

# Reasoning and Problem Solving

## Step 12: Add 2-Digit Numbers 2

### National Curriculum Objectives:

Mathematics Year 4: (2C2b) [Add and subtract numbers using concrete objects and pictorial representations, including: two two-digit numbers](#)

Mathematics Year 2: (2C4) [Solve problems with addition and subtraction using concrete objects and pictorial representations, including those involving numbers, quantities and measures applying their increasing knowledge of mental and written methods](#)

### Differentiation:

Questions 1, 4 and 7 (Problem Solving)

**Developing** Use three digit cards to make 2-digit numbers add 1-digit numbers with a total less than 50.

**Expected** Use four digit cards to make 2-digit numbers add 2-digit numbers with a total less than 100.

**Greater Depth** Use four digit cards to make 3-digit numbers add 2-digit numbers with a total less than 200.

Questions 2, 5 and 8 (Problem Solving)

**Developing** Choose three different pairs of items (1-digits and 2-digits) and find the total.

**Expected** Choose four different pairs of items (2-digits and 2-digits) and find the total.

**Greater Depth** Choose three different items (2-digits) and find a total which is more than and less than a 2-digit number.

Questions 3, 6 and 9 (Reasoning)

**Developing** Explain if the total of a 2-digit number add a 1-digit number is correct. Numbers only.

**Expected** Explain if the total of a 2-digit number add a 2-digit number is correct. Words and numbers.

**Greater Depth** Explain if the total of a 3-digit number add a 2-digit number is correct. Words and numbers.

More [Year 2 Addition and Subtraction](#) resources.

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## Add 2-Digit Numbers 2

1a. Use the digit cards to fill in the missing numbers, then solve the calculation.



$$\begin{array}{|c|} \hline 3 \\ \hline \end{array} \begin{array}{|c|} \hline \\ \hline \end{array} + \begin{array}{|c|} \hline \\ \hline \end{array} = ?$$

How many different 2-digit totals can you make using these digit cards?



PS

## Add 2-Digit Numbers 2

1b. Use the digit cards to fill in the missing numbers, then solve the calculation.



$$\begin{array}{|c|} \hline \\ \hline \end{array} + \begin{array}{|c|} \hline 2 \\ \hline \end{array} \begin{array}{|c|} \hline \\ \hline \end{array} = ?$$

How many different 2-digit totals can you make using these digit cards?



PS

2a. Alex bought one item from each box. Find three combinations of what he could have bought and calculate the total he spent.

**Box A**

27p

35p

39p

**Box B**

8p

9p

6p



PS

2b. Kara bought one item from each box. Find three combinations of what she could have bought and calculate the total she spent.

**Box A**

9p

6p

7p

**Box B**

34p

29p

25p



PS

3a. Scarlett says,

$$34 + 8 = 32$$



True or false? Convince me.



R

3b. Jacob says,

$$9 + 28 = 37$$



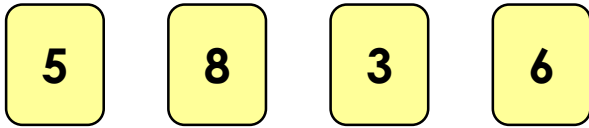
True or false? Convince me.



R

## Add 2-Digit Numbers 2

4a. Use the digit cards to fill in the missing numbers, then solve the calculation.



$$\begin{array}{|c|} \hline 2 \\ \hline \end{array} \begin{array}{|c|} \hline \\ \hline \end{array} + \begin{array}{|c|} \hline \\ \hline \end{array} \begin{array}{|c|} \hline \\ \hline \end{array} = ?$$

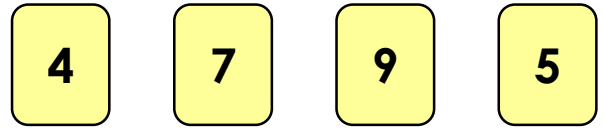
How many different 2-digit totals can you make using these digit cards?



PS

## Add 2-Digit Numbers 2

4b. Use the digit cards to fill in the missing numbers, then solve the calculation.



