*CLASS 9th :-

MATHS:-

*EXERCISE :- 5.3

*Q NO:- (1 __ 14)

DONE!

# EXERCISE # 5.3

## Basic Concept:

### Absolute value:

Absolute value means "how far a value is from zero"


اب اس میں ہم دیکھتا ہے کہ 0 سے 4 کتنا دور ہے۔

Distance b/w any two point is always a positive number or zero. So Absolute value is always positive number or zero.

### Example

Distance from 0 to 5 or from 0 to -5 is 5 unit on the number line.

### Absolute value bar:

$|5| = 5$ , $|-5| = 5$

### Absolute value equation:

If absolute value is equal to a negative number, then it has no solution because absolute value are always positive

$|x+2| = -6$

No Solute

**Q#1**

$|x| = \frac{5}{3}$

Solve:

$|x| = \frac{5}{3}$

$x = \pm \frac{5}{3}$

$x = \frac{5}{3}$ $\quad$ $x = -\frac{5}{3}$

$S.S = \{\frac{5}{3}, -\frac{5}{3}\}$

**Q#2**

$|x+2| = 6$

Solve:

$|x+2| = 6$

$x+2 = \pm 6$

$x+2 = 6$ $\quad$ $x+2 = -6$

$x = 6-2$ $\quad$ $x = -6-2$

$\boxed{x = 4}$ $\quad$ $\boxed{x = -8}$

$S.S = \{4, -8\}$

**Q#3**

$|5y-1| = 9$

Solve:

$|5y-1| = 9$

$5y-1 = \pm 9$

$5y-1 = 9$ $\quad$ $5y-1 = -9$

$5y = 9+1$ $\quad$ $5y = -9+1$

$5y = 10$ $\quad$ $5y = -8$

$y = \frac{10}{5}$ $\quad$ $y = -\frac{8}{5}$

$\boxed{y = 2}$

$S.S = \{2, -\frac{8}{5}\}$

**Q#4**

$|x+1| = 2$

Solve:

$|x+1| = 2$

$x+1 = \pm 2$

$x+1 = 2$ $\quad$ $x+1 = -2$

$x = 2-1$ $\quad$ $x = -2-1$

$\boxed{x = 1}$ $\quad$ $\boxed{x = -3}$

$S.S = \{1, -3\}$

**Q#5**

$|6-3y| = 0$

Solve:

$|6-3y| = 0$

$6-3y = 0$

اس طرح کی حالت میں
0 کے ساتھ (+) اور (-)
لگانے سے فرق نہیں پڑتا

$6 = 3y$

$\frac{6}{3} = y$ $\quad$ $\boxed{2 = y}$

**Q NO:-6**

$3|z-2|-4=2$

Solve:

$3|z-2|-4=-2$

$3|z-2|=-2+4$

$3|z-2|=2$

$|z-2|=\frac{2}{3}$

$z-2=\pm\frac{2}{3}$

$z-2=\frac{2}{3}$ $\qquad$ $z-2=-\frac{2}{3}$

$z=\frac{2}{3}+\frac{2}{1}$ $\qquad$ $z=-\frac{2}{3}+\frac{2}{1}$

$z=\frac{2\times1+2\times3}{3}$ $\qquad$ $z=\frac{-2\times1+2\times3}{3}$

$z=\frac{2+6}{3}$ $\qquad$ $z=\frac{-2+6}{3}$

$\boxed{z=\frac{8}{3}}$ $\qquad$ $\boxed{z=\frac{4}{3}}$

$S.S=\{\frac{8}{3},\frac{4}{3}\}$

**Q#7:**

$|2x-1|=5$

Solve:-

$|2x-1|=5$

$2x-1=\pm5$

$2x-1=5$ $\qquad$ $2x-1=-5$

$2x=5+1$ $\qquad$ $2x=-5+1$

$2x=6$ $\qquad$ $2x=-4$

$x=\frac{6}{2}^{3}$ $\qquad$ $x=-\frac{4}{2}^{2}$

$\boxed{x=3}$ $\qquad$ $\boxed{x=-2}$

$S.S=\{3,-2\}$

**Q NO:8**

$|3x+2|=7$

Solve:

