

# The Weekly Rigor

No. 297

“A mathematician is a machine for turning coffee into theorems.”

February 29, 2020

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## 10 Problems in Solving Equations Involving Absolute Value

### PROBLEMS

Solve each equation.

1.  $|x| = 3$ .

2.  $|x + 4| = 7$ .

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

4.  $|3x - 4| = 14$ .

5.  $|5x - 7| = 14$ .

6.  $|3 - 4x| = 8$ .

7.  $\left|\frac{x}{2} + \frac{x}{3}\right| = \frac{5}{3}$ .

8.  $\left|\frac{2x}{3} + \frac{3x}{4}\right| = \frac{5}{6}$ .

9.  $\left|\frac{x}{2} + \frac{3}{5}\right| = 4$ .

10.  $\left|\frac{x}{2} + \frac{5}{3}\right| = 5$ .

## ANSWERS

1. $x = -3; x = 3$	2. $x = -11; x = 3$
3. $x = -11; x = 7$	4. $x = -\frac{10}{3}; x = 6$
5. $x = -\frac{7}{5}; x = \frac{21}{5}$	6. $x = -\frac{5}{4}; x = \frac{11}{4}$
7. $x = -2; x = 2$	8. $x = -\frac{10}{17}; x = \frac{10}{17}$
9. $x = -\frac{46}{5}; x = \frac{34}{5}$	10. $x = -\frac{40}{3}; x = \frac{20}{3}$

“Only he who never plays, never loses.”