

First & Last Name _____ Date _____ Period _____

2.7 Solving Systems of 3 equations Application

Directions: Write a system of equations and solve.

1.

The theater sells three types of tickets: general admission, senior citizen, and child. Mark bought 9 general admission, 2 senior citizen, and 3 child tickets and paid \$170. Sarah bought 5 general admission, 4 senior citizen, and 7 child tickets and paid \$173. Kyle bought 4 general admission, 1 senior citizen, and 6 child tickets and paid \$116.50. Find the cost of each type of ticket.

x: price of general admission ticket

y: price of senior ticket

z: price of child ticket

$$9x + 2y + 3z = 170$$

$$5x + 4y + 7z = 173$$

$$4x + 1y + 6z = 116.50$$

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②

③

general adm. \$13.50
Senior ticket \$11.50
Child ticket \$8.50

2.

Jamie has a collection of 78 nickels, dimes, and quarters worth \$12.40. If the number of quarters is doubled, the value becomes \$22.15. How many of each type of coin does Jamie have?

x: number of nickels
y: number of dimes
z: number of quarters

$$x + y + z = 78$$

$$0.05x + 0.1y + 0.25z = 12.40$$

$$0.05x + 0.1y + 0.5z = 22.15$$

$$\uparrow \\ 2 \cdot z \cdot (0.25)$$

25 nickels
14 dimes
39 quarters