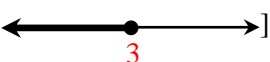


SET 1: Basic Mathematics

Tutorial 8

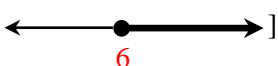
Solve the following inequalities and represent the solutions on number lines:

1. $3x \leq 9$

[Ans. $x \leq 3$, ]

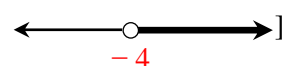
The number line has a solid black dot at 3 and a thick black line extending to the left from that dot. The number 3 is written below the dot.

2. $2x + 3 \geq 15$

[Ans. $x \geq 6$, ]

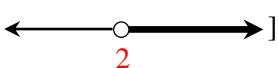
The number line has a solid black dot at 6 and a thick black line extending to the right from that dot. The number 6 is written below the dot.

3. $-3x < 12$

[Ans. $x > -4$, ]

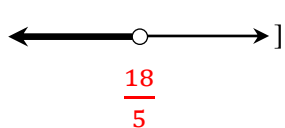
The number line has an open circle at -4 and a thick black line extending to the right from that circle. The number -4 is written below the circle.

4. $2 - 3x < -4$

[Ans. $x > 2$, ]

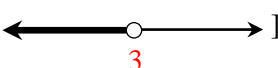
The number line has an open circle at 2 and a thick black line extending to the right from that circle. The number 2 is written below the circle.

5. $1 + 5x < 19$

[Ans. $x < \frac{18}{5}$, ]

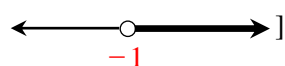
The number line has an open circle at $\frac{18}{5}$ and a thick black line extending to the left from that circle. The number $\frac{18}{5}$ is written below the circle.

6. $11 - 2x > 5$

[Ans. $x < 3$, ]

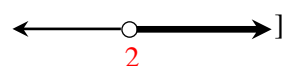
The number line has an open circle at 3 and a thick black line extending to the left from that circle. The number 3 is written below the circle.

7. $5x + 3 > 3x + 1$

[Ans. $x > -1$, ]

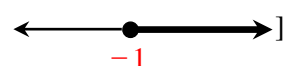
The number line has an open circle at -1 and a thick black line extending to the right from that circle. The number -1 is written below the circle.

8. $12 - 3x < 4x - 2$

[Ans. $x > 2$, ]


The number line has an open circle at 2 and a thick black line extending to the right from that circle. The number 2 is written below the circle.

9. $7 + 3t \leq 2(t + 3) - 2(-1 - t)$

[Ans. $t \geq -1$, ]

The number line has a solid black dot at -1 and a thick black line extending to the right from that dot. The number -1 is written below the dot.

10. $|x| \leq 3$

[Ans. $-3 \leq x \leq 3$, ]


The number line has solid black dots at -3 and 3, and a thick black line connecting them. The numbers -3 and 3 are written below the dots.

11. $|x| > 6$

[Ans. $x < -6$ or $x > 6$, ]


The number line has open circles at -6 and 6, and thick black lines extending to the left from -6 and to the right from 6. The numbers -6 and 6 are written below the circles.

12. $|x - 4| \leq 3$

[Ans. $1 \leq x \leq 7$, ]

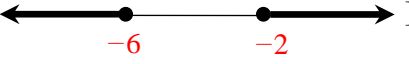
The number line has solid black dots at 1 and 7, and a thick black line connecting them. The numbers 1 and 7 are written below the dots.

13. $|x + 1| < 3$

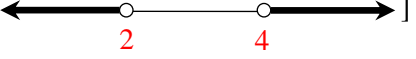
[Ans. $-4 < x < 2$, ]

The number line has open circles at -4 and 2, and a thick black line connecting them. The numbers -4 and 2 are written below the circles.

14. $|x + 4| \geq 2$

[Ans. $x \leq -6$ or $x \geq -2$, 

15. $|3 - x| > 1$

[Ans. $x < 2$ or $x > 4$, 

16. $|x + 1| \leq 0$

[Ans. $x = -1$, 