

More Practice Solving Absolute Value Equations

Copy the example below on lined paper.

$$\begin{array}{r} 2 - 4|2x + 3| = -18 \\ \underline{-2 \qquad \qquad \qquad -2} \\ -4|2x + 3| = -20 \\ \underline{-4 \qquad \qquad \qquad -4} \\ |2x + 3| = 5 \\ 2x + 3 = 5 \text{ or } 2x + 3 = -5 \end{array}$$

Notice absolute value is not alone
Subtract 2 from both sides
Absolute value still not alone
Divide both sides by -4
Absolute value can be positive or negative
Two equations to solve

Now we just solve these two remaining equations to find our solutions.

$$\begin{array}{r} 2x + 3 = 5 \\ \underline{-3 \quad -3} \\ 2x = 2 \\ \underline{\quad 2 \quad 2} \\ x = 1 \end{array} \quad \text{or} \quad \begin{array}{r} 2x + 3 = -5 \\ \underline{-3 \quad -3} \\ 2x = -8 \\ \underline{\quad 2 \quad 2} \\ x = -4 \end{array}$$

Now, do these problems on the same piece of lined paper.

1. $|x + 2| = 7$

2. $|3x - 6| = 15$

3. $|9 + 4x| = 1$

4. $|20 - 7x| = 8$

5. $|2x - 9| = 12$

6. $|5x + 5| = 20$

7. $6|y + 1| = 30$

8. $|x - 3| + 2 = 5$

9. $|3x + 18| + 2 = 8$

10. $3|x - 8| + 15 = 21$

11. $9|2x - 4| = 36$

12. $|7x + 14| - 5 = 30$

13. $2|x + 1| + 5 = 19$

14. $-2|x + 5| + 4 = 34$