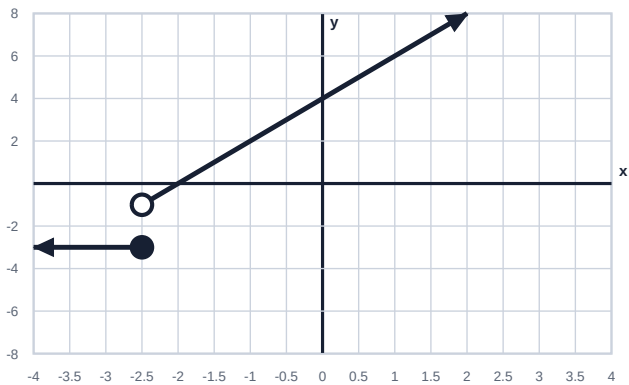
Intervals: _____

3. Read the graph. Find maximal continuity intervals.



Intervals: _____

4. Read the graph. Find maximal continuity intervals.



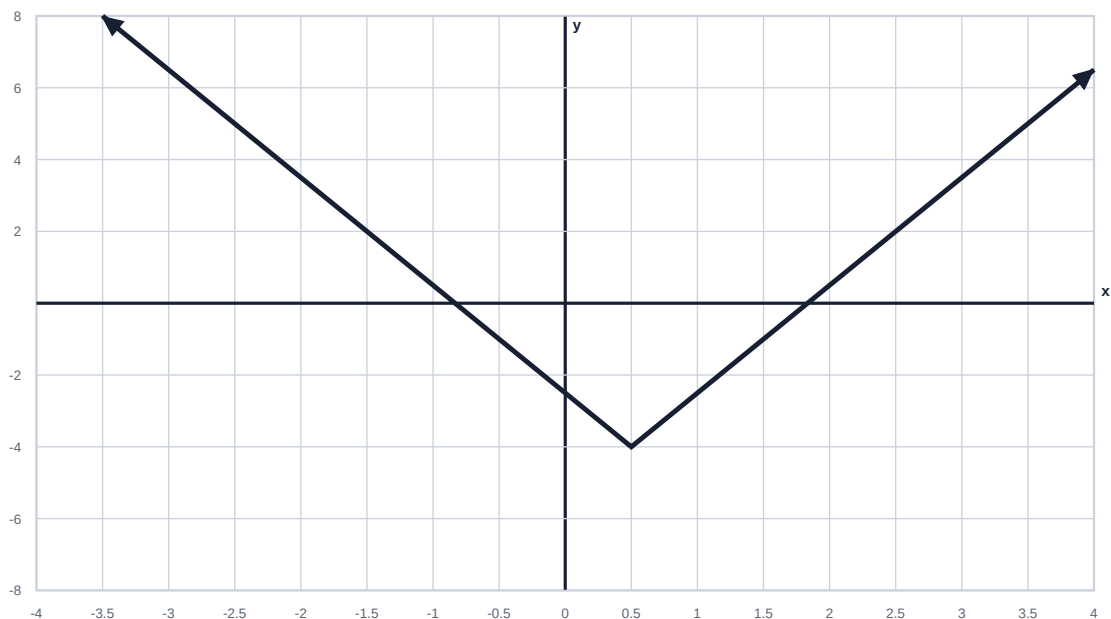
Intervals: _____

Determining Continuity from Graphs**Worked Answer Key**

Use each supplied graph to find maximal open intervals of two-sided continuity. Only the shown discontinuities occur; arrows indicate continuation.

1. Completed graph and exact continuity reasoning

$$f(x) = 3 \left| x - \frac{1}{2} \right| - 4$$



Every marked corner is continuous: both one-sided limits equal the function value. A corner does not split the interval.

$x=1/2$: left -4; right -4; $f(x)$ -4; continuous.

Maximal open continuity intervals: $(-\infty, \infty)$.

Determining Continuity from Graphs

Worked Answer Key

Use each supplied graph to find maximal open intervals of two-sided continuity. Only the shown discontinuities occur; arrows indicate continuation.

2. Completed graph and exact continuity reasoning

$$f(x) = -3 \cdot x + 3 + 2 \left| x - \frac{3}{2} \right|$$



Every marked corner is continuous: both one-sided limits equal the function value. A corner does not split the interval.

$x=3/2$: left $-3/2$; right $-3/2$; $f(x)$ $-3/2$; continuous.

