

Quarter 1 Exam Study Guide

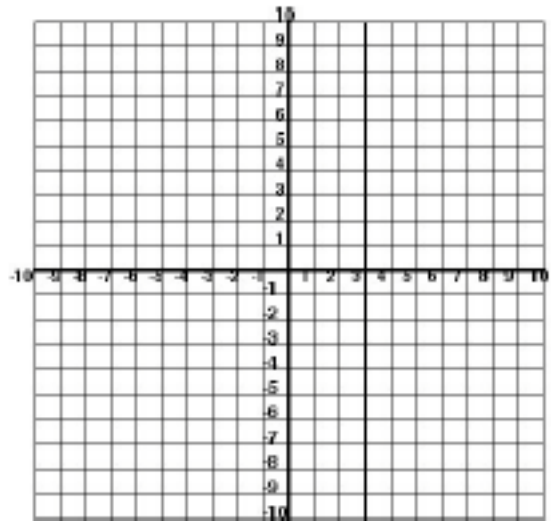
- Write the following sentence as an equation: "n increased by 38 is the same as 194"
- Choose the correct equation to solve the following application problem:
"John has two savings accounts that have a total of \$20,000. He took out 30% from one and 25% from another to purchase a car for \$5,400. How much money was in each account to begin with?"
 - $3x + 2.5y = 20, x + y = 2000$
 - $0.3x + 0.25y = 5,400, x + y = 20,000$
 - $x + y = 5,400, x - y = 20,000$
 - $x = 5,400, y = 20,000$
- Calculate the average rate of change from $f(2)$ to $f(5)$ on the function $f(x) = 2x^2$.
- Solve the system of equations.
$$y = x^2 - 6$$
$$y = 3x + 4$$
- A rectangular section of Poplar Avenue that covers a total of 612 sq. ft. is being repaved today. If the width is 45 feet less than half the length, how long is the section of the street they are repaving?
- Given the function in the following table, indicate which two-year period had the highest rate of change, and state the difference between the highest rate of change and the lowest rate of change.

Year	Price
2010	4.12
2011	4.24
2012	4.30
2013	4.35
2014	4.47
2015	4.57

7. Solve the following system of equations by graphing:

$$y = 3x - 5$$

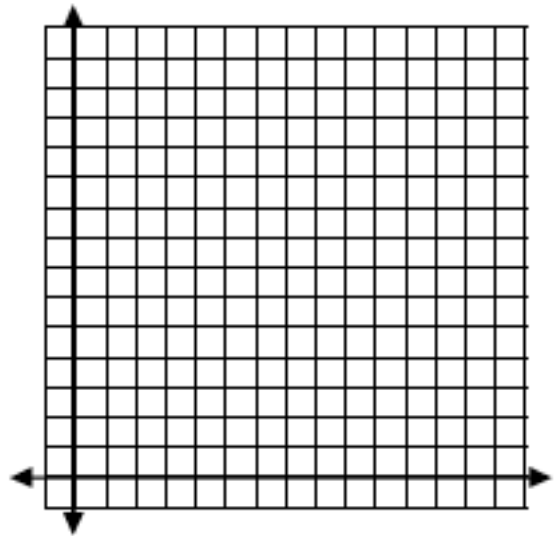
$$y = -\frac{1}{2}x + 2$$



8. To raise money to attend the Criminal Justice field trip, Alex is selling candy bars. Small candy bars sell for \$2 each and large candy bars sell for \$3 each. She needs to earn at least \$75 in order to attend the field trip. She will also earn extra credit if she sells at least 35 candy bars total of any combination.

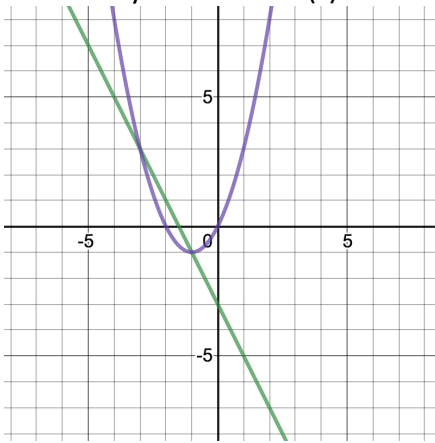
a. Write a system of linear inequalities to represent this situation, then graph.

b. Using your graph, give two possible combinations of small and large candy bars that Alex can sell to attend the field trip and earn extra credit.



9. A friend tosses a ball into the air from the top of a 5 foot hill at an initial velocity of 18 feet per second. The equation $h(t) = -8t^2 + 18t + 5$ models the height h of the ball t seconds after it was thrown. Determine the average rate of change of the ball between 1 and 2 seconds.

10. Identify the solution(s) to the system of equations.



11. Casey entered the amount he charged on his credit card each month onto a spreadsheet

Month	Amount
February	\$504
March	\$532
April	\$710
May	\$589
June	\$483

What was the rate of change between March and April?

12. Suppose you have \$50 in your bank account. You start saving \$4 each week. Your friend has \$30 in his account and is saving \$8 each week. Assume neither of you make any withdrawals. After how many weeks will you and your friend have the same amount of money in your accounts?

