SchoolNova, Math 5b Homework 8 Algebraic Equations with Absolute Values and Inequalities November 18, 2018

Please provide sufficient details about how you solved the problem. More difficult problems are marked with a *. If unable to solve a problem, please present your thoughts and any partial solution.

- 1. Evaluate the following expressions, with absolute values:
 - (a) |27|
 - (b) |-11|
 - (c) |10 25|
 - (d) |14| |-3|
 - (e) |13| |7|
 - (f) |36 + (-6)|
 - (g) |21| + |-4|
 - (h) |49 (-3)|
 - (i) -|-5|
- 2. Solve the following inequalities, and plot on a number line:
 - (a) $x \le 4$
 - (b) $x \ge 7$
 - (c) $x + 3 \le 5$
 - (d) 2x < 10
 - (e) $x^2 \le 9$
- 3. Solve the following equations containing absolute values, and plot on a number line:
 - (a) |x| = 3.
 - (b) |x+2| = 7.
 - (c) |2x| = 10.
 - (d) |3x 12| = 0.

- 4. Show that each of the following numbers are solutions to the given equations or inequalities:
 - (a) x = 3 in $x^2 9 = 0$.
 - (b) x = -5 in $x^2 \ge 16$.
 - (c) x = -1 in $2x 3 \le -2$.
 - (d) x = 1 in $2(x 5) \le 4x$.
 - (e) x = 5 in $|4 x| \le 2$.
- 5. The sum of two consecutive even integers is 26. What are the two numbers?
- 6. The area of a rectangle is 24 cm^2 . The width is 2 cm less than the length. What are the length and the width?
- 7. The number 100 is multiplied either by 2 or by 3, then the result is increased either by 1 or by 2, and then the new result is divided either by 3 or by 4. If the final result is a natural number, what is the final result?
- 8. Carla wants to fold a cube from a paper net. By mistake, she drew 7 squares on her sheet instead of 6 squares. Which square(s) can she remove so that the figure remains connected, and Carla can fold a cube from it?

