

Day 4 - Creating Equations with Distribution - Notes

1. The daycare center charges \$120 for one week of care. Families with multiple children pay \$95 for each additional child per week. Write an equation for the total cost for one week of care in terms of the number of children. How many children does a family have if they spend \$405 a week in childcare?

Variables: x : number of children

Equation: $120 + 95(x-1) = 405$

1 child: \$120

2 children: \$120 + \$95

3 children: 120 + 95 + 95

4 children: 120 + 95 + 95 + 95

5 children: 120 + 95 + 95 + 95 + 95

x children: $120 + 95(x-1)$

← number included in the \$120

$$\begin{array}{r} 120 + 95(x-1) = 405 \\ -120 \quad -120 \\ \hline \end{array}$$

$$\begin{array}{r} 95(x-1) = 285 \\ \frac{95}{95} \quad \frac{95}{95} \\ \hline \end{array}$$

$$\begin{array}{r} x-1 = 3 \\ +1 \quad +1 \\ \hline \end{array}$$

$$\boxed{x = 4 \text{ children}}$$

2. The party store has a special on greeting cards. It charges \$14 for 4 greeting cards and \$1.50 for each additional card. Write an equation for the total cost of greeting cards in terms of the number of cards. What is the total cost for 9 greeting cards?

Variables: x : number of cards

Equation: $14 + 1.50(x-4)$

4 cards: 14

5 cards: 14 + 1.50

6 cards: 14 + 1.50 + 1.50

7 cards: 14 + 1.50 + 1.50 + 1.50

x cards: $14 + 1.50(x-4)$

← number included in the \$14

$$14 + 1.50(9-4)$$

$$14 + 1.50(5)$$

$$14 + 7.50$$

$$\boxed{\$21.50}$$

3. Clara has a coupon for \$10 off her favorite clothing store. The coupon is applied before any discounts are taken. The store is having a sale and offering 15% off everything. If Clara has \$50 to spend, how much can her purchases total before applying the discount to her coupon?

Variables: x : total amount spent

Equation: $0.85x - 10 = 50$

$$\begin{array}{r} 0.85x - 10 = 50 \\ +10 \quad +10 \\ \hline \end{array}$$

$$\begin{array}{r} 0.85x = 60 \\ \frac{0.85}{0.85} \quad \frac{60}{0.85} \\ \hline \end{array}$$

$$\boxed{x = \$70.59}$$