Money Problems

Example

A cash register has 5 times as many quarters as nickels, two fewer dimes than nickels, and 30 pennies. Altogether, the cash register contains $8.50 in change. How many nickels are in the cash register?

A snack machine contains $20.80 in quarters and dimes. If there are 100 coins in all, how many of each type are there?

Jack has 7 more quarters than dimes. He has a total of $5.95 in quarters and dimes. How many quarters and dimes does Jack have?

Purchasing Items Problems

Example

Mr. Falsy purchased 10 graphing calculators and 20 scientific calculators. Because she is the bet math teacher in the world the store gave her a 30% discount on her total purchase. Her final cost was $864.50. Each graphing calculator originally cost $110. Write and solve an equation to determine how much a scientific calculator cost originally.

Hannah bought 2 bags of apples and one bag of pears. A bag of apples cost $7.00 each, and she had a coupon for 15% off of the entire purchase. When checking out, she paid $14.45. Write and solve an equation to determine how much a bag of pears cost originally.

Mark bought 5 frames and two packages of picture hooks at Michaels. Each frame cost $15.00. Mark had a coupon for 25% off of the entire purchase. After the discount was applied Mark paid $62.25. Write and solve an equation to determine how much a package of picture hooks cost originally.

Money Problems

Example

A cash register has 5 times as many quarters as nickels, two fewer dimes than nickels, and 30 pennies. Altogether, the cash register contains $8.50 in change. How many nickels are in the cash register?

$8.50 = 850 ¢

Let 30 = pennies

Let n = nickels

Let n − 2 = dimes

Let 5n = quarters

$30 + 5 \cdot n + 10(n-2) + 25(5n) = 850$

$30 + 5n + 10n - 20 + 125n = 850$

$140n + 10 = 850$

$-10 \quad -10$

$\frac{140n}{140} = \frac{840}{140}$

$n = 6$

6 nickels

A snack machine contains $20.80 in quarters and dimes. If there are 100 coins in all, how many of each type are there?

Let q = quarters

Let 100 − q = dimes

$25q + 10(100-q) = 2080$

$25q + 1000 - 10q = 2080$

$15q + 1000 = 2080$

$-1000 \quad -1000$

$\frac{15q}{15} = \frac{1080}{15}$

$q =$ 72 quarters, 28 dimes

Jack has 7 more quarters than dimes. He has a total of $5.95 in quarters and dimes. How many quarters and dimes does Jack have?

Let d = dimes

Let d + 7 = quarters

$10d + 25(d+7) = 595$

$10d + 25d + 175 = 595$

$35d + 175 = 595$

$-175 \quad -175$

$\frac{35d}{35} = \frac{420}{35}$

$d =$ 12 dimes, 19 quarters

Purchasing Items Problems

Example

Mr. Falsy purchased 10 graphing calculators and 20 scientific calculators. Because he is the best math teacher in the world the store gave him a 30% discount on his total purchase. His final cost was $864.50. Each graphing calculator originally cost $110. Write and solve an equation to determine how much a scientific calculator cost originally.

Sub Total − Discount

Let c = cost of scientific calculator

$10(110) + 20 \cdot c - 0.3(10(110) + 20 \cdot c) = 864.50$

$1100 + 20c - 330 - 6c = 864.50$

$770 + 14c = 864.50$

$-770 \quad -770$

$\frac{14c}{14} = \frac{94.50}{14}$

$c = \$6.75$

Hannah bought 2 bags of apples and one bag of pears. A bag of apples cost $7.00 each, and she had a coupon for 15% off of the entire purchase. When checking out, she paid $14.45. Write and solve an equation to determine how much a bag of pears cost originally.

Let $2 \cdot 7 = \$14 =$ apples

Let $p = \$$ pears

$0.85(14 + p) = 14.45$

$11.9 + 0.85p = 14.45$

$-11.9 \quad -11.9$

$\frac{0.85p}{0.85} = \frac{2.55}{0.85}$

$p = \$3$ bag of pears

Mark bought 5 frames and two packages of picture hooks at Michaels. Each frame cost $15.00. Mark had a coupon for 25% off of the entire purchase. After the discount was applied Mark paid $62.25. Write and solve an equation to determine how much a package of picture hooks cost originally.

Let $5(15) = \$75 = \$$ frames

Let $2h = \$$ hooks

$0.75(75 + 2h) = 62.25$

$56.25 + 1.5h = 62.25$

$-56.25 \quad -56.25$

$\frac{1.5h}{1.5} = \frac{6}{1.5}$

$h = \$4$ package of hooks