Math 109 P Section 2 Quiz 4 B

TA : Racovitan Michael
Office : DU 370
E-mail : racovita@math.niu.edu
Web page : www.math.niu.edu/∼racovita/Math109P/Math109P2.html

Solutions

(1) Solve for x in the proportion. Use only the property of proportions (about the means and extremes). $\dfrac{x+4}{10} = \dfrac{-7}{5}$

Solutions.

The property says that the product of the extremes equals the product of the means:

$$\frac{x+4}{10} = \frac{-7}{5} \Rightarrow 5(x+4) = -7 \cdot 10 \Rightarrow 5x + 20 = -70 \Rightarrow 5x = -70 - 20 \Rightarrow$$

$$\Rightarrow 5x = -90 \Rightarrow \frac{5x}{5} = \frac{-90}{5} \Rightarrow \boxed{x = -18} \quad .$$

The solution is $x = -18$. ■

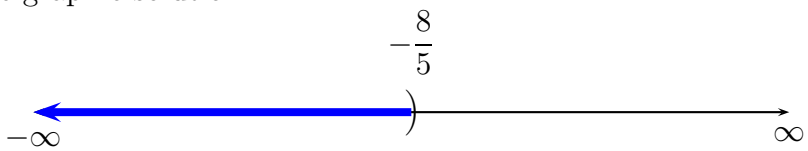
(2) Solve the inequality. Graphic and interval solutions, please. $-3(a+2) > 2a + 2$

Solutions.

Distribute, reduce terms, and keep in mind what happens if you divide inequalities by negative numbers.

$$-3(a+2) > 2a+2 \Rightarrow \underbrace{-3a - 6 > 2a + 2}_{\text{add } 6} \Rightarrow \underbrace{-3a > 2a + 8}_{\text{subtract } 2a} \Rightarrow -5a > 8 \Rightarrow \frac{-5a}{-5} < \frac{8}{-5} \Rightarrow a < -\frac{8}{5}$$

Here is the graphic solution:



Here is the interval solution: $a \in \left(-\infty, -\dfrac{8}{5}\right)$. ■

(3) Solve the equality. $\mid x + 3 \mid +7 = 10$

Solutions.

Subtract 7 from both sides: $\mid x + 3 \mid +7 = 10 \Rightarrow \mid x + 3 \mid = 3$. Then

$$\mid x + 3 \mid = 3 \Rightarrow x + 3 = 3 \text{ or } x + 3 = -3$$

Solve the first, by subtracting 3 from both sides:

$$x + 3 = 3 \Rightarrow x = 0 \Rightarrow \boxed{x = 0} \quad .$$

Solve the second, by subtracting 3 from both sides:

$$x + 3 = -3 \Rightarrow x = -6 \Rightarrow \boxed{x = -6} \quad .$$

The solutions are $x = 0$ and $x = -6$ (checked them). ■