

QUADRATIC FUNCTIONS – 3. OPTIMIZE & APPLY

Name:

Date:

Please remember to show/communicate all your work. You DO NOT need to answer every question, two correct answers at any level will demonstrate a student's level of attainment.

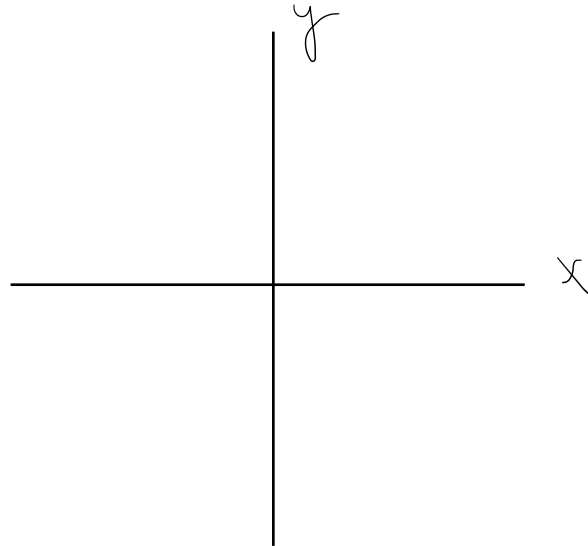
LEGEND						
✓	M	x	S	N	G	H
correct	mostly correct	incorrect	silly mistake	did not know how to start or skipped	with group	got help

	Mild (🌶️🌶️)		Medium (🌶️🌶️🌶️)		Spicy (🌶️🌶️🌶️🌶️)
Questions	#1	#2	#3	#4	#5
Results					

1. Find the Minimum or Maximum (state which it is) y -value of the following quadratic equation by completing the square: $y = \frac{2}{3}x^2 + \frac{5}{4}x - \frac{1}{3}$.

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4. A theatre sells 500 tickets when they set prices at \$20. If the relation to ticket price and revenue can be modelled with $R = -10x^2 + 300x + 10000$, where x is the number of price increases in dollars, how many tickets will they sell when the ticket price is optimized? Provide a quick graph sketch with any important information labelled.



5. You and a friend sold tickets for a school concert. At \$20, typically 100 tickets get sold, but both of you adjusted your tickets prices. You were able to optimize profit by increasing your ticket costs to \$35 and selling just 70 tickets. Your friend decided to increase the price even more but only made \$1200. What did they price their tickets at and how many did they sell?