

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:

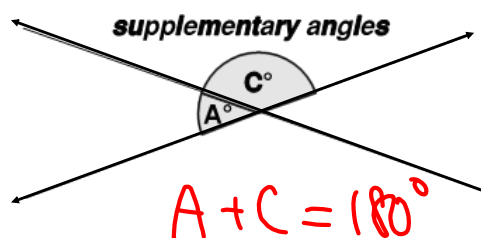
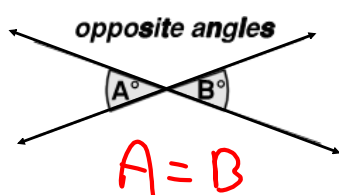
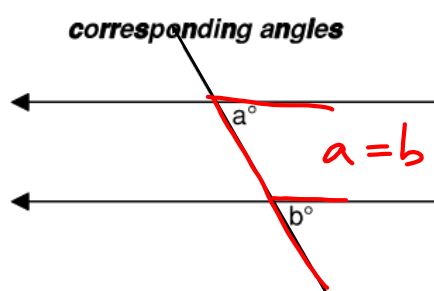
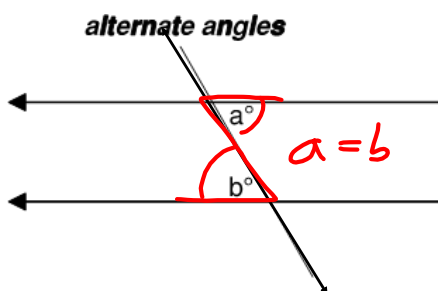
p. 62 # 5a, 6, 7bc, 9, 12acd, 13, 14, 16, 17, 18

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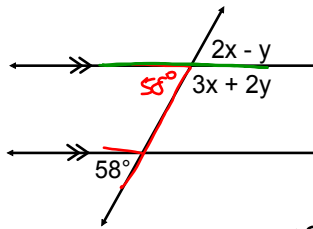
Feb 23/2016

Recall:



Grid - large

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



$$2x - y = 58^\circ \quad (1)$$

$$3x + 2y + 58^\circ = 180^\circ$$

$$3x + 2y = 122^\circ \quad (2)$$

$$(1) \times 2: 4x - 2y = 116^\circ \quad (3)$$

$$\text{add: } \begin{array}{r} 7x \\ \hline \end{array} = \begin{array}{r} 238^\circ \\ \hline \end{array}$$

$$x = 34^\circ$$

$$2x - y = 58^\circ$$

$$2(34^\circ) - y = 58^\circ$$

$$68^\circ - 58^\circ = y$$

$$y = 10^\circ$$

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?

$$q = \frac{1}{2}d \quad \text{or} \quad 2q = d \quad (1)$$

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

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?

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Grid - large

p. 40 #17

$$n + d + q = 49 \quad (1)$$

$$0.05n + 0.10d + 0.25q = 5.20 \quad [\times 100]$$

$$5n + 10d + 25q = 520 \quad [\div 5]$$

$$n + 2d + 5q = 104 \quad (2)$$

$$\underline{n + q + 5 = d} \quad (3)$$

$$(1): n + (n + q + 5) + q = 49$$

$$2n + 2q + 5 = 49$$

$$2n + 2q = 44 \quad (4)$$

$$\underline{n + q = 22}$$

$$(2): n + 2(n + q + 5) + 5q = 104$$

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

$$3n + 7q = 94 \quad (5)$$

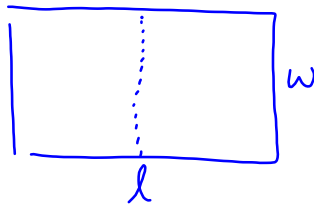
$$(4) \times 3: 3n + 3q = 66$$

$$\text{Sub: } \begin{array}{r} 3n + 3q = 66 \\ \underline{4q = 28} \\ 4 \end{array}$$

$$\boxed{q = 7}$$

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p. 55 #9.



$$P = 54$$

$$l - w = 9 \quad (2)$$

$$\frac{2l + 2w = 54}{2} \quad \frac{2l}{2} = \frac{36}{2}$$

$$l + w = 27 \quad (1)$$

$$l - w = 9 \quad (2)$$

$$\begin{array}{r} 2l = 36 \\ \underline{2} \\ l = 18 \end{array}$$

$$\boxed{l = 18}$$

sub $l = 18$ into (1)

$$(18) + w = 27$$

$$w = 27 - 18$$

$$\boxed{w = 9}$$

\therefore the length is 18m and width is 9m.

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