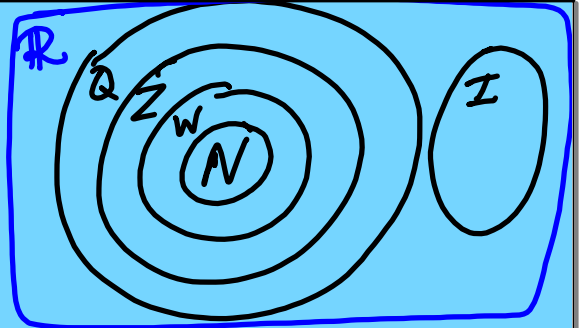


Natural - N - $1, 2, 3, 4, \dots$

Whole - W - $0, 1, 2, 3, \dots$

Integers - Z -
 $\dots - 3, -2, -1, 0, 1, 2, 3, \dots$



Rational - Q - numbers $\frac{m}{n} = \frac{2}{3}, -\frac{17}{5}, 4, 7.35, 3.\overline{469}$
 terminating or repeating decimals

Irrational - I - non-terminating, non-repeating
 $\pi, \sqrt{2}, \sqrt{5}, e$

Real - R - all rational & irrational numbers

#6 -21 Z, Q, R

$$\underline{7} \quad \cancel{2} \left[\frac{\cancel{2}}{\cancel{3}} x + 4 = \frac{\cancel{5}}{\cancel{7}} (2 - 4x) \right]$$

$$14x + 84 = 15(2 - 4x)$$

$$\begin{array}{c} \left[\begin{array}{ccc} \textcircled{2} & \textcircled{3} & \textcircled{8} \\ 4 & 6 & 5 \end{array} \right] \cdot \left[\begin{array}{cc} \textcircled{1} & \textcircled{0} \\ \textcircled{2} & \textcircled{-4} \\ \textcircled{3} & \textcircled{1} \end{array} \right] = \left[\begin{array}{l} 2+6+24 \quad 0+-12+8 \\ 4+12+15 \\ 32-4 \end{array} \right] \\ \quad \quad \quad 2 \times 3 \quad 3 \times 2 \\ \quad \quad \quad = \left[\begin{array}{l} 32-4 \end{array} \right] \end{array}$$

$$\frac{x^2(x+4)}{(x-8)} \leq 0$$

Sign chart for $\frac{x^2(x+4)}{(x-8)} \leq 0$:

Interval	Sign of x^2	Sign of $x+4$	Sign of $x-8$	Sign of $\frac{x^2(x+4)}{(x-8)}$
$x < -4$	+	-	-	+
$-4 < x < 0$	+	+	-	-
$0 < x < 8$	+	+	-	-
$x > 8$	+	+	+	+

Roots: $-4, 0, 8$. Sign changes at -4 and 8 . Solution: $-4 \leq x < 8$.

$$|3+9y| \leq -17$$

No sol

$$|3+9y| \geq -17$$

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$$y-1 < 3(y-2) \quad \text{Add } 3(y-2) \leq 9+5y$$

$$5-2|3+4y| \leq -15$$

$$-2|3+4y| \leq -20$$

$$|3+4y| \geq 10$$

$$3+4y \geq 10 \quad \text{OR} \quad 3+4y \leq -10$$

$$4y \geq 7$$

$$y \geq 7/4$$

$$4y \leq -13$$

$$y \leq -13/4$$

Number line for y :

Points: $-13/4$ and $7/4$.

$$y \leq -13/4 \quad \text{OR} \quad y \geq 7/4$$