EXERCISES

Solve each equation or inequality involving absolute value.

1. $|x| = 10$
2. $|x| > 10$
3. $|x| < 10$
4. $|x| \geq 10$
5. $|x| \leq 10$
6. $|x - 4| = 10$
7. $|x + 4| = 10$
8. $|x - 4| \geq 10$
9. $|x + 4| \leq 10$
10. $|5x - 7| = 13$
11. $|5x + 7| < 13$
12. $|6x + 5| < 7$
13. $|6x - 5| > 7$
14. $|4y + 12| + 5 > 9$
15. $|4y + 12| - 5 \leq 7$
16. $2|x| = 12$
17. $3|x + 2| = 15$
18. $4|x - 2| > 16$
19. $5|3a - 4| + 1 < 6$
20. $5|2a + 6| - 3 = 7$
21. $|2n - \frac{1}{3}| = \frac{2}{3}$
22. $|p - \frac{2}{3}| \geq \frac{5}{3}$
23. $|\frac{1}{2}x - 2| \geq 2$
24. $|\frac{1}{4}y - 5| \leq 7$
25. $|0.5x + 0.25| > 0.75$
26. $|0.5x - 0.25| < 0.75$
27. $|0.25 - 0.5x| \leq 0.75$
28. $|-3x| > 6$
29. $|-4x| < 12$
30. $|4 - 2x| < 16$
31. $|5 - 4x| > 7$
32. $|6 - 3x| \geq 9$
33. $|2 - x| \geq 7$
34. $|4 - x| \leq 12$
35. $|x| > 0$
36. $|x| < 0$
37. $|x| \geq 0$
38. $|x| \leq 0$
39. $|x - 4| > 0$
40. $|7x + 14| > 0$
41. $|5n - 20| \leq 0$
42. $|5n - 20| < 0$
43. $1 \leq |x| \leq 5$
44. $2 < |x + 1| \leq 3$
45. $0 < |2 - x| < 4$

46. In a random survey in a city election that 46% of the voters will choose candidate A for mayor. The result of the survey is considered to be accurate within a range of $\pm 5\%$. Write an absolute-value inequality that represents the upper and lower boundaries of the percent (p) of voters who will choose candidate A.
47. In question **46**, find the boundaries (the upper and the lower) of the percents.
48. The normal human body temperature is $98.6^{o}F$ within a range of $\pm 1^{o}F$. Write an inequality that represents the range of normal body temperatures (t).
49. Solve $|x - a| \leq b$ for x. Assume a and b are positive numbers.
50. Solve $|x + a| \geq b$ for x. Assume a and b are positive numbers.