2.1 Coin and Mixture Problems

Be aware of the difference between
# of coins and value of coins

# of coins	value of coins
3 dimes	$3(.10) = .30$
2 quarters	$2(.25) = .50$
5 nickels	$5(.05) = .25$
4 pennies	$4(.01) = .04$
x dimes	$x(.10) = .10x$
n quarters	$n(.25) = .25n$
m+3 nickels	$(m+3)(.05) = .05(m+3)$

Coin and Mixture Word Problems

1. Eleanor has $\underset{.05}{\underline{\$1.60}}$ in nickels and $\underset{.25}{\text{quarters}}$. If there are 3 times as many quarters as nickels, how many of each type of coin does she have?

let $x = $ #of nickels $(.05)$
$3x = $ #of quarters $(.25)$

$.05x + .25(3x) = 1.60$
$.05x + .75x = 1.60$
$.80x = 1.60$
$x = \dfrac{1.60}{.80}$
$x = 2$

$\begin{array}{l} 3x \\ 3(2) \\ 6 \end{array}$

2 nickels and 6 quarters

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2. Bobby has 7 more nickels than dimes. He has $1.55 in all. How many of each type of coin does he have?

let $x = $ # of dimes $(.10)$
$x+7 = $ # of nickels $(.05)$

$.10(x) + .05(x+7) = 1.55$
$.10x + .05(x) + .05(7) = 1.55$
$.10x + .05x + .35 = 1.55$
$.15x + .35 = 1.55$
$.15x = 1.55 - .35$
$.15x = 1.20$
$x = \dfrac{1.20}{.15}$
$x = 8$

$\begin{array}{l} x+7 \\ 8+7 \\ 15 \end{array}$

8 dimes and 15 nickels

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3. Hank has a collection of dimes and quarters worth $4.50. He has 4 more quarters than dimes. Find the number of quarters.

let $x = $ # of dimes $(.10)$
$x+4 = $ # of quarters $(.25)$

$.10(x) + .25(x+4) = 4.50$
$.10x + .25x + 1.00 = 4.50$
$.35x + 1.00 = 4.50$
$.35x = 4.50 - 1.00$
$.35x = 3.50$
$x = \dfrac{3.50}{.35}$
$x = 10$

$\begin{array}{l} x+4 \\ 10+4 \\ 14 \end{array}$

14 quarters

HOMEWORK

Worksheet - HW 2.1 - Coin & Mixture