TOC 44

WWK

Solutions - the set of numbers that make the inequality true $x \geq 5$ Solutions 6,7,8,9..

Solution set - Set of all solutions { }

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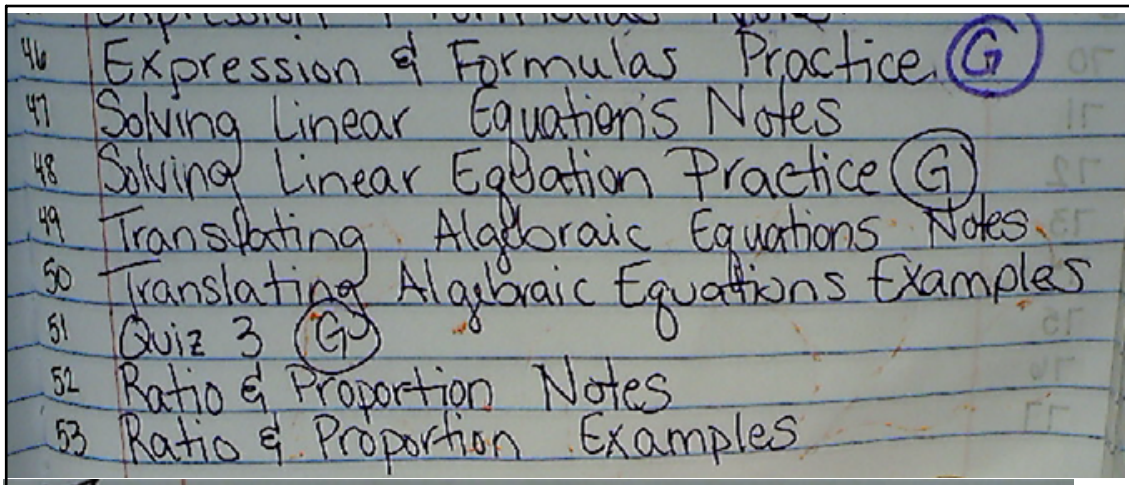

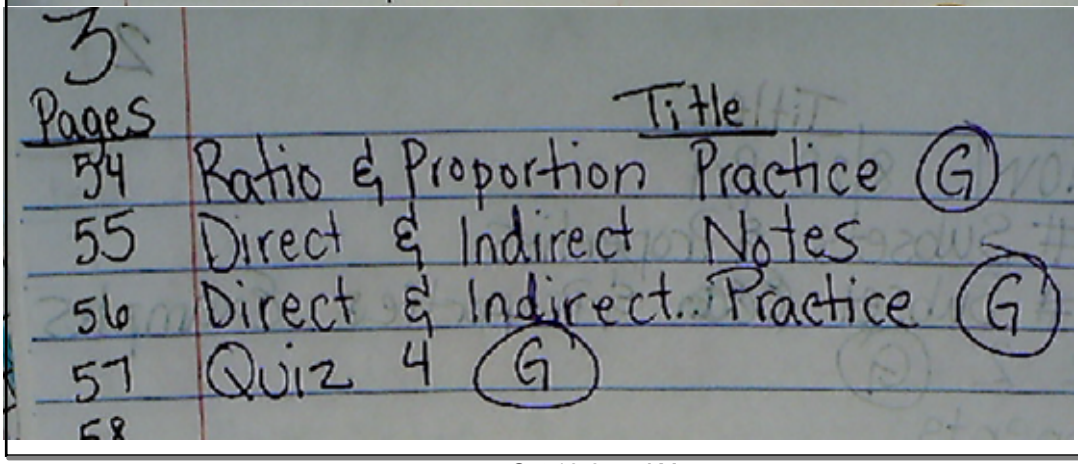

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TOC 58 Solving Linear Inequalities Notes

Golden rule for Inequalities

Whenever you MULTIPLY or DIVIDE both sides of an inequality by a NEGATIVE NUMBER, you must flip the inequality sign.

Open circles	Closed circles
<, >, ≠	≤, ≥, =

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Translations

x is at least 5

$x \geq 5$

x is at most 5

$x \leq 5$

x is between 5 & 7

$5 < x < 7$

x is no more than 5

$x \leq 5$

X is no less than 5

$x \geq 5$

Example of the Golden Rule

$5 - 3x < -13 + x$

$-x \quad -x$

$5 - 4x < -13$

$-5 \quad -5$

$-4x < -18$

$\frac{-4x}{-4} < \frac{-18}{-4}$

$x > \frac{9}{2}$

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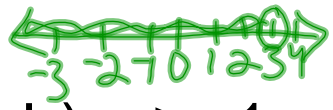
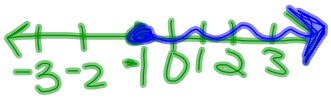
TOC page 59 Solving Linear Inequalities Examples

Example 1: Graph the solutions to each inequality.

a) $x<3$



b) $x \geq -1$



c) $-1 < x \leq 3$

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Example 2(page 59): Solve & graph the solution set: $4x - 7 \leq 5$

