Math Sheet

Name _____ Score _____ Teacher _____ Date _____

Two-Equation Word Problems

Define x and y, write a system of two equations, solve it, and answer in context.

1. **A jar holds 45 nickels and dimes worth 345 cents. How many nickels and dimes are in the jar?**

x = _____

y = _____

Equation 1: _____

Equation 2: _____

Solve:

Answer in context: _____

2. **A school sold 62 concert tickets. Adult tickets cost $16 and student tickets cost $13. Ticket sales totaled $911. How many of each ticket were sold?**

x = _____

y = _____

Equation 1: _____

Equation 2: _____

Solve:

Answer in context: _____

3. **At a school store, 2 notebooks and 1 pen cost $13. A second purchase of 1 notebook and 3 pens costs $19. Find each unit price.**

x = _____

y = _____

Equation 1: _____

Equation 2: _____

Solve:

Answer in context: _____

4. **A farm pen contains 32 chickens and rabbits. Together they have 86 legs. How many chickens and rabbits are in the pen?**

x = _____

y = _____

Equation 1: _____

Equation 2: _____

Solve:

Answer in context: _____

Define both variables before writing the two equations.

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Two-Equation Word Problems

Worked Answer Key

Define x and y, write a system of two equations, solve it, and answer in context.

1. **A jar holds 45 nickels and dimes worth 345 cents. How many nickels and dimes are in the jar?**

x = nickels; y = dimes.

Model: x + y = 45 and 5x + 10y = 345.

Multiply Eq. 1 by 5 and Eq. 2 by -1.

Scaled equations: 5x + 5y = 225; -5x - 10y = -345.

Add: -5y = -120, so y = 24.

Back-substitute to get x = 21, y = 24.

Eq. 1: 1(21) + 1(24) = 45 = 45.

Eq. 2: 5(21) + 10(24) = 345 = 345.

The jar contains 21 nickels and 24 dimes.

2. **A school sold 62 concert tickets. Adult tickets cost $16 and student tickets cost $13. Ticket sales totaled $911. How many of each ticket were sold?**

x = adult tickets sold; y = student tickets sold.

Model: x + y = 62 and 16x + 13y = 911.

Multiply Eq. 1 by 13 and Eq. 2 by -1.

Scaled equations: 13x + 13y = 806; -16x - 13y = -911.

Add: -3x = -105, so x = 35.

Back-substitute to get x = 35, y = 27.

Eq. 1: 1(35) + 1(27) = 62 = 62.

Eq. 2: 16(35) + 13(27) = 911 = 911.

35 adult tickets and 27 student tickets were sold.

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Two-Equation Word Problems

Worked Answer Key

Define x and y, write a system of two equations, solve it, and answer in context.

3. **At a school store, 2 notebooks and 1 pen cost $13. A second purchase of 1 notebook and 3 pens costs $19. Find each unit price.**

x = price of one notebook; y = price of one pen.
Model: 2x + y = 13 and x + 3y = 19.
Multiply Eq. 1 by 1 and Eq. 2 by -2.
Scaled equations: 2x + y = 13; -2x - 6y = -38.
Add: -5y = -25, so y = 5.
Back-substitute to get x = 4, y = 5.
Eq. 1: 2(4) + 1(5) = 13 = 13.
Eq. 2: 1(4) + 3(5) = 19 = 19.
A notebook costs $4 and a pen costs $5.

4. **A farm pen contains 32 chickens and rabbits. Together they have 86 legs. How many chickens and rabbits are in the pen?**

x = chickens; y = rabbits.
Model: x + y = 32 and 2x + 4y = 86.
Multiply Eq. 1 by 2 and Eq. 2 by -1.
Scaled equations: 2x + 2y = 64; -2x - 4y = -86.
Add: -2y = -22, so y = 11.
Back-substitute to get x = 21, y = 11.
Eq. 1: 1(21) + 1(11) = 32 = 32.
Eq. 2: 2(21) + 4(11) = 86 = 86.
The pen contains 21 chickens and 11 rabbits.