# Algebraic Inequalities

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- Stupid questions
- Graphs

- Inequalities with $x$
- Inequalities with $x$ and $y$
- Simple Inequalities
Simple Inequalities for 100.

Which of the following inequalities is NOT true?

\[-2 < -1\]
\[101 > 97\]
\[3/4 > 2/5\]
\[-2/3 < -1\]
\[-2/3 > -2\]
Simple Inequalities for 200.

Which of the following inequalities is ALWAYS true?

\[ x + 1 > 0 \]
\[ x - 1 < 0 \]
\[ x < 2x \]
\[ x^2 + 1 > 0 \]
\[ -x < x \]
Simple Inequalities for 300.

Which of the following inequalities is true for $x = -1$?

\begin{align*}
x &> 0 \\
x + 1 &> 0 \\
-x &< 0 \\
x^2 &> \\
x^2 &> 1
\end{align*}
Simple Inequalities for 400.

Assume $0 > y$. Which of the following is true for all $y$?

- $y^2 < 0$
- $y + 2 < 0$
- $-3y < y$
- $-3y < -5y$
- $y^2 < y$
Inequalities with $x$ for 100.

Solve $x + 2 > -2$

$x > 0$

$x < 0$

$x > 4$

$x > -4$

$x < 4$
Inequalities with $x$ for 200.

Solve $-x + 3 > -2$

$x > 1$
$x < 5$
$x > -5$
$x > 5$
$x < -1$
Inequalities with $x$ for 300.

Solve $-3x + 3 > -2x + 1$

$x > 2$

$x < 4$

$x > 4$

$x < 2$

$x < -4$
Inequalities with $x$ for 400.

Solve $|x + 3| > 1$

$x > 0$

$x > -2$

$x < 2$ or $x > -2$

$x < -4$ or $x > -2$

$x < -4$ or $x > -4$
Inequalities with $x$ and $y$ for 100.

Which of the following inequalities is always true?

- $x < y$
- $x^2 > y$
- $(xy)^2 > -2$
- $x + y > y$
- $xy > 0$
Inequalities with $x$ and $y$ for 200.

Which of the following inequalities is satisfied by the point $x = 10$, $y = -1$?

- $x < y$
- $x < y + 8$
- $x^2 < y + 1$
- $-x > y$
- $-x < y + 8$
Inequalities with $x$ and $y$ for 300.

Which of the following inequalities is satisfied by the point $x = -5$, $y = 2$?

- $-x < y$
- $2x > y$
- $x^2 > 10y$
- $-x > 10y$
- $-5x < y$
Inequalities with $x$ and $y$ for 400.

Which is true for $x = -2 \ y = -2$

$-x < y$
$2x > y$
$5xy + 3 > 21$
$-7x + 2 > -10y - 3$
$-5x + 10 < 12y + 11$
Stupid questions for 100.

Let $x = y = 0$. Which inequality is true?

- $x + y > 0$
- $xy > 0$
- $12xy + 5 < 16 + x$
- $-23x + y > -14y + x$
- $x - y > 0$
Stupid questions for 200.

Let $x = y = 1$. Which inequality is true?

- $x > y$
- $x + 1 < y + 1$
- $-7x > 12y$
- $x - y < 1$
- $x + y > 2$
Stupid questions for 300.

Let $x = 1$. Which inequality is true for all $y$?

- $y > x$
- $y^2 > x$
- $x - y < -y + 1$
- $xy > 2y$
- $y^2 + 2 > x$
Stupid questions for 400.

Let \( x < 0 \) and \( y > 0 \). Which inequality is true?

- \( xy > 0 \).
- \( x - y > 0 \)
- \( x < -y \)
- \( x/y > 0 \).
- \( x^2 y > 0 \).
Graphs for 100.

The inequality $y < x$ is solved by:

- Points on the line $y = x$
- Points above the line $y = x$
- Points on the line $y = -x$
- Points below the line $y = x$
- Only the point (0,0)
The inequality $y > -2x + 3$ is solved by:

- Points above the line $y = 2x - 3$
- Points on the line $y = -2x + 3$
- Points above the line $y = -2x + 3$
- Points on the line $y = -2x + 3$
- Points below the line $y = -2x + 3$
Graphs for 300.

The inequality \(-2y > 4x - 4\) is solved by:

- Points on the line \(y = -2x + 2\)
- Points below the line \(y = -2x - 2\)
- Points above the line \(y = -2x - 2\)
- Points above the line \(y = -2x + 2\)
- Points below the line \(y = -2x + 2\)
Graphs for 400.

All graphs $y = \log_a x$ always pass through:

Points $(0, 0)$ and $(1, 1)$
Points $(a, 0)$ and $(1, a)$
Points $(1, 0)$ and $(a, 1)$
Points $(0, 1)$ and $(a, 1)$
None of the above