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9:13 AM

6.3

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6.3 Solving Multi-Step Inequalities

Example 1: Solve the inequality.

a) $2y - 5 < 7$

$+5 \quad +5$

$\frac{2y}{2} < \frac{12}{2}$

$y < 6$

b) $5 - x > 4$

$-5 \quad -5$

$\frac{-x}{-1} > \frac{-1}{-1}$

$x < 1$

c) $3(x+2) < 7$

$3x + 6 < 7$

$-6 \quad -6$

$\frac{3x}{3} < \frac{1}{3}$

$x < \frac{1}{3}$

d) $2x - 3 \geq 4x - 1$

$-2x \quad -2x$

$-3 \geq 2x - 1$

$+1 \quad +1$

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

$-1 \geq x$

$2x - 3 \geq 4x - 1$

$-4x \quad -4x$

$-2x - 3 \geq -1$

$+3 \quad +3$

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

$x \leq -1$

Example 2: Write and use a linear model to solve the following problem.

$y = mx + b$

Profit
$.60
$-.20$
$.40

FLY-FISHING You want to start tying and selling fishing flies. You purchase the book shown in the advertisement. The materials for each fly cost $.20. You plan to sell each fly for $.60. How many fishing flies must you sell to make a profit of at least $200?

$\$.40f - 15 \geq 200$

$+15 \quad +15$

$\frac{\$.40f}{.40} \geq \frac{215}{.40}$

$f \geq 537.5$

You must sell at least 538 fishing flies.

1) $3x - 5 > 4$

$+5 \quad +5$

$\frac{3x}{3} > \frac{9}{3}$

$x > 3$

2) $10 - n \leq 5$

$-10 \quad -10$

$\frac{-n}{-1} \leq \frac{-5}{-1}$

$n \geq 5$

4) $-2(x+1) < 2$

$-2x - 2 < 2$

$+2 \quad +2$

$\frac{-2x}{-2} < \frac{4}{-2}$

$x > -2$

6) $-3z + 15 > 2z$

$+3z \quad +3z$

$\frac{15}{5} > \frac{5z}{5}$

$3 > z$

8) $4y - 3 < -y + 12$

$+1y \quad +1y$

$5y - 3 < 12$

$+3 \quad +3$

$\frac{5y}{5} < \frac{15}{5}$

$y < 3$