Name: Solution

MAC1105 Section 1A26
Quiz 7

Please show all of your work in a NEAT and ORGANIZED fashion.

1. (3 points) Solve the inequality and write the solution set in interval notation.

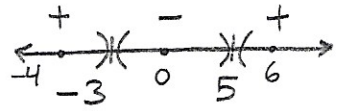
$$\frac{1}{x-5} - \frac{1}{x+3} \leq 0$$

LCD $= (x-5)(x+3)$

$$\frac{x+3}{(x-5)(x+3)} - \frac{x-5}{(x-5)(x+3)} \leq 0$$

$$\frac{x+3-x+5}{(x-5)(x+3)} \leq 0$$

$$\frac{8}{(x-5)(x+3)} \leq 0$$



$(-3, 5)$

2. (4 points) Solve the inequality and write the solution set in interval notation.

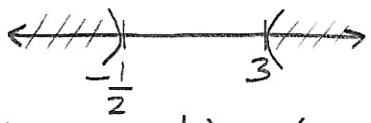
$$|4x-5| > 7$$

$|4x-5| = 4x-5$ or $-4x+5$

$4x-5 > 7$ $\qquad$ $-4x+5 > 7$

$4x > 12$ $\qquad$ $-4x > 2$

$x > 3$ $\qquad$ $x < -\frac{1}{2}$



$$(-\infty, -\tfrac{1}{2}) \cup (3, \infty)$$

3. (3 points) Find the distance between the points $(-3, 1)$ and $(2, 4)$.

$x_1\ y_1 \qquad x_2\ y_2$

$$d = \sqrt{(x_2-x_1)^2 + (y_2-y_1)^2}$$

$$= \sqrt{(2+3)^2 + (4-1)^2}$$

$$= \sqrt{5^2 + 3^2}$$

$$= \sqrt{25+9}$$

$$= \sqrt{34}$$