


Algebra 1

Solving Linear Inequalities



$2a + 16 = 19$
 $2a - 16 = 19$
 $2a = 35$
 $a = 17.5$

$3a + 2 = 39$
 $3a = 37$
 $a = 12.33$

$x + 4 = 6$
 $x + 4 = 9$
 $x = 5$

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Graphing Inequalities

Equivalent Inequalities

Solving Inequalities Using Addition and Subtraction

Solving Inequalities Using Multiplication and Division

Overview



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

~~x ≥ 21~~


x = Age at which you can drive a car

$x \geq 16$



Solving Linear Inequalities


$x \leq -5$



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

Solving Linear Inequalities


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



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



You Try It!

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





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



You Try It!


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

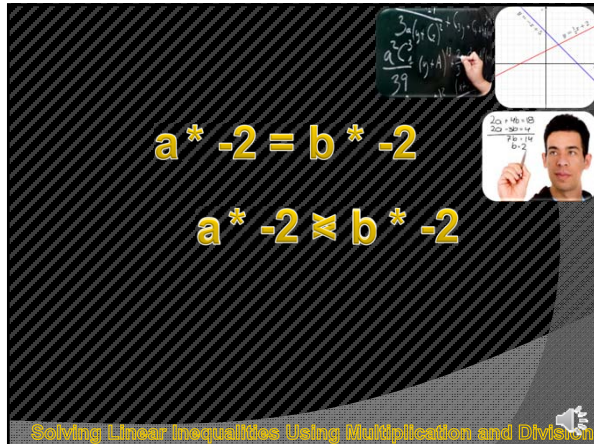
Solving Linear Inequalities Using Addition and Subtraction


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

Solving Linear Inequalities Using Addition and Subtraction


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

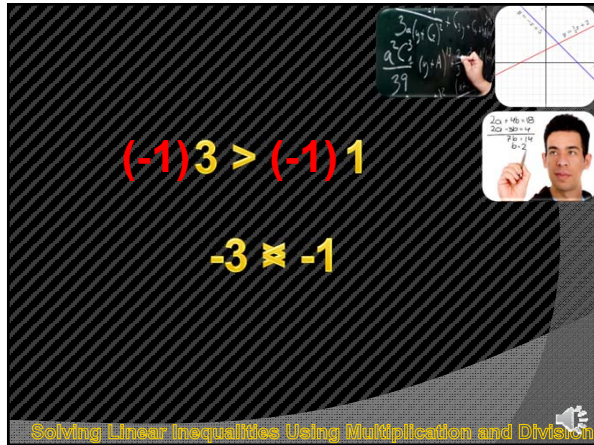
Solving Linear Inequalities Using Multiplication and Division



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

Solving Linear Inequalities Using Multiplication and Division

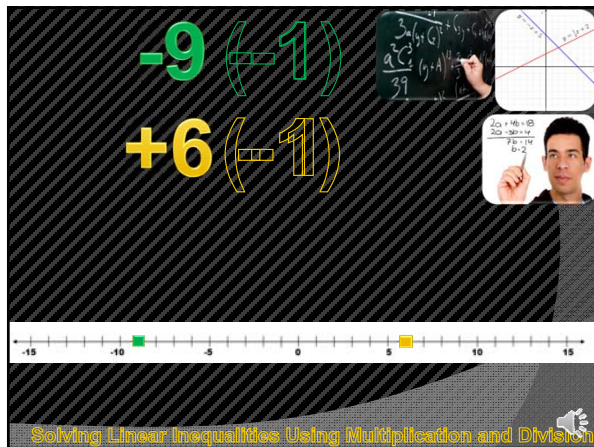
The thumbnail features a dark background with diagonal lines. It includes a chalkboard with algebraic work, a graph of a line, and a man pointing at a whiteboard with the system of equations $2a + 4b = 8$, $2a - 3b = 14$, $4b = 14 - 2a$, and $b = -2$.



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

Solving Linear Inequalities Using Multiplication and Division

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$-9 (-1)$
 $+6 (-1)$



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

Solve for x

$$3x + 2 > 5$$


You Try It!

Solve for x

$$3x + 2 > 5$$
$$3x + 2 - 2 > 5 - 2$$
$$3x > 3$$
$$3x \div 3 > 3 \div 3$$
$$x > 1$$


You Try It!

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



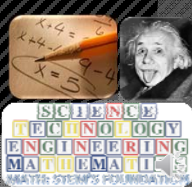
You Try!

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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