Applications of Linear Systems:
Geometry/Money Problems

Assigned Work:

p. 40 #17
p. 55 #9

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

Review for Test:
p. 62 # 5a, 6, 7bc, 9, 12acd, 13, 14, 16, 17, 18

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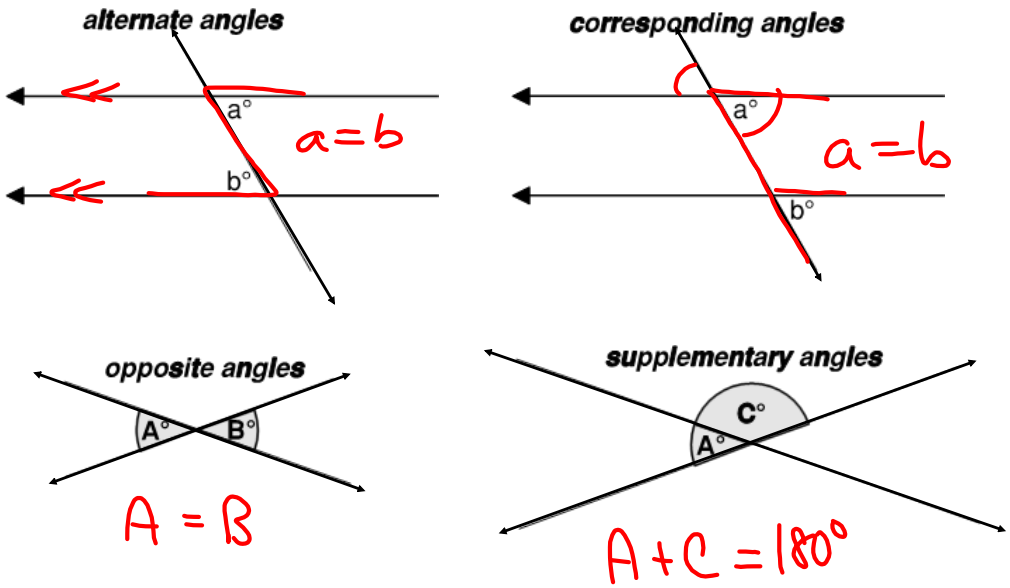
Applications of Linear Systems:
Geometry/Money Problems

Feb 23/2016

Recall:



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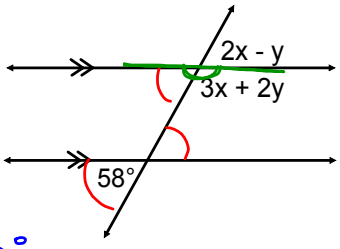
Ex.1. Determine the value of x and y.



$2x - y = 58°$ ①

$3x + 2y + 58° = 180°$

$3x + 2y = 122°$ ②

① × 2: $4x - 2y = 116°$

add: $7x = 238°$

$\frac{7x}{7} = \frac{238°}{7}$

$x = 34°$

Sub $x = 34°$ into ①: $2(34°) - y = 58°$

$68° - 58° = y$

$y = 10°$

Grid - large

Ex.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 and q be the number of dimes and quarters.

$q = \frac{1}{2}d$ or $2q = d$ ①

$0.10d + 0.25q = 22.50$ ②

Sub ① into ②

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

$0.20q + 0.25q = 22.50$

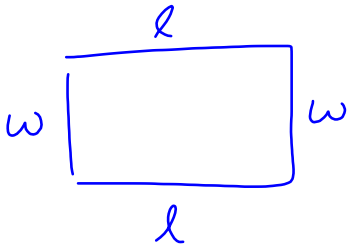
$\frac{0.45q}{0.45} = \frac{22.50}{0.45}$

$q = 50$

①: $d = 2(50)$

$= 100$

Ex.3 A rectangle with a perimeter of 180 cm is four times longer than it is wide. What are the dimensions of the rectangle?



$2\ell + 2w = 180$ $\quad \ell = 4w$ ②

$\ell + w = 90$ ①

sub ② into ①

$(4w) + w = 90$

$\frac{5w}{5} = \frac{90}{5}$

$w = 18$

$\ell = 4(18)$

$= 72$

∴ the length is 72cm and width is 18cm.

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Grid - large

p. 40 #17

$n + d + q = 49$ ①

$0.05n + 0.10d + 0.25q = 5.20$ [×100]

$5n + 10d + 25q = 520$ [÷5]

$n + 2d + 5q = 104$ ②

$(n + q + 5) = d$ ③

①: $n + (n+q+5) + q = 49$

$n + n + q + 5 + q = 49$

$2n + 2q = 44$ [÷2]

$n + q = 22$ ④

②: $n + 2(n+q+5) + 5q = 104$

$n + 2n + 2q + 10 + 5q = 104$

$3n + 7q = 94$ ⑤

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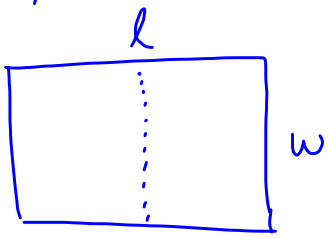
p. 55 #9.



$P = 54$ $l - w = 9$ ②

$2l + 2w = 54$ or $l = w + 9$

$l + w = 27$ ①

②: $l - w = 9$

$2l = 36$

$l = 18$

$18 - w = 9$

$18 - 9 = w$

$w = 9$

$\therefore$ ~~~ ©

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