

Warm-Up Notes

MAT 100: ELEMENTARY ALGEBRA

Fall 2026

SECTION 3.6 SOLVE APPLICATIONS WITH LINEAR INEQUALITIES

Install — 10 minute lesson

Objectives of this Section

- Solve applications with linear inequalities

Skills

Introduced in this section:

No new skill introduced this section. **Also practiced:** WRD.NM (Naming the model), WRD.EQ (Decoding an explicit equation), EQN.IQ (Solving inequalities).

Lesson

Real-life budgets don't come with an equals sign. Words like at least, at most, no more than, and maximum are telling you which inequality symbol to write. Once the inequality is built, you solve it exactly the way you already know how — the only new step is turning the number you get back into a sensible real-world answer.

I do

Watch. Melissa makes necklaces and sells them online. She charges \$88 per necklace. Her monthly expenses are \$3,745. How many necklaces must she sell if she wants to make a profit of at least \$1,650?

We do

Together. Marcela is registering for her college classes, which cost \$105 per unit. How many units can she take to have a maximum cost of \$1,365?

You do

Your turn. Wedding Budget: Adele and Walter found the perfect venue for their wedding reception. The cost is \$9,850 for up to 100 guests, plus \$38 for each additional guest. How many guests can attend if Adele and Walter want the total cost to be no more than \$12,500?

Your turn. Kellen wants to rent a banquet room in a restaurant for her cousin's baby shower. The restaurant charges \$350 for the banquet room plus \$32.50 per person for lunch. How many people can Kellen have at the shower if she wants the maximum cost to be \$1,500?

Practice

1. Kellen wants to rent a banquet room in a restaurant for her cousin's baby shower. The restaurant charges \$350 for the banquet room plus \$32.50 per person for lunch. How many people can Kellen have at the shower if she wants the maximum cost to be \$1,500?

2. Let B be your last month's phone bill and W be your hourly wage. If you work h hours, your earnings are W times h dollars. Write an inequality expressing that earnings are at least B dollars, and solve for h . Show your work.

3. Kimuyen needs to earn \$4,150 per month in order to pay all her expenses. Her job pays her \$3,475 per month plus 4% of her total sales. What is the minimum Kimuyen's total sales must be in order for her to pay all her expenses?

4. Keshad gets paid \$2,400 per month plus 6% of his sales. His brother earns \$3,300 per month. For what amount of total sales will Keshad's monthly pay be higher than his brother's monthly pay?