Writing & Solving Two-Variable Inequalities

Classwork

Name_____

Date_____Per_____

Write the inequality that represents each scenario. Be sure to first identify the two variables, write and then solve.

1. Suppose we know the cost of 4 cartons of milk and 3 sandwiches is less than or equal to $15.50.

   X Variable milk (m)

   y Variable sandwich :s

   Inequality: $4m + 3s \leq 15.50$

Which of the following points are possible solutions to the inequality?

   a. (1.25, 3.49)   b. (1.45, 3.55)   c. (1.50, 3.10)   d. (2.00, 3.00)

   $4(1.25)+3(3.49)\leq 15.50$ $4(1.45)+3(3.55)$ $4(1.50)+3(3.10)$ $4(2)+3(3)\leq 15.50$

   $15.47 \leq 15.50 \checkmark$ $(16.45 \leq 15.50$ no$)$ $15.30 \leq 15.50 \checkmark$ $17 \leq 15.50 X$

2. Jason is buying wings and hotdogs for a party. One package of wings cost $7. Hotdogs cost $4 per pound. He has no more than $40 to spend.

   x Variable wings ; w

   y Variable hotdogs : h

   Inequality: $7w + 4h \leq 40$

Which of the following points are possible solutions to the inequality?

   a. (4, 4)   b. (3,4)   c. (4,3)   d. (5,2)

   $7(4)+4(4)\leq 40$ $7(3)+4(4)\leq 40$ $7(4)+4(3)\leq 40$ $7(5)+4(2)\leq 40$

   $44 \leq 40 X$ $37\leq 40 \checkmark$ $40 \leq 40 \checkmark$ $43 \leq 40 X$

3. Sarah is selling bracelets and earrings to make money for summer vacation. The bracelets cost $5 and the earrings cost $10. She needs to make at least $500.

   Variable bracelets : X

   Variable earrings : y

   Inequality: $5X + 10y \geq 500$

Which of the following points are possible solutions to the inequality?

   b. (37,33)   b. (50, 25)   c. (20, 15)   d. (10, 40)

   $5(37)+10(33)\geq 500$ $5(50)+5(25)\geq 500$ $5(20)+10(15)\geq 500$ $5(10)+10(40)\geq 500$

   $515 \geq 500 \checkmark$ $375 \geq 500 X$ $250 \geq 500 X$ $450 \geq 500 X$

4. The boys and girls soccer club is raising money to buy new uniforms. The boys' soccer club is selling candy bars for $2 each and the girls' soccer club is selling candles for $4. They need to raise more than $800.

   Variable candy bars (b)

   Variable candles (g)

   Inequality: $2b + 4g > 800$

What is the minimum amount of candy bars the boys would have had to sell if the girls sold 130 candles?

   g=130

   $2b + 4g > 800$

   $2b + 4(130) > 800$

   $ -520 -520$

   $\dfrac{2b}{2} > \dfrac{280}{2}$

   $b > 140$

   need to sell 141 bars