

Linear Inequalities: math test, Grade 9 – download the PDF

Suggested time: 45 minutes. Out of 20 points. Calculator allowed only when the problem says so.

1 Solving inequalities

/ 4 pts

Solve each inequality.

a. $3x - 7 \leq 11$

b. $-4x + 5 > 21$

c. $2(x - 3) \geq 5x + 6$

2 Compound inequalities

/ 3 pts

Solve each compound inequality and graph part (a).

a. $-5 \leq 2x + 3 < 9$

b. $3x < -9$ or $x - 4 \geq 1$

3 Absolute value equations

/ 4 pts

Solve each equation.

a. $|x - 6| = 4$

b. $2|x + 1| - 5 = 7$

c. $|3x + 2| = -1$

4 Absolute value inequalities

/ 3 pts

Solve each inequality.

a. $|x + 2| \leq 5$

b. $|2x - 1| > 9$

5 Modeling

/ 4 pts

(a) A school club must raise at least \$250 for a trip. It sells wristbands for \$4 each, after paying \$30 for the design. Write and solve an inequality for the number of wristbands w . (b) A parcel must weigh 12 pounds, within 0.5 pound. Write and solve an absolute value inequality, then give the limits in kilograms ($1 \text{ lb} \approx 0.4536 \text{ kg}$), rounded to the hundredth.

6 True or false

/ 2 pts

Say whether each statement is true or false, and justify.

a. The inequality $4x + 1 < 4x + 9$ has no solution.

b. From $-3x \geq 12$ we get $x \geq -4$.



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