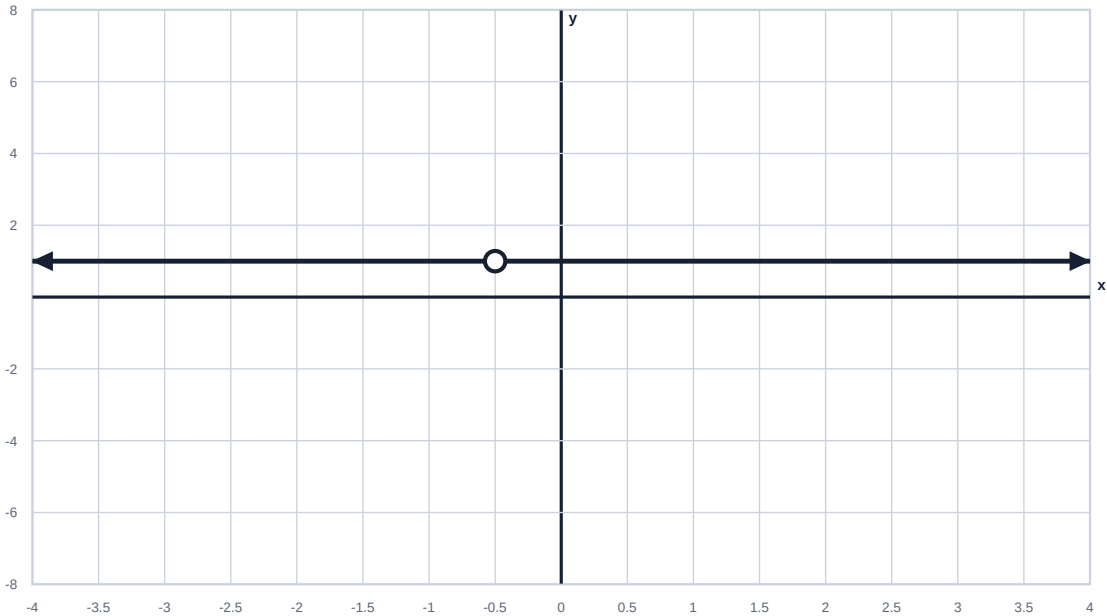
Maximal open continuity intervals: $(-\infty, \infty)$.

Determining Continuity from Graphs
Worked Answer Key

Use each supplied graph to find maximal open intervals of two-sided continuity. Only the shown discontinuities occur; arrows indicate continuation.

3. Completed graph and exact continuity reasoning

$$f(x) = \frac{\left(x + \frac{1}{2}\right)}{\left(x + \frac{1}{2}\right)}$$



Original denominator exclusions: -1/2. Cancelled factors are holes; only residual denominator factors are vertical asymptotes.
x=-1/2: left 1; right 1; f(x) undefined; interval split.
Maximal open continuity intervals: (-infinity, -1/2) union (-1/2, infinity).

Determining Continuity from Graphs
Worked Answer Key

Use each supplied graph to find maximal open intervals of two-sided continuity. Only the shown discontinuities occur; arrows indicate continuation.

4. Completed graph and exact continuity reasoning

f(x) =

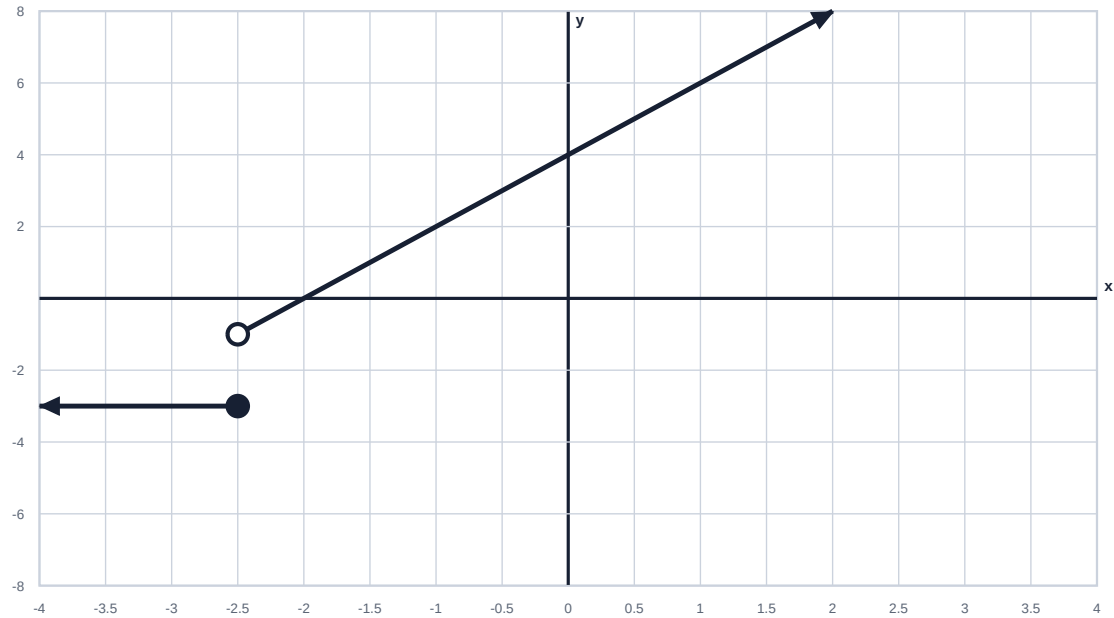
-3

$2 \cdot x + 4$

$f(-5/2) = -3$

$x < -5/2$

$x > -5/2$



$x = -5/2$: left -3; right -1; $f(x)$ -3; interval split.
Maximal open continuity intervals: $(-\infty, -5/2)$ union $(-5/2, \infty)$.