

#1. Let Ben's age be x
Let Chris' age be y

$$x + y = 35$$
$$x = y + 3$$

$$y + 3 + y = 35$$
$$2y = 35 - 3$$
$$2y = 32$$
$$y = 32/2$$

$$y = 16$$

$$x = 16 + 3$$

$$x = 19$$

$$19 + 16 = 35$$
$$35 = 35$$

$$19 = 16 + 3$$
$$19 = 19$$

\therefore Ben is 19 years old and Chris is 16 years old

#2. Let Jonah's wins be x
Let Matthew's wins be y

$$x + y = 50$$
$$x = 4y$$

$$4y + y = 50$$
$$5y = 50$$
$$y = 50/5$$
$$y = 10$$

$$x = 4(10)$$
$$x = 40$$

$$40 + 10 = 50$$
$$50 = 50$$

$$40 = 4(10)$$
$$40 = 40$$

\therefore Jonah won 40 games and matthew won 10 games

#3. Let wins be x
Let loses be y

$$x + y = 45$$
$$x = 3y + 5$$

$$3y + 5 + y = 45$$
$$4y = 45 - 5$$
$$4y = 40$$
$$y = 40/4$$
$$y = 10$$

$$x = 3(10) + 5$$
$$x = 35$$

$$35 + 10 = 45$$
$$45 = 45$$

$$35 = 3(10) + 5$$
$$35 = 30 + 5$$
$$35 = 35$$

\therefore Jamie won 35 games and lost 10 games

#4. Let Camille's points be x
Let Isabel's points be y

$$x + y = 44$$
$$x = 2y + 5$$

$$2y + 5 + y = 44$$
$$3y = 44 - 5$$
$$3y = 39$$
$$y = 39/3$$
$$y = 13$$

$$x = 2(13) + 5$$
$$x = 26 + 5$$
$$x = 31$$

$$31 + 13 = 44$$
$$44 = 44$$

$$31 = 2(13) + 5$$
$$31 = 26 + 5$$
$$31 = 31$$

\therefore Camille scored 31 points and Isabel scored 13 points

- # 5. Let Andrew's goals be x
Let Grant's goals be y

$$x = 4y$$

$$x - y = 51$$

$$4y - y = 51$$

$$3y = 51$$

$$y = 51/3$$

$$y = 17$$

$$x = 4(17)$$

$$x = 68$$

$$68 = 4(17)$$

$$68 = 68$$

$$68 - 17 = 51$$

$$51 = 51$$

\therefore Andrew scored 68 goals and Grant scored 17 goals

- # 6. Let Daphne's age be x
Let Erin's age be y

$$x + y = 116$$

$$x = 2y - 28$$

$$2y - 28 + y = 116$$

$$3y = 116 + 28$$

$$3y = 144$$

$$y = 144/3$$

$$y = 48$$

$$x = 2(48) - 28$$

$$x = 96 - 28$$

$$x = 68$$

$$68 + 48 = 116$$

$$116 = 116$$

$$68 = 2(48) - 28$$

$$68 = 96 - 28$$

$$68 = 68$$

\therefore Daphne's age is 68 and Erin's age is 48

- # 7. Let Sam's money be x
Let Joel's money be y

$$2x + 3y = 281$$

$$x = y + 47$$

$$2(y + 47) + 3y = 281$$

$$2y + 94 + 3y = 281$$

$$5y = 281 - 94$$

$$5y = 187$$

$$y = 187/5$$

$$y = 37.40$$

$$x = 37.40 + 47$$

$$x = 84.40$$

$$2(84.40) + 3(37.40) = 281$$

$$168.80 + 112.20 = 281$$

$$281 = 281$$

$$84.40 = 37.40 + 47$$

$$84.40 = 84.40$$

\therefore Sam had \$84.40 and Joel had \$37.40

- # 8. Let the 1st # be x
Let the 2nd # be y

$$x + y = 137$$

$$x = y + 43$$

$$y + 43 + y = 137$$

$$2y = 137 - 43$$

$$2y = 94$$

$$y = 94/2$$

$$y = 47$$

$$x = 47 + 43$$

$$x = 90$$

$$90 + 47 = 137$$

$$137 = 137$$

$$90 = 47 + 43$$

$$90 = 90$$

\therefore The two numbers are 90 and 47.

- # 9. Let \$ invested in 7% bonds be x
Let \$ in 5% GICs be y

$$x + y = 8000$$

$$.07x + .05y = 520$$

$$x = 8000 - y$$

$$.07(8000 - y) + .05y = 520$$

$$560 - .07y + .05y = 520$$

$$-.02y = 520 - 560$$

$$-.02y = -40$$

$$y = -40 / -.02$$

$$y = 2000$$

$$x = 8000 - 2000$$

$$x = 6000$$

$$6000 + 2000 = 8000$$

$$8000 = 8000$$

$$.07(6000) + .05(2000) = 520$$

$$420 + 100 = 520$$

$$520 = 520$$

∴ Michael invested \$6000 in 7% bonds and \$2000 in 5% GICs.

- # 10. Let speed of boat in still water be x
Let speed of current be y

Given: speed x time = distance

$$4(x + y) = 48$$

$$12(x - y) = 48$$

$$4x + 4y = 48$$

$$12x - 12y = 48$$

$$3x \quad 4x + 4y = 48$$

$$12x - 12y = 48$$

$$12x + 12y = 144$$

$$\underline{12x - 12y = 48}$$

$$24x \quad = 192$$

$$x = 192/24$$

$$x = 8$$

$$4(8) + 4y = 48$$

$$4y = 48 - 32$$

$$4y = 16$$

$$y = 16/4$$

$$y = 4$$

$$4(8) + 4(4) = 48$$

$$32 + 16 = 48$$

$$48 = 48$$

$$12(8) - 12(4) = 48$$

$$96 - 48 = 48$$

$$48 = 48$$

∴ The speed of the boat in still water was 8km/hr. and the speed of the current was 4km/hr.