# Mixture Problems

# Mixture Problems

Mixture problems are problems in which two or more parts are combined into a whole.

In mixture problems, the units are usually the number of gallons or pounds and the value is the cost, value, or concentration per unit.

# Mixture Problems

Example: Retail

A tea company sells blended tea for $25 per pound. To make blackberry tea, dried blackberries that cost $10.50 per pound are blended with black tea that costs $35 per pound. How many pounds of black tea should be added to 5 pounds of dried blackberries to make blackberry tea?

# Mixture Problems

Example: Retail

A tea company sells blended tea for $25 per pound. To make blackberry tea, dried blackberries that cost $10.50 per pound are blended with black tea that costs $35 per pound. How many pounds of black tea should be added to 5 pounds of dried blackberries to make blackberry tea?

| | | | |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

# Mixture Problems

Example: Retail

A tea company sells blended tea for $25 per pound. To make blackberry tea, dried blackberries that cost $10.50 per pound are blended with black tea that costs $35 per pound. How many pounds of black tea should be added to 5 pounds of dried blackberries to make blackberry tea?

| Ingredients/Mix | Number of Units | Price per Unit ($) | Total Price |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

# Mixture Problems

Example: Retail

A tea company sells blended tea for $25 per pound. To make blackberry tea, dried blackberries that cost $10.50 per pound are blended with black tea that costs $35 per pound. How many pounds of black tea should be added to 5 pounds of dried blackberries to make blackberry tea?

| Ingredients/Mix | Number of Units | Price per Unit ($) | Total Price |
|---|---|---|---|
| Blackberries | | | |
| Black Tea | | | |
| Blended Tea | | | |

# Mixture Problems

Example: Retail

A tea company sells blended tea for $25 per pound. To make blackberry tea, dried blackberries that cost $10.50 per pound are blended with black tea that costs $35 per pound. How many pounds of black tea should be added to 5 pounds of dried blackberries to make blackberry tea?

| Ingredients/Mix | Number of Units | Price per Unit ($) | Total Price |
|---|---|---|---|
| Blackberries | | $10.50/pound | |
| Black Tea | | $35.00/pound | |
| Blended Tea | | $25.00/pound | |

# Mixture Problems

Example: Retail

A tea company sells blended tea for $25 per pound. To make blackberry tea, dried blackberries that cost $10.50 per pound are blended with black tea that costs $35 per pound. How many pounds of black tea should be added to 5 pounds of dried blackberries to make blackberry tea?

| Ingredients/Mix | Number of Units | Price per Unit ($) | Total Price |
|---|---|---|---|
| Blackberries | 5 pounds | $10.50/pound | |
| Black Tea | $x$ pounds | $35.00/pound | |
| Blended Tea | $(x + 5)$ pounds | $25.00/pound | |

# Mixture Problems

Example: Retail

A tea company sells blended tea for $25 per pound. To make blackberry tea, dried blackberries that cost $10.50 per pound are blended with black tea that costs $35 per pound. How many pounds of black tea should be added to 5 pounds of dried blackberries to make blackberry tea?

| Ingredients/Mix | Number of Units | Price per Unit ($) | Total Price |
|---|---|---|---|
| Blackberries | 5 pounds | $10.50/pound | 5(10.50) |
| Black Tea | $x$ pounds | $35.00/pound | $35x$ |
| Blended Tea | $(x + 5)$ pounds | $25.00/pound | $25(x + 5)$ |

# Mixture Problem Calculations

| Ingredients/Mix | Number of Units | Price per Unit ($) | Total Price |
|---|---|---|---|
| Blackberries | 5 pounds | $10.50/pound | 5(10.50) |
| Black Tea | $x$ pounds | $35.00/pound | $35x$ |
| Blended Tea | $(x + 5)$ pounds | $25.00/pound | $25(x + 5)$ |

Set up the equation: $5(10.50) + 35x = 25(x + 5)$

Distribute: $52.50 + 35x = 25x + 125$

Subtract: $52.50 - 52.50 + 35x = 25x + 125 - 52.50$

Simplify: $35x = 25x + 72.50$

Subtract: $35x - 25x = 25x - 25x + 72.50$

Simplify: $10x = 72.50$

Divide: $10x/10 = 72.50/10$

Simplify: $x = 7.25$ pounds of Black Tea

# Mixture Problems

Solve: Coffee

Premium coffee beans cost $9.50 per pound and Supreme coffee beans cost $11.75 per pound. How many pounds of Premium coffee beans should be mixed with 2 pounds of Supreme coffee beans to make a blend of coffee beans that cost $10.00 per pound?

| Ingredients/Mix | Number of Units | Price per Unit ($) | Total Price |
|---|---|---|---|
| | | | |
| | | | |
| | | | |