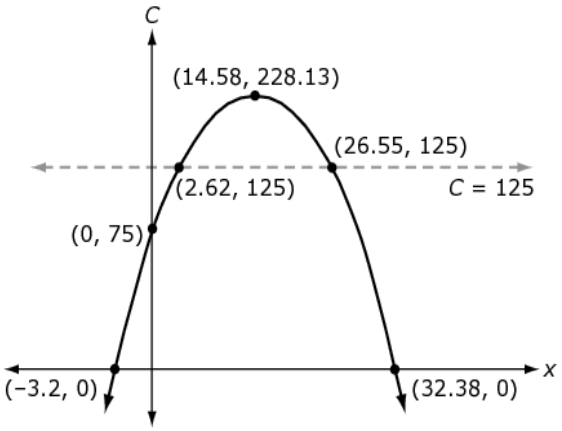
MAFS.912.A-CED.1.3	Represent constraints by equations or inequalities and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context. *For example, represent inequalities describing nutritional and cost constraints on combinations of different foods*.
Item Types	Editing Task Choice – May require choosing a definition for a variable or a correct interpretation of a solution. Equation Editor – May require creating a set of equations, inequalities, or values. GRID – May require graphing a representation. Hot Text – May require selecting a representation or dragging and dropping text to interpret solutions. Multiple Choice – May require identifying an equation, an inequality, or a value. Multiselect – May require selecting constraints, variable definitions, or equations that would model a context. Open Response – May require writing an explanation.
Clarifications	Students will write constraints for a real-world context using equations, inequalities, a system of equations, or a system of inequalities. Students will interpret the solution of a real-world context as viable or not viable.
Assessment Limits	In items that require the student to write an equation as a constraint, the equation may be a linear function. In items that require the student to write a system of equations to represent a constraint, the system is limited to a 2 x 2 with integral coefficients. In items that require the student to write a system of inequalities to represent a constraint, the system is limited to a 2 x 2 with integral coefficients.
Stimulus Attributes	Items must be set in a real-world context. Items may use function notation.
Response Attributes	Items may require the student to choose an appropriate level of accuracy. Items may require the student to choose and interpret the scale in a graph.

	Items may require the student to choose and interpret units. Items may require the student to apply the basic modeling cycle.
Calculator	Neutral

Sample Item	Item Type
	Multiple Choice

The production cost, C, in thousands of dollars, for a toy company to manufacture a ball is given by the model $C(x) = 75 + 21x - 0.72x^2$, where x is the number of balls produced in one day, in thousands. The company wants to keep its production cost at or below \$125,000. The graph shown models the situation.



What is a reasonable constraint for the model?

Ⓐ $-3.2 \le x \le 32.38$

Ⓑ $2.62 \le x \le 26.55$

Ⓒ $-3.2 \le x \le 2.62$ and $26.55 \le x \le 32.38$

Ⓓ $0 \le x \le 2.62$ and $26.55 \le x \le 32.38$