$|3x+2|=7$

$3x+2=\pm7$

$3x+2=7$ $\qquad$ $3x+2=-7$

$3x=7-2$ $\qquad$ $3x=-7-2$

$3x=5$ $\qquad$ $3x=-9$

$\boxed{x=\frac{5}{3}}$ $\qquad$ $x=-\frac{9}{3}^{3}$

$\boxed{x=-3}$

$S.S=\{\frac{5}{3},-3\}$

**Q NO:-9**

$\frac{|4x|}{3}=12$

Solve:

$\frac{|4x|}{3}=12$

$|4x|=12\times3$

$|4x|=36$

$4x = \pm 36$

$4x = 36$ $\quad$ $4x = -36$

$x = \frac{36}{4}$ $\quad$ $x = \frac{-36}{4}$

$\boxed{x = 9}$ $\quad$ $\boxed{x = -9}$

$S.S = \{9, -9\}$

$-2y = 11$

$y = \frac{11}{-2}$

$\boxed{y = -\frac{11}{2}}$

$\pm 2y = \pm 13$

$2y = 13$

$\boxed{y = \frac{13}{2}}$

$S.S = \{-\frac{11}{2}, \frac{13}{2}\}$

**Q NO: 10**

$|5x| + 10 = 5$

Solve:

$|5x| + 10 = 5$

$|5x| = 5 - 10$

$|5x| = -5$

Absolute value cannot be negative, it always positive.

$S.S = \{\phi\}$

**Q NO: 11**

$\frac{|1-2y|}{4} = 3$

Solution:

$\frac{|1-2y|}{4} = 3$

$|1-2y| = 3 \times 4$

$|1-2y| = 12$

$1-2y = \pm 12$

$1-2y = 12$ $\quad$ $1-2y = -12$

$-2y = 12-1$ $\quad$ $-2y = -12-1$

**Q NO: 12**

$\frac{|x+1|}{2} = \frac{|2x-1|}{3}$

Solve

$\frac{|x+1|}{2} = \frac{|2x-1|}{3}$

$\frac{|x+1|}{|2x-1|} = \frac{2}{3}$

$\frac{x+1}{2x-1} = \pm \frac{2}{3}$

$\frac{x+1}{2x-1} = \frac{2}{3}$

$3(x+1) = 2(2x-1)$

$3x + 3 = 4x - 2$

$3 + 2 = 4x - 3x$

$5 = x$

$\boxed{x = 5}$

$\frac{x+1}{2x-1} = -\frac{2}{3}$

$3(x+1) = -2(2x-1)$

$3x + 3 = -4x + 2$

$3x + 4x = 2 - 3$

$7x = -1$

$\boxed{x = -\frac{1}{7}}$

$\therefore S = \{5, -\frac{1}{7}\}$

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NO: 13

$|5x - 3| = |x + 7|$

Solve:

$|5x-3| = |x+7|$

$5x - 3 = \pm (x+7)$

$5x - 3 = x + 7$

$5x - x = 7 + 3$

$4x = 10$

$x = \frac{10}{4}^{5}_{2}$

$\boxed{x = \frac{5}{2}}$

$5x - 3 = -(x+7)$

$5x - 3 = -x - 7$

$5x + x = -7 + 3$

$6x = -4$

$x = -\frac{4}{6}$

$\boxed{x = -\frac{2}{3}}$

$\therefore S = \{\frac{5}{2}, -\frac{2}{3}\}$

Q NO: 14

$|z+3| - 3 = 5 - |z+3|$

Solution:

$|z+3| - 3 = 5 - |z+3|$

$|z+3| + |z+3| = 5 + 3$

$2|z+3| = 8$

$|z+3| = \frac{8}{2} 4$

$|z+3| = 4$

$z + 3 = \pm 4$

$z + 3 = 4$

$z = 4 - 3$

$\boxed{z = 1}$

$z + 3 = -4$

$z = -4 - 3$

$\boxed{z = -7}$