
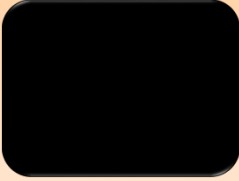


# Algebra

Solving Linear Inequalities



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## Graphing Inequalities

## Equivalent Inequalities

## Solving Inequalities Using Addition and Subtraction

## Solving Inequalities Using Multiplication and Division

Overview



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You need to be at least 16 years old to drive a car

$x \geq 21$

$x =$  Age at which you can drive a car

$x \geq 16$



Solving Linear Inequalities

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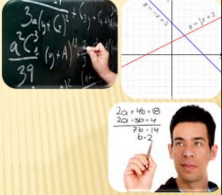
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$x \leq -5$



A number line from -15 to 15 with tick marks every 1 unit. A solid red circle is placed at -5, and a red arrow points to the left from this circle.

*Solving Linear Inequalities*



Three small inset images: a chalkboard with algebraic equations, a coordinate plane with a line, and a man pointing at a whiteboard with equations.

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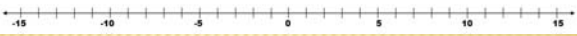
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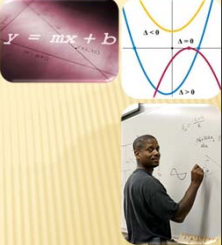
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Graph:  
 $x \leq 6$   
 $-2 < x$



A number line from -15 to 15 with tick marks every 1 unit. A solid red circle is at 6 with an arrow pointing left. An open red circle is at -2 with an arrow pointing right.

*You Try it!*



Three small inset images: a coordinate plane with a line, a parabola, and a man pointing at a whiteboard.

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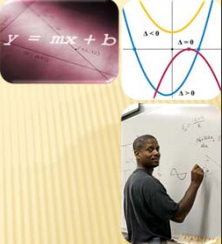
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Graph:  
 $x \leq 6$   
 $-2 < x$        $x > -2$



A number line from -15 to 15 with tick marks every 1 unit. A solid red circle is at 6 with an arrow pointing left. An open red circle is at -2 with an arrow pointing right. A blue circle is at -2 with an arrow pointing right.

*You Try it!*



Three small inset images: a coordinate plane with a line, a parabola, and a man pointing at a whiteboard.

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$$a + 1 = b + 1$$
$$a + 1 > b + 1$$

Solving Linear Inequalities Using Addition and Subtraction

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$$x + 6 > 11$$
$$x + 6 - 6 > 11 - 6$$
$$x > 5$$

Solving Linear Inequalities Using Addition and Subtraction

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$$a * 2 = b * 2$$
$$a * 2 > b * 2$$

Solving Linear Inequalities Using Multiplication and Division

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$$a \cdot -2 = b \cdot -2$$
$$a \cdot -2 \geq b \cdot -2$$

Solving Linear Inequalities Using Multiplication and Division

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$$(-1)3 > (-1)1$$
$$-3 \leq -1$$

Solving Linear Inequalities Using Multiplication and Division

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$$-9 \left( \frac{-1}{-1} \right)$$
$$+6 \left( \frac{-1}{-1} \right)$$


Solving Linear Inequalities Using Multiplication and Division

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**$-5x > 25$**

**$\frac{-5x}{-5} > \frac{25}{-5}$**

**$x < -5$**



Solving Linear Inequalities Using Multiplication and Division

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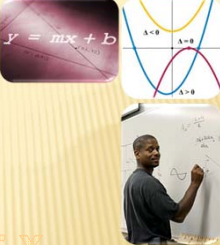
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**Solve for x**

**$3x + 2 > 5$**



You Try it!

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**Solve for x**

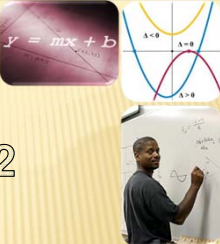
**$3x + 2 > 5$**

**$3x + 2 - 2 > 5 - 2$**

**$3x > 3$**

**$3x \div 3 > 3 \div 3$**

**$x > 1$**



You Try it!

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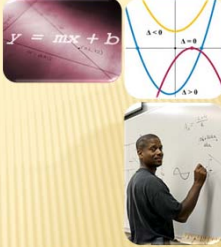
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Solve for x  
 $4 - 3x \leq -5$



You Try 

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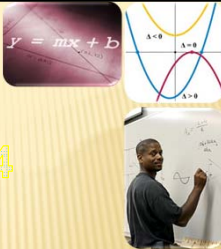
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Solve for x  
 $4 - 3x \leq -5$   
 $4 - 4 - 3x \leq -5 - 4$   
 $- 3x \leq -9$   
 $- 3x \div (-3) \leq -9 \div (-3)$   
 $x \geq 3$



You Try 

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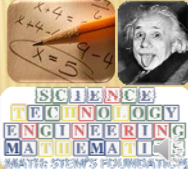
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 Worksheets and Quizzes at  
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