

1.

[4 points]

Simplify the following expressions:

(a) $|4\sqrt{5} - 9| + 2|2\sqrt{5} - 4| - 3|\sqrt{5} - 2|$

(b) $\sqrt{16 - 6\sqrt{7}} - 2|2\sqrt{7} - 6|$

2.

[4 points]

Solve the following equations:

(a) $2\sqrt{x^2 + 6x + 9} - \sqrt{5} = 3\sqrt{5}$

(b) $\frac{|x - 5|}{2} - \frac{|15 - 3x|}{4} = 1$

3.

[4 points]

Solve the following inequalities:

(a) $\sqrt{x^2 - 2x\sqrt{2} + 2} < 1$

(b) $|x - 1| + \frac{|3 - 3x|}{2} + 2 \geq |5 - 5x|$