

## Year 6 – Spring Block 3 – Algebra – Find Pairs of Values 2

### About This Resource:

This PowerPoint has been designed to support your teaching of this small step. It includes a starter activity and an example of each question from the Varied Fluency and Reasoning and Problem Solving resources also provided in this pack. You can choose to work through all examples provided or a selection of them depending on the needs of your class.

### National Curriculum Objectives:

Mathematics Year 6: (6A5) [Enumerate possibilities of combinations of two variables](#)

More [Year 6 Algebra](#) resources.

Did you like this resource? Don't forget to [review](#) it on our website.

**Monday 20<sup>th</sup> April**

**WALT: Find Pairs of Values 2**  
**Look out for my green notes**  
**to help you.**

**Hello, Year 6! I hope you've had a lovely Easter. We are continuing with algebra today. Before we start, you might want to look at the work you did before the holidays. These lessons run in order – so finish those lessons before you start these.**

## Introduction

Do you agree with the statement below?

**If  $2x + 4 = 26$ , then  $x$  must be 11.**

Remember that  $2x$  is a value followed by a letter with no gaps – so it means that you have to multiply 'x' by 2.

**Explain your answer.**

## Introduction

Do you agree with the statement below?

**If  $2x + 4 = 26$ , then  $x$  must be 11.**

**Explain your answer.**

**I agree because...**

## Introduction

Do you agree with the statement below?

**If  $2x + 4 = 26$ , then  $x$  must be 11.**

**Explain your answer.**

**I agree because  $26 - 4 = 22$  and  $22 \div 2 = 11$ , so  $x$  must equal 11.**  
**Remember that you use inverse operations to find unknown values.**

Which pair of values does not satisfy the equation? In other words, which values make the equation false?

$$r \div s = 12$$

$$\begin{aligned} r &= 72 \\ s &= 6 \end{aligned}$$

$$\begin{aligned} r &= 56 \\ s &= 7 \end{aligned}$$

$$\begin{aligned} r &= 108 \\ s &= 9 \end{aligned}$$

## Varied Fluency 1

Which pair of values does not satisfy the equation?

Because  $56 \div 7 = 8$

$$r \div s = 12$$

$$\begin{aligned} r &= 72 \\ s &= 6 \end{aligned}$$

$$\begin{aligned} r &= 56 \\ s &= 7 \end{aligned}$$

$$\begin{aligned} r &= 108 \\ s &= 9 \end{aligned}$$

## Varied Fluency 2

Use the numbers in the table to find all the possible combinations for the two variables below.

$$x - y = 45$$

|    |    |    |    |
|----|----|----|----|
| 61 | 14 | 59 | 19 |
| 15 | 64 | 16 | 60 |

## Varied Fluency 2

Use the numbers in the table to find all the possible combinations for the two variables below.

$$x - y = 45$$

|    |    |    |    |
|----|----|----|----|
| 61 | 14 | 59 | 19 |
| 15 | 64 | 16 | 60 |

59 and 14; 61 and 16; 64 and 19; 60 and 15

### Varied Fluency 3

Work out the values of  $b$  and  $c$ .

$$a = 15$$

$$a + b = 25$$

$$c + b = 35$$

$$b = \square$$

$$c = \square$$

### Varied Fluency 3

Work out the values of  $b$  and  $c$ .

$$a = 15$$

$$a + b = 25$$

$$c + b = 35$$

$$b = \boxed{10}$$

$$c = \boxed{25}$$

### Varied Fluency 4

List three possible values for  $a$  and  $b$ , where  $c = 25$ .

$$5a + b = c$$

## Varied Fluency 4

List three possible values for  $a$  and  $b$ , where  $c = 25$ .

$$5a + b = c$$

Various answers, for example:  $a = 3, b = 10$ ;  $a = 2, b = 15$ ;  
 $a = 1, b = 20$

# Now try the Varied Fluency Challenges!

- Do questions 1a-4a if you want support to build your confidence.
- Do questions 5a-8a if you want a similar challenge to the questions that you have practised.
- Do questions 9a – 12a if you want a tougher challenge!
- If you want extra practice, look at the 'b' challenges that are available for each level of challenge too.

## Reasoning 1

Razia is finding possible values for  $h$  and  $i$ .

$$3h + 11i = 60$$



If  $h$  equals 9,  $i$  must equal 33.

Is Razia correct? Explain your answer.

## Reasoning 1

Razia is finding possible values for  $h$  and  $i$ .

$$3h + 11i = 60$$



If  $h$  equals 9,  $i$  must equal 33.

Is Razia correct? Explain your answer.

Razia is incorrect because...

## Reasoning 1

Razia is finding possible values for  $h$  and  $i$ .

$$3h + 11i = 60$$



If  $h$  equals 9,  $i$  must equal 33.

Is Razia correct? Explain your answer.

**Razia is incorrect because  $3 \times 9 = 27$  and  $60 - 27 = 33$ .  $33 \div 11 = 3$  so  $i = 3$ .**

## Reasoning 2

If  $a$  is an odd number and  $b$  is 50, which of these could be true?

A.  $2a + 3b = 156$

B.  $a + a - 3b = 4$

C.  $4a + 5b = 258$

D.  $2a \div 3b = 2$

**Convince me.**

## Reasoning 2

If  $a$  is an odd number and  $b$  is 50, which of these could be true?

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**Convince me.**

**A and B could be true because...**

## Reasoning 2

If  $a$  is an odd number and  $b$  is 50, which of these could be true?

A.  $2a + 3b = 156$

B.  $a + a - 3b = 4$

C.  $4a + 5b = 258$

D.  $2a \div 3b = 2$

**Convince me.**

**A and B could be true. For example: A.  $a = 3$ ; B.  $a = 77$**

### Problem Solving 1

Sweety Treaty sell 2 medium sweet boxes and 4 small sweet boxes for £36. What possible prices can you find for each sweet box?

$$2m + 4s = \text{£}36$$

| $m$ | $s$ |
|-----|-----|
|     |     |

### Problem Solving 1

Sweetie Treaty sell 2 medium sweet boxes and 4 small sweet boxes for £36. What possible prices can you find for each sweet box?

$$2m + 4s = £36$$

| $m$ | $s$ |
|-----|-----|
|     |     |

**Various answers, for example:**

**$m = 8, s = 5; m = 9, s = 4.5; m = 10, s = 4$**

# Now try the Reasoning and Problem Solving Challenges!

- Do questions 1a-3a if you want support to build your confidence.
- Do questions 4a-6a if you want a similar challenge to the questions that you have practised.
- Do questions 7a – 9a if you want a tougher challenge!
- If you want extra practice, look at the 'b' challenges that are available for each level of challenge too.