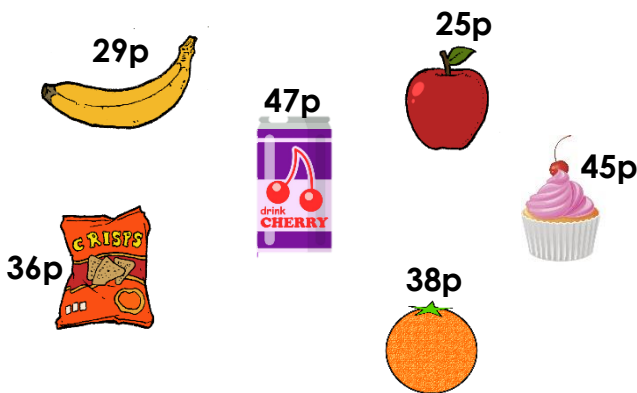
$$\begin{array}{|c|} \hline \\ \hline \end{array} \begin{array}{|c|} \hline \\ \hline \end{array} + \begin{array}{|c|} \hline 3 \\ \hline \end{array} \begin{array}{|c|} \hline \\ \hline \end{array} = ?$$

How many different 2-digit totals can you make using these digit cards?



PS

5a. Choose three different pairs of items and find the total.



PS

5b. Choose three different pairs of items and find the total.



PS

6a. Noah says,

Forty-seven plus thirty-nine equals seventy-six.



True or false? Convince me.



R

6b. Evie says,

Fifty-six add twenty-nine equals eighty-five.



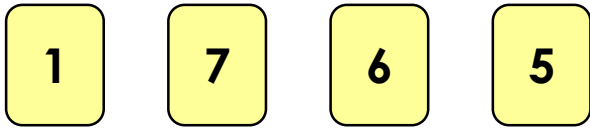
True or false? Convince me.



R

## Add 2-Digit Numbers 2

7a. Use the digit cards to fill in the missing numbers, then solve the calculation.



$$\square \square 1 \square + \square \square = ?$$

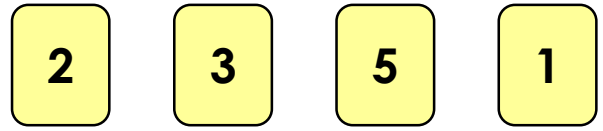
How many different 3-digit totals, less than 200, can you make?



PS

## Add 2-Digit Numbers 2

7b. Use the digit cards to fill in the missing numbers, then solve the calculation.



$$\square 9 + \square \square \square = ?$$

How many different 3-digit totals, less than 200, can you make?



PS

8a. Choose three different items that total more than 80p but less than 90p.

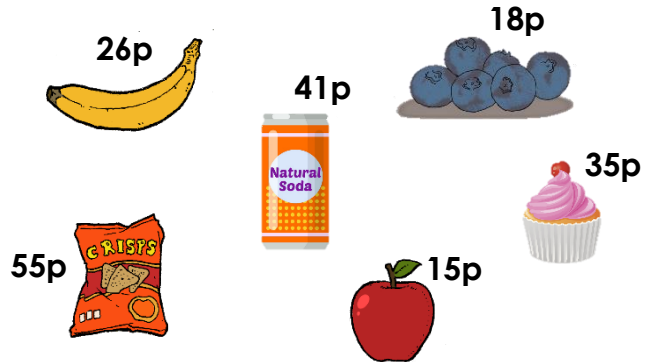


Which three items have you bought?



PS

8b. Choose three different items that total more than 70p but less than 80p.



Which three items have you bought?



PS

9a. Felix says,

Four hundred and fifty-eight add thirty-six equals four hundred and ninety-four.



True or false? Convince me.



R

9b. Alice says,

Two hundred and forty-seven add twenty-nine equals two hundred and sixty-six.



True or false? Convince me.



