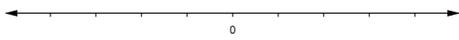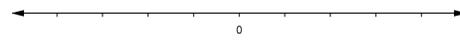INEQUALITIES IN ONE VARIABLE

➢ **Solve and graph the solution set.**
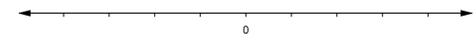
1) $x-3<2$

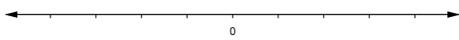**2)** $x+4\geq 2$

3) $4x\leq 8$

4) $-2x>8$

5) $2x-1>7$
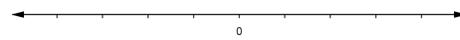
6) $3x-1>2x+2$
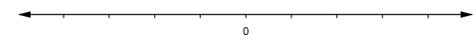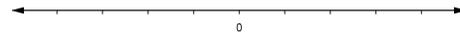
7) $5x-4<2x+5$
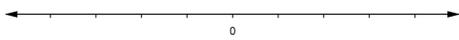
8) $6x+5\geq x-10$
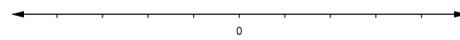
9) $6-2(x-4)\leq 2x+10$
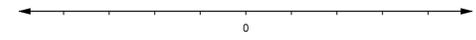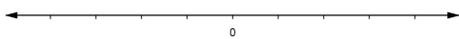
10) $4(2x-1)>3x-2(3x-5)$
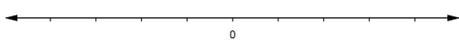
11) $\dfrac{3}{5}x-2<\dfrac{3}{10}-x$

12) $\dfrac{1}{3}x-\dfrac{3}{2}\geq\dfrac{7}{6}-\dfrac{2}{3}x$

13) $\dfrac{2-x}{4}-\dfrac{3}{8}\geq\dfrac{2}{5}x$
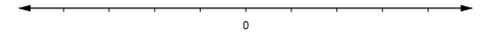
14) $3+2(x+5)\geq x+5(x+1)+1$

<u>COMPOUND INEQUALITIES</u>

➢ **Solve and graph the solution set.**

15) $3x < 6$ **AND** $x + 2 > 1$

16) $x - 3 \leq 1$ **AND** $2x \geq -4$

17) $-2x > -8$ **AND** $-3x < 6$

$\longleftrightarrow$
0

$\longleftrightarrow$
0

$\longleftrightarrow$
0
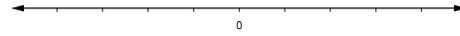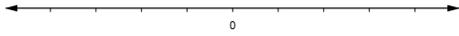
18) $x + 2 \geq 5$ **OR** $3x \leq 3$

19) $2x < 6$ **OR** $x - 4 > 1$

20) $\dfrac{1}{3}x < -1$ **OR** $2x > 0$

$\longleftrightarrow$
0

$\longleftrightarrow$
0

$\longleftrightarrow$
0
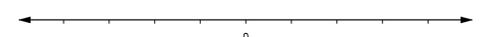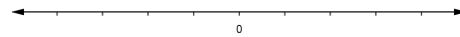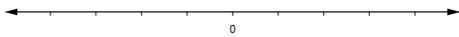
21) $-5x > 10$ **AND** $x + 1 > 6$

22) $6x - 2 < -14$ **OR** $5x + 1 > 11$

$\longleftrightarrow$
0

$\longleftrightarrow$
0
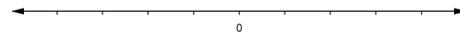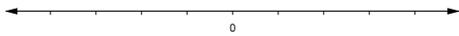
<u>APPLICATIONS</u>

➢ **Solve**

23) Five times the difference between a number and two is greater than the quotient of two times the number and three. Find the smallest integer that will satisfy the inequality.

24) The length of a rectangle is 2 ft more than four times the width. Express as an integer the maximum width of the rectangle when the perimeter is less than 34 ft.

25) Find all sets of 4 consecutive integers whose sum is between 10 and 20.

26) Find all sets of three consecutive odd integers whose sum is between 20 and 30.

27) A cellular phone company offers its customers a rate of $99 for up to 200 min per month of cellular phone time, or a rate of $35 per month plus $0.40 for each minute of cellular phone time. For how many minutes per month can a customer who chooses the second option use a cellular phone before the charges exceed those of the first option?

28) A new car will average at least 22 mpg for city driving and at most 27.5 mpg for high way driving. Find the range of miles that the car can travel on a full tank (19.5 gal) of gasoline.

29) A bank offers two types of checking accounts. One account has a charge of $7 per month plus $0.02 per check. The second account has a charge of $2 per month and $0.05 per check. How many checks can a customer who has the second type of account write if it is to cost the customer less than the first type of account?

30) Company A rents cars for $10 a day and $0.10 for every mile driven. Company B rents cars for $14 per day and $0.06 for every mile driven. You want to rent a car for one week. How many miles can you drive a company A car during the week if it is to cost you less than a company B car?

31) An average score of 80 to 89 in a psychology course receives a B grade. A student has grades of 94, 88, 70 and 62 on four tests. Find the range of scores on the fifth test that will give the student a B for the course.