

Algebra: 3:- CHAPTER: 2 NOTES: MR. REDDYS

1. COMPOUND INEQUALITY:-
AND, OR

$$3x > 6 \text{ (and) } x + 6 < 8$$

$$x + 2 < 3 \text{ (OR) } x - 7 > 4$$

2. ABSOLUTE VALUE EQUATION:-

$$|x - 3| = 3 \quad \boxed{\text{ON}}$$

$$\begin{array}{r} x - 3 = 3 \\ +3 \quad +3 \\ \hline x = 6 \end{array}$$

$$\begin{array}{r} x - 3 = -3 \\ +3 \quad +3 \\ \hline x = 0 \end{array}$$

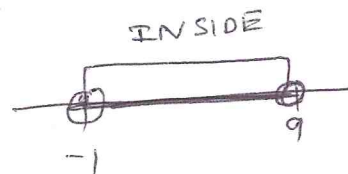


3. ABSOLUTE VALUE INEQUALITY:-

$$|x - 4| < 5 \quad \boxed{\text{AND}}$$

$$\begin{array}{r} -5 < x - 4 < 5 \\ +4 \quad +4 \quad +4 \\ \hline -1 < x < 9 \end{array}$$

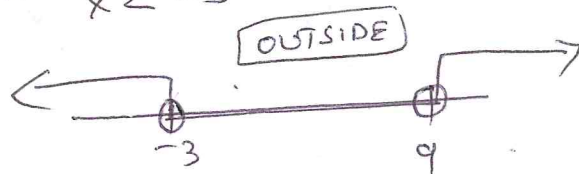
$$\boxed{-1 < x < 9}$$



$$|x - 3| > 6$$

$$\begin{array}{r} x - 3 > 6 \\ +3 \quad +3 \\ \hline x > 9 \end{array} \quad \text{(OR)} \quad \begin{array}{r} x - 3 < -6 \\ +3 \quad +3 \\ \hline x < -3 \end{array}$$

$$\text{OR } x > 9 \quad \text{OR } x < -3$$



4. COIN AND STAMP:-

NUMBER OF ITEMS • VALUE OF EACH ITEM = TOTAL VALUE OF ITEM

5. CONSECUTIVE INTEGERS:- $N, N+1, N+2, \dots$

6. CONSECUTIVE EVEN OR ODD INTEGERS:- $N, N+2, N+4, \dots$

7. VALUE MIXTURE EQUATION:- $V = AC$.
8. UNIFORM MOTION EQUATION:- $D = RT$.
9. ANNUAL SIMPLE INTEREST EQUATION:- $I = PR$.
10. PERCENT MIXTURE PROBLEMS: $Q = AR$.
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PROBLEMS:-

① Solve $2 - |2x - 5| = -7$

$$\frac{-2}{-2} \quad \frac{-7}{-2}$$

$$\frac{-|2x - 5|}{-1} = \frac{-9}{-1}$$

$$|2x - 5| = 9$$

$\begin{array}{r} 2x - 5 = 9 \\ +5 \quad +5 \\ \hline 2x = 14 \\ \frac{2x}{2} = \frac{14}{2} \\ \boxed{x = 7} \end{array}$	$\begin{array}{r} 2x - 5 = -9 \\ +5 \quad +5 \\ \hline 2x = -4 \\ \frac{2x}{2} = \frac{-4}{2} \\ \boxed{x = -2} \end{array}$
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② $|2x - 1| > 3$ OR

$\begin{array}{r} 2x - 1 > 3 \\ +1 \quad +1 \\ \hline 2x > 4 \\ \frac{2x}{2} > \frac{4}{2} \\ \boxed{x > 2} \end{array}$	$\begin{array}{r} 2x - 1 < -3 \\ +1 \quad +1 \\ \hline 2x < -2 \\ \frac{2x}{2} < \frac{-2}{2} \\ \boxed{x < -1} \end{array}$
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$\boxed{x > 2}$ OR $\boxed{x < -1}$

③ $|3x - 1| \leq 2$ AND

$$\frac{-2 \leq 3x - 1 \leq 2}{+1 \quad +1 \quad +1}$$

$$\frac{-1 \leq 3x \leq 3}{\frac{-1}{3} \quad \frac{3x}{3} \quad \frac{3}{3}}$$

$$\boxed{-\frac{1}{3} \leq x \leq 1}$$