

# Reasoning and Problem Solving

## Step 5: Make the Same Amount

### National Curriculum Objectives:

Mathematics Year 2: (2M3a) [Recognise and use symbols for pounds \(£\) and pence \(p\); combine amounts to make a particular value](#)

Mathematics Year 2: (2M3b) [Find different combinations of coins that equal the same amounts of money](#)

### Differentiation:

Questions 1, 4 and 7 (Reasoning)

**Developing** Find the smallest combination of coins to make a given total. Includes pence only.

**Expected** Find the smallest combination of notes and coins to make a given total. Includes pounds and pence.

**Greater Depth** Find the smallest combination of notes and coins to make a given total. Includes pounds and pence where some images have been replaced with words.

Questions 2, 5 and 8 (Problem Solving)

**Developing** Make a given total using different combinations of coins. Includes pence only.

**Expected** Make a given total using different combinations of notes and coins.

**Greater Depth** Make a given total using different combinations of notes and coins where some images have been replaced with words.

Questions 3, 6 and 9 (Reasoning)

**Developing** Prove whether or not an amount can be made using a specific number of coins. Includes pence only.

**Expected** Prove whether or not an amount can be made using a specific number of notes and coins.

**Greater Depth** Prove whether or not an amount can be made using a specific number of notes and coins where some images have been replaced with words.

[More resources](#) which follow the same small steps as White Rose.

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## Make the Same Amount

1a. A packet of sweets costs 25p.

What is the smallest amount of coins Henry can use to buy the sweets?



Are there any other combinations of coins here that will give the same amount? Explain how you know.



R

## Make the Same Amount

1b. A bottle of juice costs 75p.

What is the smallest amount of coins Sophie can use to buy a bottle?



Are there any other combinations of coins here that will give the same amount? Explain how you know.



R

2a. Solve the word problem.

Toni has one coin.

Charlie has three coins.

They each have 50p in total.

What coins could Toni and Charlie have?



PS

2b. Solve the word problem.

Andrew has three coins.

Jill has two coins.

They each have 70p in total.

What coins could Andrew and Jill have?



PS

3a. Claire has the following coins:



She says it's impossible to make the same amount with 3 coins.

Is she correct?

Convince me.



R

3b. Walter has the following coins:



He says it's impossible to make the same amount with 1 coin.

Is he correct?

Convince me.



R

## Make the Same Amount

4a. A cinema ticket costs £6 and 30p.

What is the smallest amount of coins and notes Frank can use to buy a ticket?



Are there any other combinations of notes and coins here that will give the same amount? Explain how you know.



R

## Make the Same Amount

4b. A train ticket costs £10 and 70p.

What is the smallest amount of coins and notes Nicola can use to buy a ticket?



Are there any other combinations of notes and coins here that will give the same amount? Explain how you know.



R

5a. Solve the word problem.

Rebecca has three coins and a note.

Michael has five coins.

They each have £6 and 20p in total.

What combinations could Rebecca and Michael have?



PS

5b. Solve the word problem.

Angela has six coins.

Stephen has one note and two coins.

They each have £5 and 3p in total.

What combinations could Angela and Stephen have?



PS

6a. Betty has the following coins:



She says it's impossible to make the same amount 1 note.

Is she correct?

Convince me.



R

6b. Bill has the following coins:



He says it's impossible to make the same amount with 5 coins.

Is he correct?

Convince me.



R

## Make the Same Amount

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7a. A theatre ticket costs £11 and 75p.

What is the smallest amount of notes and coins Ruth can use to buy a ticket?



Are there any other combinations of notes and coins here that will give the same amount? Explain how you know.



R

7b. A coach ticket costs £15 and 25p.

What is the smallest amount of notes and coins Nicola can use to buy a ticket?



Are there any other combinations of notes and coins here that will give the same amount? Explain how you know.



R

8a. Solve the word problem.

Ryan has seven notes and coins altogether.

Natalie has five notes and coins altogether.

They each have £21 and 80p in total.

What notes and coins could Ryan and Natalie have?



PS

8b. Solve the word problem.

Seth has six notes and coins altogether.

Max has eight notes and coins altogether.

They each have £8 and 62p in total.

What notes and coins could Seth and Max have?



PS

9a. Samantha has the following notes and coins:



She says it's impossible to make the same amount with 8 coins and notes.

Is she correct? Convince me.



R

9b. Victor has the following notes and coins:



He says it's impossible to make the same amount with 9 coins and notes.

Is he correct? Convince me.



R

## Reasoning and Problem Solving Make the Same Amount

### Developing

- 1a. 20p and 5p. He could also use 10p, 10p and 5p.  
2a. Toni – 50p. Charlie – 20p, 20p and 10p.  
3a. Claire is incorrect. She can make 21p using 10p, 10p and 1p.

### Expected

- 4a. £5, £1, 20p and 10p. He could also use £5, £1, 20p, 5p and 5p.  
5a. Rebecca – £5, £1 and 20p. Michael – £2, £2, £2, 10p and 10p.  
6a. Betty is correct. £9 cannot be made using 1 note.

### Greater Depth

- 7a. £10, £1, 50p, 20p and 5p coin. She could use two £10, £1, 50p, 10p, 10p and 5p.  
8a. Ryan – £10, £10, £1, 20p, 20p, 20p and 20p. Natalie – £20, £1, 50p, 20p and 10p.  
9a. Samantha is incorrect. She could make £23 and 27p using £10, £10, £2, £1, 10p, 10p, 5p and 2p.

## Reasoning and Problem Solving Make the Same Amount

### Developing

- 1b. 50p, 20p and 5p. There are no other combinations of coins that can be used.  
2b. Andrew – 50p, 10p and 10p. Jill – 50p and 20p.  
3b. Walter is incorrect. He can use one 50p coin.

### Expected

- 4b. £10, 50p and 20p. She could also use £10, 50p 10p and 10p.  
5b. Angela – £2, £2, £1, 1p, 1p and 1p. Stephen – £5, 2p and 1p.  
6b. Bill is incorrect. He could make £1 and 65p using £1, 50p, 5p, 5p and 5p

### Greater Depth

- 7b. £10, £5, 20p and 5p. There are no other combinations of notes and coins that can be used.  
8b. Seth – £5, £2, £1, 50p, 10p and 2p. Max – £5, £2, £1, 20p, 20p, 20p, 1p and 1p.  
9b. Victor is incorrect. He could make £15 and 12p using £5, £5, £2, £2, £1, 5p, 5p, 1p and 1p.