Solution Set of Inequalities

If two inequalities have the same solution set, they are said to be equivalent.

Example: Find the solution set of the following inequalities.

3x -8 < x-2

3x-8+8 <x-2+8

3x < x+6

3x −x< x-x +6

2x <6

X<6/2

X<3

δ = {-∞ , 3)

Example: Find the solution set of the following inequalities.

((2x-3)/(x+2)) <(1/3)   x ≠ -2

3 (2x-3) < x+2

6x − 9 < x + 2

6x -9+9 < x +2+9

6x < x +11

6x −x < x −x +11

5x <11

X < 11/5

$\delta = (-2 , 11/5)$

Example: Find the solution set of the following inequalities.

$x^2 - 3x + 2 < 0$

(x-2) (x-1) <0

x-2< 0 or x-1 <0

if x -2 <0 → x -1 > 0

if x-2 > o → x -1 < 0

when x -2< 0 → x <2   and x -1 > 0 → x >1 → $\delta = (1,2)$

when x-2 > 0 → x > 2 and x-1 < 0 → x <1 → $\delta = \phi$

Example: Find the solution set of the following inequalities.

-x/3 < 2x +1

-x< 6x +3

-3 −x + x < 6x + x +3 -3

-3 < 7x

-3/7 < x

$\delta = (-3/7, \infty \}$