A.REI.11: *I can explain why the x-coordinates of the points where the graphs of the equations y=f(x) and y=g(x) intersect are the solutions of the equation f(x)=g(x); find the solutions approximately. Include cases where f(x) and/or g(x) are absolute value functions.*

10. Solve and check. Show all work including check:

$$2|m| = 14$$

Solve:

$\frac{2|m|}{2} = \frac{14}{2}$

$|m| = 7$

$m = 7$ or $m = -7$

Check your answer (show your work):

$2|7| = 14$

$2(7) = 14$

$14 = 14$ ✓

$2|-7| = 14$

$2(7) = 14$

$14 = 14$ ✓

11. Solve and check. Show all work including check:

$$2|x+1| + 4 = 12$$

Solve:

$2|x+1| + 4 = 12$

$-4 \quad -4$

$\frac{2|x+1|}{2} = \frac{8}{2}$

$|x+1| = 4$

$x+1 = 4$

$-1 \quad -1$

$x = 3$

$x+1 = -4$

$-1 \quad -1$

$x = -5$

Check your answer (show your work):

$2|3+1| + 4 = 12$

$2|4| + 4 = 12$

$2(4) + 4 = 12$

$8 + 4 = 12$ ✓

$2|-5+1| + 4 = 12$

$2|-4| + 4 = 12$

$2(4) + 4 = 12$

$8 + 4 = 12$ ✓

12. Barry's walkie-talkie has a range of 2 miles. Barry is traveling on a straight highway and is at mile marker 207.

Part A: choose the correct equation to model this situation

|x - big #| = small #

(A) $|x - 2| = 207$

(B) $x = |2 - 207|$

(C) $|207 - x| = 2$

(D) $2 = |x - 207|$

Part B: Solve the equation for the maximum and minimum mile marker that Barry's walkie-talkie will reach.

$|x - 207| = 2$

$x - 207 = 2$

$+207 \quad +207$

$x = 209$ mile marker max

$x - 207 = -2$

$+207 \quad +207$

$x = 205$ mile marker min