$4x - 7 \leq 5$

$+7 \quad +7$

$4x \leq 12$

$\frac{4x}{4} \leq \frac{12}{4}$

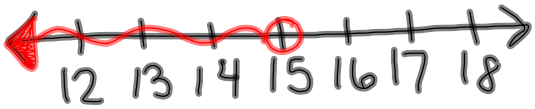
$x \leq 3$

Oct 27-10:39 AM

Example 3 (page 59): Solve & graph the solution set

a) $\frac{1}{3}x < 5$ · 3

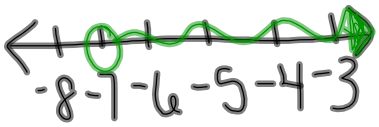
$x < 15$



b) $-3 < x$

$-3 \quad -3$

$x > -7$



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Example 4 (page 59):Solve & graph the solution set $2(x-3) + 5x \leq 8(x - 1)$

$2x - 6 + 5x \leq 8x - 8$

$7x - 6 \leq 8x - 8$

$-7x \quad -7x$

$-6 \leq x - 8$

$+8 \quad +8$

$2 \leq x$

$x \geq 2$

Oct 28-2:36 PM

Example 5 (page 59): To earn a B in a course, you must have a final average of at least 80%. On the first three examinations, you have grades of 82%, 74%, and 78%. If the final examination counts as two grades, what must you get on the final earn a B in the course?

$$\frac{82+74+78+x+x}{5} \geq 80$$

$$5 \cdot \frac{234+2x}{5} \geq 80 \cdot 5$$

$$234+2x \geq 400$$

$$-234 \quad -234$$

$$2x \geq 166$$

$$\frac{2x}{2} \geq \frac{166}{2}$$

$$x \geq 83$$

Oct 31-10:31 AM

Txt p. 316 (pdf 342)

#1-53 every 3rd one

1, 4, 7, 10, 13, 16. . . . .

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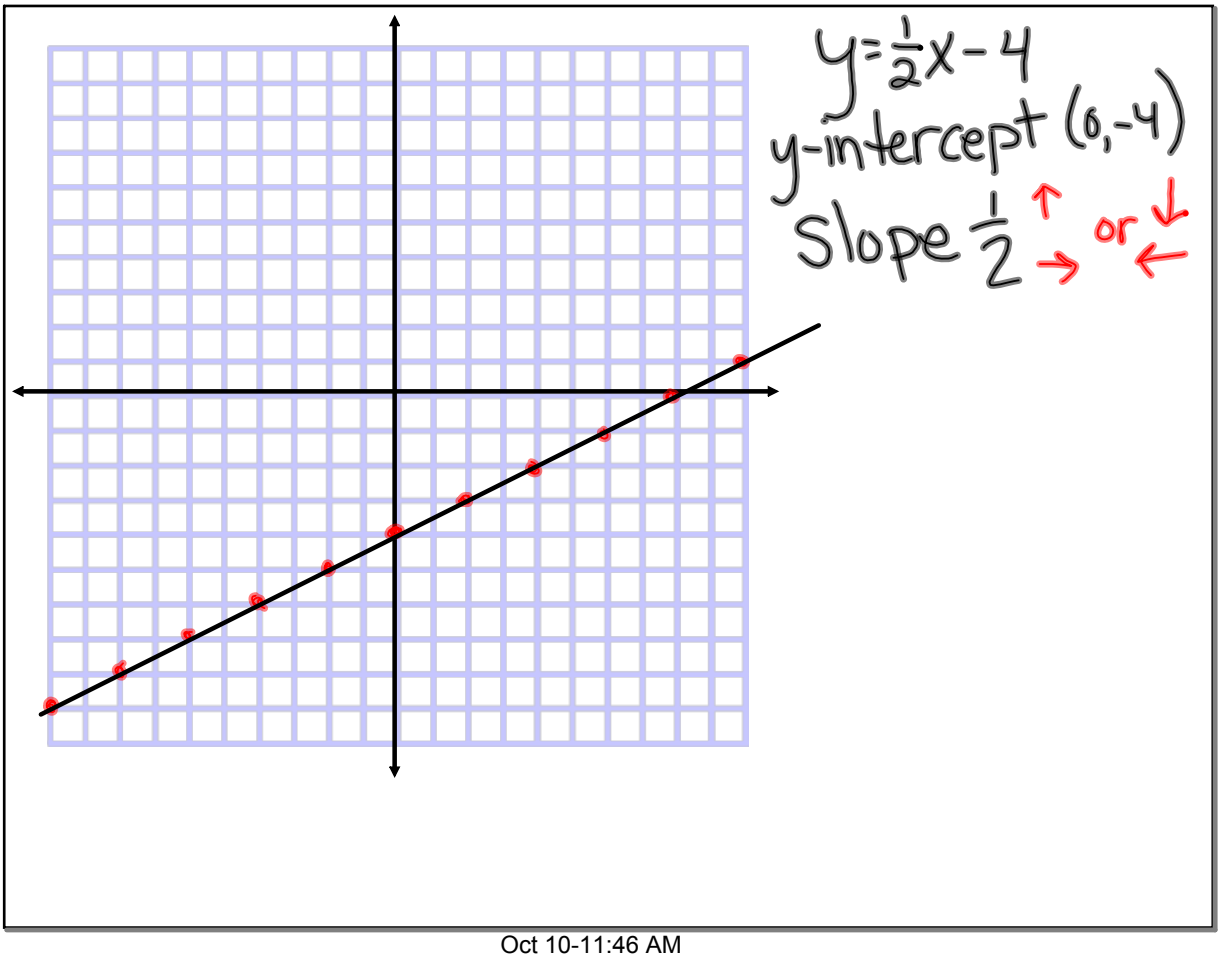

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