

Three of these equations have no solution!

1.3 Practice - Absolute Value Equations

Solve each equation. Write non-integer answers in fractional form.

1) $|-5n| = -5$

no way!

NO Solution!

2) $|-10m| = 100$

$\frac{-10m}{-10} = \frac{100}{-10}$ OR $\frac{-10m}{-10} = \frac{100}{-10}$
 $m = 10$ OR $m = -10$

3) $\left| \frac{3}{4}p \right| = \frac{9}{16}$

$p = -\frac{3}{4}$ OR $p = \frac{3}{4}$

4) $\left| \frac{3}{11}x \right| = \frac{3}{44}$

$x = -\frac{3}{4}$ OR $x = \frac{3}{4}$

WEIRD!

5) $\left| r + \frac{11}{4} \right| = \frac{7}{4}$

$4\left[r + \frac{11}{4} = \frac{7}{4}\right]$
 $4r + 11 = 7$
 $4r = -4$
 $r = -1$

$4\left[r + \frac{11}{4} = \frac{7}{4}\right]$
 $4r + 11 = 7$
 $4r = -4$
 $r = -1$

$r = -\frac{18}{4} = -\frac{9}{2}$ OR $r = -1$

6) $\left| -\frac{5}{2}x \right| = 5$

$x = 2$ OR $x = -2$

7) $|6+r| + 10 = 14$

$|6+r| = 4$

$6+r=4$ OR $6+r=-4$

$r = -2$ OR $r = -10$

8) $2 + |-1-x| = -8$

$|-1-x| = -10$

NO Solution!

9) $5|6n-2| + 4 = -36$

$|6n-2| = -8$

ouch!
NO Solution!

10) $|2a-1| - 4 = 5$

$|2a-1| = 9$

$2a-1=9$ OR $2a-1=9$
 $2a=10$ OR $2a=10$
 $a=5$ OR $a=5$

11) $3|-1-7x| + 9 = 96$

$|-1-7x| = 29$

$-1-7x = -29$ OR $-1-7x = 29$
 $-7x = -28$ OR $-7x = 30$
 $x = 4$ OR $x = -\frac{30}{7}$

12) $9|-2v+1| + 1 = 46$

$|-2v+1| = 5$

$-2v+1 = -5$ OR $-2v+1 = 5$
 $-2v = -6$ OR $-2v = 4$
 $v = 3$ OR $v = -2$

13) $|-6+2b| - 1 = -1$

$|-6+2b| = 0$

$-6+2b = 0$ OR $-6+2b = 0$
 $2b = 6$ OR $2b = 6$
 $b = 3$ OR $b = 3$
 $b = 3$

14) $-8|10n-5| = -120$

$|10n-5| = 15$

$10n-5 = 15$ OR $10n-5 = 15$
 $10n = 20$ OR $10n = 20$
 $n = 2$ OR $n = 2$
 $n = -1$ OR $n = 2$