**Solving Inequalities**

Solve each inequality. Then graph the solution set on a

number line

10. n + 4 ≥ -7

*SOLUTION:*

n + 4 ≥ -7

n + 4 – 4 ≥ -7 – 4

n ≥ -11

*ANSWER*:

n ≥ -11



11. b – 3 ≤ 15

 *SOLUTION:*

b – 3 ≤ 15

 b – 3 + 3 ≤ 15 + 3

b ≤ 12

*ANSWER*:

b ≤ 12



12. 5x < 35

*SOLUTION:*

5x < 35

$\frac{5x}{5}$ < $\frac{35}{5}$

x < 7

*ANSWER*:

x < 7



13. $\frac{d}{2}$ > -4

*SOLUTION:*

$\frac{d}{2}$ > -4

$\frac{d}{2}$ \* 2 > -4 \* 2

d > -8

*ANSWER*:

d > -8



14. $\frac{g}{-3}$ ≥ -9

 *SOLUTION:*

$\frac{g}{-3}$ ≥ -9

$\frac{g}{-3}$ \* -3 ≥ -9 \* -3

g ≤ 27

*ANSWER*:

g ≤ 27



15. -8p ≥ 24

*SOLUTION:*

-8p ≥ 24

 $\frac{-8p}{-8}$ ≥ $\frac{24}{-8}$

 p ≤ -3

*ANSWER*:

 p ≤ -3



16. 13 – 4k ≤ 27

 *SOLUTION:*

13 – 4k ≤ 27

 13 – 13 – 4k ≤ 27 – 13

 -4k ≤ 14

 $\frac{-4k}{-4}$ ≤ $\frac{14}{-4}$

k ≥ -3.5, -3$\frac{1}{2}$

*ANSWER*:

k ≥ -3.5, -3$\frac{1}{2}$



17. 14 > 7y – 21

 *SOLUTION:*

14 > 7y – 21

 35 > 7y

 $\frac{35}{7}$ > $\frac{7y}{7}$

 5 > y

*ANSWER*:

 5 > y



18. -27 < 8m + 5

 *SOLUTION:*

-27 < 8m + 5

 -27 – 5 < 8m + 5 – 5

 -32 < 8m

 $\frac{-32}{8}$ < $\frac{8m}{8}$

-4 < m

*ANSWER*:

-4 < m



19. 6b + 11 ≥ 15

*SOLUTION:*

6b + 11 ≥ 15

6b + 11 – 11 ≥ 15 – 11

6b ≥ 4

 $\frac{6b}{6}$ ≥ $\frac{4}{6}$

 b ≥ $\frac{2}{3}$

*ANSWER*:

 b ≥ $\frac{2}{3}$



20. 2(4t + 9) ≤ 18

 *SOLUTION:*

2(4t + 9) ≤ 18

 $\frac{2(4t + 9) }{2}$ ≤ $\frac{18}{2}$

 4t + 9 ≤ 9

 4t + 9 - 9 ≤ 9 – 9

 4t ≤ 0

 t ≤ 0

*ANSWER*:

t ≤ 0



21. 90 ≥ 5(2r+ 6)

*SOLUTION:*

90 ≥ 5(2r+ 6)

$\frac{90}{5}$ ≥ $\frac{5(2r+ 6)}{5}$

18 ≥ 2r + 6

18 - 6 ≥ 2r + 6 – 6

12 ≥ 2r

$\frac{12}{2}$ ≥ $\frac{2r}{2}$

6 ≥ r

*ANSWER*:

6 ≥ r



22. $\frac{3t+6}{2}$ < 3t + 6

 *SOLUTION:*

$\frac{3t+6}{2}$ < 3t + 6

2 \* $\frac{3t+6}{2}$ < 2 \* (3t + 6)

3t + 6 < 6t + 12

3t – 3t + 6 < 6t – 3t + 12

6 < 3t + 12

6 – 12 < 3t + 12 – 12

-6 < 3t

$\frac{-6}{3}$ < $\frac{3t}{3}$

$-$2 < t

*ANSWER*:

$-$2 < t



23. $\frac{k+7}{3}$ – 1 < 0

 *SOLUTION:*

$\frac{k+7}{3}$ – 1 < 0

$\frac{k+7}{3}$ – 1 + 1 < 0 + 1

$\frac{k+7}{3}$ < 1

 $\frac{k+7}{3}$ \* 3 < 1 \* 3

 k + 7 < 3

k + 7 – 7 < 3 – 7

 k < -4

*ANSWER*:

k < -4



24. $\frac{2n-6}{5}$ + 1 > 0

 *SOLUTION:*

$\frac{2n-6}{5}$ + 1 > 0

$\frac{2n-6}{5}$ + 1 – 1 > 0 – 1

$\frac{2n-6}{5}$ > -1

$\frac{2n-6}{5}$ \* 5 > -1 \* 5

2n - 6 > -5

 2n - 6 + 6 > -5 + 6

 $\frac{2n}{2}$ > $\frac{1}{2}$

 n > $\frac{1}{2}$

 *ANSWER*:

n > $\frac{1}{2}$