R

## Reasoning and Problem Solving Add 2-Digit Numbers 2

### Developing

1a. Various answers, for example:  $37 + 5 = 42$ ;  $35 + 7 = 42$ ;  $37 + 6 = 43$ ;  $36 + 7 = 43$ ;  $35 + 6 = 41$ ;  $36 + 5 = 41$

2a. Various answers, for example:  $27p + 8p = 35p$ ;  $27p + 9p = 36p$ ;  $27p + 6p = 33p$ ;  $39p + 8p = 47p$ ;  $39p + 9p = 48p$ ;  $39p + 6p = 45p$ ;  $35p + 8p = 43p$

3a. False because they have not exchanged ten ones for a ten. The correct answer is 42.

### Expected

4a. Various answers, for example:  $25 + 38 = 63$ ;  $28 + 35 = 63$ ;  $28 + 36 = 64$ ;  $26 + 38 = 64$ ;  $28 + 65 = 93$ ;  $25 + 68 = 93$

5a. Various answers, for example:  $29p + 47p = 76p$ ;  $36p + 38p = 74p$ ;  $38p + 45p = 83p$ ;  $47p + 25p = 72p$ ;  $47p + 36p = 83p$ ;  $47p + 38p = 85p$ ;  $45p + 47p = 92p$

6a. False because they have not exchanged ten ones for a ten. The correct answer is 86.

### Greater Depth

7a. Various answers, for example:  $117 + 65 = 182$ ;  $117 + 56 = 173$ ;  $116 + 75 = 191$ ;  $116 + 57 = 173$ ;  $115 + 76 = 191$ ;  $115 + 67 = 182$

8a. Orange, lollipop and grapes;  $25p + 29p + 34p = 88$  or orange, grapes and pear;  $25p + 34p + 23p = 82p$

9a. True because  $8 + 6 = 14$ . Exchange 10 of the 14 ones for a ten and you're left with 4 ones. Then  $50 + 30 + 10 = 90$ .  $400 + 90 + 4 = 494$

## Reasoning and Problem Solving Add 2-Digit Numbers 2

### Developing

1b. Various answers, for example:  $9 + 24 = 33$ ;  $4 + 29 = 33$ ;  $4 + 28 = 32$ ;  $8 + 24 = 32$ ;  $8 + 29 = 37$ ;  $9 + 28 = 37$

2b. Various answers, for example:  $9p + 34p = 43p$ ;  $9p + 29p = 38p$ ;  $9p + 25p = 34p$ ;  $6p + 34p = 40p$ ;  $6p + 29p = 35p$ ;  $6p + 25p = 31p$ ;  $7p + 34p = 41p$

3b. True because  $9 + 8 = 17$ . Exchange 10 of the 17 ones for a ten and you're left with 7 ones. Then  $20 + 10 = 30$ , add the 7 = 37.

### Expected

4b. Various answers, for example:  $47 + 39 = 86$ ;  $49 + 37 = 86$ ;  $45 + 37 = 82$ ;  $47 + 35 = 82$ ;  $49 + 35 = 84$ ;  $45 + 39 = 84$

5b. Various answers, for example:  $37p + 48p = 85p$ ;  $48p + 25p = 73p$ ;  $48p + 48p = 96p$ ;  $48p + 46p = 94p$ ;  $39p + 46p = 85p$ ;  $48p + 39p = 87p$

6b. True because  $6 + 9 = 15$ . Exchange 10 of the 15 ones for a ten and you're left with 5 ones. Then  $50 + 20 + 10 = 80$ , add the 5 = 85.

### Greater Depth

7b. Various answers, for example:  $29 + 153 = 182$ ;  $29 + 135 = 164$ ;  $39 + 152 = 191$ ;  $39 + 125 = 164$ ;  $59 + 132 = 191$ ;  $59 + 123 = 182$

8b. Banana, blueberries and a bun;  $26p + 18p + 35p = 79p$ ; banana, apple and a bun;  $26p + 15p + 35p = 76p$ ; a can of pop, blueberries and an apple;  $41p + 18p + 15p = 74p$

9b. False because Alice has not exchanged 10 ones for a ten. The correct answer is 276.