Mathematical Team Game N

old, older, oldest

This team game about ages requires the solution of pairs of simultaneous equations. The first task is to match up the pairs of names and to convert the sentences into equations. It might be useful to revise the formation of equations from information such as 'Susan is two years older than Mary' and 'John is twice as old as James' and so on, before embarking on this rather demanding and interesting problem.

Topics:	Simultaneous equations
Ages:	14 to 16

SOLUTION:

1.
$$A + B = 18$$
$$A - B = 8$$
$$2A = 26$$
$$A = 13$$
$$B = 5$$

2.
$$2C - D = 20$$
$$C + D = 73$$
$$3C = 93$$
$$C = 31$$
$$D = 42$$

3.
$$2F - E = 78$$
$$F - E = 13$$
$$F = 65$$
$$E = 52$$

4.
$$3G + 2H = 38$$
$$2G + 3H = 42$$
$$9G + 6H = 114$$
$$4G + 6H = 84$$
$$5G = 30$$
$$G = 6$$
$$H = 10$$

5.
$$7i - 3J = 10$$
$$3i + 4J = 147$$
$$28i - 12J = 40$$
$$9i + 12J = 441$$
$$37i = 481$$
$$i = 13$$
$$J = 27$$

6.
$$5K + 2L = 43$$
$$4K + 3L = 40$$
$$15K + 6L = 129$$
$$8K + 6L = 80$$
$$7K = 49$$
$$K = 7$$
$$L = 4$$

7.
$$2M + N = 91$$
$$M - N = 8$$
$$3M = 99$$
$$M = 33$$
$$N = 25$$

8.
$$3\emptyset + P = 27$$
$$2\emptyset + P = 25$$
$$\emptyset = 2$$
$$P = 21$$

9.
$$2R + S = 76$$
$$R + S = 47$$
$$R = 29$$
$$S = 18$$

10.
$$3W - 4T = 33$$
$$2W + 3T = 107$$
$$9W - 12T = 99$$
$$8W + 12T = 428$$
$$17W = 527$$
$$W = 31$$
$$T = 15$$

In order of age:

Fred	65	Satomi	18
Eric	52	Teela	15
Dawn	42	Ian	13
Mike	33	Adam	13
Wendy	31	Hayley	10
Carol	31	Kay	7
Roger	29	Gemma	6
John	27	Ben	5
Nayha	25	Laura	4
Parveen	21	Oliver	2

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★ 1 *old, older, oldest*

18 is the sum of the ages of Adam and Ben.

47 is the sum of the ages of Roger and Satomi.

★ 2 *old, older, oldest*

Three times Gemma's age plus twice Hayley's age is 38.

Three times Wendy's age minus four times Teela's age is 33.

★ 3 *Old, Older, Oldest*

The information about the people has been mixed up, so you first have to match up the pairs of equations before you can solve them. All the answers are whole numbers.

★ 4 *old, older, oldest*

Three times Oliver's age plus Parveen's age is 27.

Adam's age minus Ben's age is 8.

★ 5 *Old, Older, Oldest*

Your task is to discover the ages of all the people mentioned and to put them into a list starting with the oldest and finishing with the youngest. There are two sets of twins.

★ 6 *old, older, oldest*

Twice Wendy's age plus three times Teela's age is 107.

Three times Ian's age plus four times John's age is 147.

★ 7 *Old, Older, Oldest*

Twice Carol's age minus Dawn's age is 20.

Twice Fred's age minus Eric's age is 78.

★ 8 *old, older, oldest*

Four times Kay's age plus three times Laura's age is 40.

Carol's age plus Dawn's age is 73.

★ 9 *Old, Older, Oldest*

Twice Mike's age plus Nayha's age is 91.

Five times Kay's age plus twice Laura's age is 43.

★ 10 *Old, Older, Oldest*

Fred is 13 years older than Eric.

Twice Oliver's age plus Parveen's age is 25.

★ 11 *Old, Older, Oldest*

Twice Roger's age plus Satomi's age is 76.

Seven times Ian's age minus three times John's age is 10.

★ 12 *Old, Older, Oldest*

Twice Gemma's age plus three times Hayley's age is 42.

Mike is 8 years older than Nayha.