* Remember, to find how much the coins are worth, multiply Value * Qty.

# Equations Involving Money Part I

(1)

| Type | Value | * | Qty |
|---|---|---|---|
| Quarters | 0.25 | * | Q |
| Dimes | 0.10 | * | Q |

Val * Qty  Val * Qty

$$\boxed{0.25Q + 0.10Q = 2.45}$$

$$\frac{0.35Q}{0.35} = \frac{2.45}{0.35}$$

$$Q = 7$$

| |
|---|
| 7 Quarters |
| 7 Dimes |

$7 \times .25$ 1.75
$7 \times .10$ + .70
2.45 ✓

(2)

| Type | Value | * | Qty |
|---|---|---|---|
| dimes | 0.10 | * | $2n$ |
| nickels | 0.05 | * | $n$ |

2* twice as many dimes as nickels
(2n)

$$\boxed{0.10(2n) + 0.05n = 2.50}$$

$$100(0.20n + 0.05n = 2.50)$$

$$20n + 5n = 250$$

$$\frac{25n}{25} = \frac{250}{25}$$

$$n = 10$$

| |
|---|
| 10 nickels |
| 20 dimes |

0.50
+2.00
2.50 ✓

3)

| Type | Value | * | Qty |
|---|---|---|---|
| Quarters | 0.25 | * | Q |
| Nickels | 0.05 | * | 5Q |

5 times as many nickels as quarters

5Q  Q

$$0.25Q + 0.05(5Q) = 3.00$$

$$100\left(0.25Q + 0.25Q = 3.00\right)$$

$$25Q + 25Q = 300$$

$$\frac{50Q}{50} = \frac{300}{50}$$

$$Q = 6$$

| |
|---|
| 6 Quarters |
| 30 nickels |

1.50
+1.50
3.00 ✓

4)

| Type | Value | * | Qty |
|---|---|---|---|
| ½ Dollars | 0.50 | * | 15 − Q ★ |
| Quarters | 0.25 | * | Q |

15 coins total

so Q plus H = 15

$$Q + H = 15$$

$$-Q \qquad -Q$$

$$H = 15 - Q$$

The # of half-dollars = 15 − Q

$$0.50(15 - Q) + 0.25Q = 5.50$$

$$7.5 \underbrace{- 0.50Q + 0.25Q} = 5.50$$

$$7.5 - 0.25Q = 5.50$$

$$-7.5 \qquad -7.5$$

$$\frac{-0.25Q}{-0.25} = \frac{-2}{-0.25}$$

$$Q = 8$$

| |
|---|
| 8 Quarters |
| 7 half-dollars |

2.00
3.50
5.50 ✓