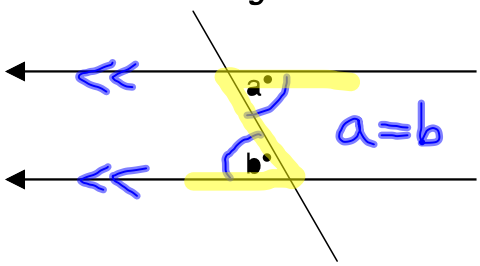
Applications of Linear Systems: Geometry/Money Problems

Feb 24/2010

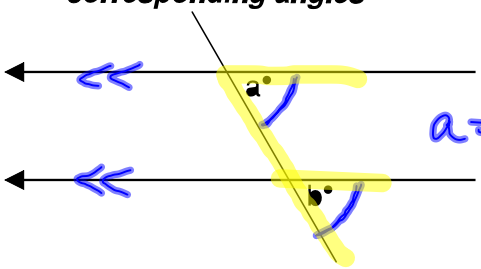
Recall:

alternate angles



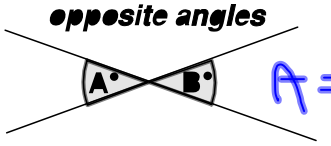
a=b

corresponding angles



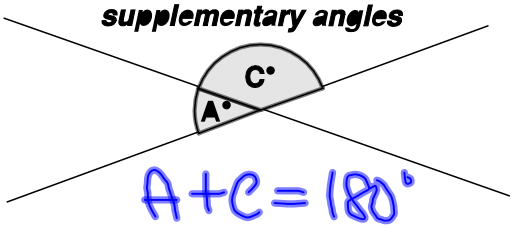
a=b

opposite angles



A=B

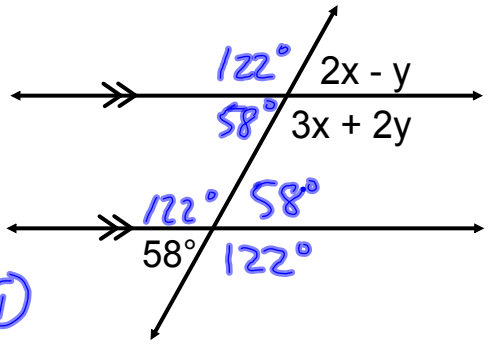
supplementary angles



A+C=180°

Grid - large

Ex.1. Determine the value of x and y.



2x 2x 2x

$2x-y=58$ ①

$3x+2y=122$ ②

① x2: $4x-2y=116$

add $7x = 238$

$\frac{7x}{7} = \frac{238}{7}$

$x=34$

Sub $x=34$ into ①

$2(34)-y=58$

$68-y=58$

$-y=-10$

$y=10$

∴ x is 34° and y is 10°

Grid - large

2. The coin box of a vending machine contains half as many quarters as dimes. If the total value of the coins is $22.50, how many dimes are there?

Let d & q represent the # of dimes & quarters

Q	D
10	20
5	10
$q=\frac{d}{2}$	$d=2q$

$d = 2q$ (1)

$0.25q + 0.10d = 22.50$ (2)

(0.25q: value of quarters; 0.10d: value of dimes; 22.50: total value)

Sub (1) into (2)

$0.25q + 0.10(2q) = 22.50$

$0.25q + 0.20q = 22.50$

$\frac{0.45q}{0.45} = \frac{22.50}{0.45}$

$q = 50$

$d = 2q$

$d = 2(50)$

$d = 100$

Grid - large

Assigned Work:

p. 94 # 21

plus:
Erik has $4.80 in nickels and quarters. If he has 6 more nickels than quarters, how many of each does he have?

Grid - large