Homework/Extension
Step 9: Find Pairs of Values 1

National Curriculum Objectives:

Mathematics Year 6: (6A4) Find pairs of numbers that satisfy an equation with two unknowns

Differentiation:

Questions 1, 4 and 7 (Varied Fluency)
Developing List all the possible positive whole number values for a pair of letters. Use these to determine whether a statement is correct. Numbers less than 10.
Expected List all the possible positive whole number values for a pair of letters. Use these to determine whether a statement is correct. Numbers less than 20.
Greater Depth List 10 possible values for a pair of letters. Use these to determine whether a statement is correct. Using decimal and negative numbers.

Questions 2, 5 and 8 (Varied Fluency)
Developing Using the given numbers, find the value of each letter in the equations. Using positive whole numbers, 20 or less.
Expected Using the given numbers, find the value of each letter in the equations. Using positive whole numbers.
Greater Depth Using the given numbers, find the value of each letter in the equations. Using decimal and negative numbers.

Questions 3, 6 and 9 (Reasoning and Problem Solving)
Developing Find 5 possible values for p and q that satisfy the statements. Using positive whole numbers.
Expected Find 5 possible values for p and q that satisfy the statements. Using positive whole numbers as well as knowledge of square numbers.
Greater Depth Find 5 possible values for p and q that satisfy the statements. Using decimal and whole numbers.

More Year 6 Algebra resources.

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Find Pairs of Values 1

1. List all the possible positive whole-number values which could be used to satisfy this equation to check if Haleema is correct.

$$c + d = 9$$

Haleema

There are 10 possible pairs for c and d.

2. Using only the numbers provided, what is the value of each letter?

$$a \ + \ b \ = \ 11$$
$$b \ \times \ c \ = \ 18$$
$$d \ - \ e \ = \ 11$$

| 9 | 10 | 3 | 5 | 20 | 6 |

3. Find 5 values for p and q to satisfy the statements below.

p and q are positive whole numbers.

p is a 1-digit number.

q is a number between 8 and 15.

$p \times q < 50$

Find Pairs of Values 1

4. List all the possible positive whole-number values which could be used to satisfy this equation to check if Thomasz is correct.

$$c + d = 15$$

There are 10 possible pairs for c and d.

Thomasz

5. Using only the numbers provided, what is the value of each letter?

$$a \quad + \quad b \quad = \quad 13$$
$$b \quad \times \quad c \quad = \quad 20$$
$$d \quad - \quad e \quad = \quad 52$$

9	4	3	5	54	2

6. Find 5 values for p and q to satisfy the statements below.

p and q are positive whole numbers.

p is a square number.

q is a 2-digit number less than 13.

p x q < 100

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Find Pairs of Values 1

7. List 10 possible values which could be used to satisfy this equation to check if Toshio is correct. The values may be whole numbers, negative numbers or decimals.

$$c + d = 22.5$$

I can find at least 10 pairs for c and d using only one positive value each time.

Toshio

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8. Using only the numbers provided, what is the value of each letter?

$$a \; + \; b \; = \; 12$$

$$b \; \times \; c \; = \; 31$$

$$d \; - \; a \; = \; 12$$

| 15.5 | -2 | 8.5 | -5 | 2 | -3.5 |

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9. Find 5 values for p and q to satisfy the statements below.

For p and q, one is a whole number while the other is a decimal.

p and q are both less than 20.

$p \times q$ is a whole number less than 50.

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Developing

1. There are 8 possible pairs for c and d. 1 + 8; 2 + 7; 3 + 6; 4 + 5; 5 + 4; 6 + 3; 7 + 2; 8 + 1. Haleema is correct.

2. a = 5; b = 6; c = 3; d = 20; e = 9

3. Various answers, for example: p = 4 and q = 11; p = 3 and q = 12; p = 2 and q = 14; p = 5 and q = 8; p = 5 and q = 9

Expected

4. There are 14 possible pairs for c and d. 1 + 14; 2 + 13; 3 + 12; 4 + 11; 5 + 10; 6 + 9; 7 + 8; 8 + 7; 9 + 6; 10 + 5; 11 + 4; 12 + 3; 13 + 2; 14 + 1. Thomasz is incorrect.

5. a = 9; b = 4; c = 5; d = 54; e = 2

6. Various answers, for example: p = 4 and q = 11; p = 9 and q = 10; p = 1 and q = 12; p = 4 and q = 10; p = 4 and q = 12

Greater Depth

7. There are at least 10 possible pairs for c and d using only one positive value each time. -0.5 + 23; 25 + -2.5; -45 + 67.5; 45 + -22.5; 30 + -7.5; -10 + 32.5; -50 + 72.5; 56 + -33.5; -2.75 + 25.25; -100 + 122.5. Toshio is correct.

8. a = -3.5; b = 15.5; c = 2; d = 8.5

9. Various answers, for example: p = 22.5 and q = 2; p = 1.5 and q = 30; p = 10 and q = 3.25; p = 4 and q = 10.5; p = 11 and q = 3.75