Solve each of the following. **Name**_____

Put answers in set building notation and graph the solution.

1. $\frac{d}{6} - 16 < -9$ 1. { _____ }

1. _____

2. $\frac{m}{3} + 5 < 2$ 2. { _____ }

2. _____

3. $\frac{k+10}{3} > 5$ 3. { _____ }

3. _____

4. $5p - 3(p - 6) \leq 0$ 4. { _____ }

4. _____

5. $2(5t - 25) + 5t < -80$ 5. { _____ }

5. _____

6. $\frac{z}{4} + 7 \geq -5$ 6. { _____ }

6. _____

Put answers in set building notation and graph the solution.

7. $4n - 6 > 6n - 20$ 7. $\{$ _____ $\}$

7. _____

8. $\frac{2r+3}{5} > 7$ 8. $\{$ _____ $\}$

8. _____

9. $\frac{1}{2}t - \frac{1}{3}t > -1$ 9. $\{$ _____ $\}$

9. _____

10. $\frac{3}{4}a - \frac{1}{2} < -\frac{4}{5}a + \frac{1}{4}$ 10. $\{$ _____ $\}$

10. _____

11. $2(3t - 5) + 4t < -12$ 11. $\{$ _____ $\}$

11. _____

12. $\frac{1}{3}t - \frac{3}{4} > \frac{1}{2}t + \frac{2}{3}$ 12. $\{$ _____ $\}$

12. _____

13. $\frac{3}{7}(7t-28)+5t<\frac{-2}{9}(18t-27)+7$

13. { _____ }

13. _____

14. $5w>4(2w-3)$ and $5(w-3)+2<7$

14. { _____ and _____ }

14. _____

15. $4t+8\geq t+6$ or $7t-14\geq 2t-4$

15. { _____ or _____ }

15. _____

16. $5r-2\geq -17$ and $r\neq 3$

16. { _____ and _____ }

16. _____

Put answers in set building notation and graph the solution.

17. $-11 < 3a + 4 \leq 7$

17. { and }

17. _____

18. $|y + 3| \geq -7$

18. { }

18. _____

19. $|2x + 3| < 11$

19. { }

19. _____

20. $|2r - 5| \leq 9$

20. { }

20. _____

Put answers in set building notation and graph the solution.

21. $\left|\frac{2j+3}{5}\right| \geq 9$

21. $\{$ _____ $\}$

21. _____

22. $|3x+10| \geq 5$

22. $\{$ _____ $\}$

22. _____

23. $|7x+2| < -12$

23. $\{$ _____ $\}$

23. _____

Matching - Match the **best** response to each statement.

Statements	**Responses**
1._____ The "and" compound inequality	**A**. Used to signify that there are too many solutions to list, but all those solutions will share some notable characteristic, e.g. {x | x > 5}
2._____ $\|2x + 3\| \geq -5$	**B**. Example of absolute value inequality that will be written as a compound "and" statement and will have a traditional answer.
3._____ Changing the direction of an inequality sign	**C**. Usually has a solution that graphs as diverging arrows, on occasion will have an answer as **R**, statement that cannot be crunched together.
4._____ $\|9x - 8\| < 23$	**D**. Defined as a measure of magnitude, results in non-negative numbers being reported.
5._____ The "or " compound inequality	**E**. The graphical solution that is interpreted as the only numerical values capable of solving both statements in an "and" compound inequality.
8._____ $\|11x + 5\| < -19$	**F**. This is done anytime multiplication or division by a negative number occurs.
7._____ Absolute value	**G**. Example of absolute value inequality that will have {} - "the empty set" as a solution
6._____ Significance of shaded region for "or " statements	**H**. Example of absolute value inequality that will be written as a compound "or" statement and will have a traditional answer.
9._____ $\|5x + 43\| \geq 67$	**I**. Usually has a solution that graphs as dumb-bell, on occasion will answer as **{ }**, statement that can be crunched together.
10._____ $w \neq 7$	**J**. Example of absolute value inequality that will have **R** - "all reals" as a solution
11._____ Set Building Notation	**K**. The graphical solution that is interpreted as the only numerical values capable of solving either statement in an "or" compound inequality.
12._____ Significance of shaded region for "and" statements	**L**. Restricted value - means that any number other than that particular one can be used.