

Lesson 163 • Equivalent Number Sentences

Learning objectives

Children will:

- make number fact families using the same two parts and a whole.
- understand that equivalent number sentences have the same answer.

The National Curriculum in England

Mathematics Year 3

Number – addition and subtraction

Pupils should be taught to:

- solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction

Mathematics Year 2

Number – addition and subtraction

Pupils should be taught to:

- recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems

Key vocabulary

addition, subtraction, inverse operations, equivalent number sentences

Extra assistance

Write equivalent number sentences on the board, missing the last number, eg $12 + 5 = 20 - \square$. Illustrate the left side of the equation using Base Ten blocks going into the left side of a balance scale; 12 and 5 more. Put 20 blocks in the right side. Discuss how to balance the scale: how many blocks need to be taken away from the right side? Write the number into the equation. Write a series of similar equations for the class to solve using scales and blocks.

Worksheet answers

Worksheet 1

- 1 **a** 68 **b** $13 + 72 = 85$ **c** $25 + 69 = 94$
d 17 **e** $59 - 23 = 36$ **f** $91 - 48 = 43$
- 2 **a** 84, $84 - 29 = 55$ **b** 41, $41 + 41 = 82$ **c** 89, $89 - 58 = 31$
d 37, $37 + 38 = 75$ **e** 79, $79 - 15 = 64$ **f** 44, $44 + 53 = 97$
- 3 **a** $32 + 46 = 78$ **b** $11 + 62 = 73$
 $46 + 32 = 78$ $62 + 11 = 73$
 $78 - 46 = 32$ $73 - 62 = 11$
 $78 - 32 = 46$ $73 - 11 = 62$
- c** $75 + 23 = 98$ **d** $54 + 34 = 88$
 $23 + 75 = 98$ $34 + 54 = 88$
 $98 - 23 = 75$ $88 - 54 = 34$
 $98 - 75 = 23$ $88 - 34 = 54$

Worksheet 2

- 1 **a** 818 **b** $484 + 326 = 810$
c $222 + 555 = 777$ **d** $987 - 471 = 516$
e $676 - 411 = 265$ **f** $324 - 205 = 119$
- 2 **a** 891, $891 - 589 = 302$ **b** 209, $209 + 709 = 918$
c 584, $584 - 159 = 425$ **d** 222, $222 + 653 = 875$
e 670, $670 - 385 = 285$ **f** 420, $420 + 128 = 548$
- 3 **a** $629 + 131 = 760$ **b** $352 + 507 = 859$
 $131 + 629 = 760$ $507 + 352 = 859$
 $760 - 131 = 629$ $859 - 507 = 352$
 $760 - 629 = 131$ $859 - 352 = 507$

Worksheet 3

- 1 **a** ✓ **b** ✗ **c** ✗ **d** ✓ **e** ✓ **f** ✗
- 2 **a** 5 **b** 1 **c** 30 **d** 20 **e** 93 **f** 30
- 3 **a-h** Teacher to check
- 4 **a-f** Teacher to check

Worksheet 4

- 1 **a** 10 **b** Max 16, Bella 9
c Lim 15, Yee 7
- 2 **a** $9 - 4 = 3 + 2$ **b** 12 minutes, $17 + 8 = 13 + 12$

Mathseeds Lesson sequence	TEACH Content and skills	PRACTISE Children will:	APPLY
<i>Animated Lesson:</i> Number sentences	Understand a sum as made of two parts and a whole. Learn that equivalent number sentences have the same answer.	make related number sentences and number fact families. Fill in the missing numbers in equivalent number sentences.	Worksheet 1 2-digit number fact families
<i>Making sums work:</i> Make the Number Bar, Letter Box, Treasure Chests, Fact Cubes	Make a sum to match the given answer. Calculate sums using all four operations. Use addition facts to 20. Identify related number sentences.	choose two numbers which add to the given number. Match sums to answers. Make pairs of numbers that add to a given total. Choose the two sums using the given numbers.	Worksheet 2 3-digit number fact families
<i>Equivalent sums:</i> Are They Equal?, True or False?, Balancing Act	Identify equivalent number sentences. Recognise true or false number sentences. Understand how equivalent sentences work.	work out if the two given sums have the same answer. Decide if a given number sentence is true or false. Make equivalent number sentences.	Worksheet 3 Equivalent number sentences
<i>Word problems:</i> Puzzle Pieces, Fruit Shop	Interpret a two-step word problem. Add prices together. Work out the change from a note.	choose the matching equations and answer. Find the total of two or more prices, and calculate change.	Worksheet 4 Word problems
<i>End of Lesson Quiz</i>	Test understanding of lesson content and skills.	complete a 10 question quiz to earn a reward game.	<i>Reward game:</i> Build a Bot

Name _____

1 Fill in the second number sentence.

a $23 + 45 = 68$

$45 + 23 = \square$

b $72 + 13 = 85$

$13 + \square = \square$

c $69 + 25 = 94$

$\square + \square = \square$

d $35 - 17 = 18$

$35 - 18 = \square$

e $59 - 36 = 23$

$59 - \square = \square$

f $91 - 43 = 48$

$\square - \square = \square$

2 Find the answer. Complete the related number sentence.

a $55 + 29 = \square$

$\square - 29 = \square$

b $82 - 41 = \square$

$\square + 41 = \square$

c $31 + 58 = \square$

$\square - 58 = \square$

d $75 - 38 = \square$

$\square + 38 = \square$

e $64 + 15 = \square$

$\square - 15 = \square$

f $97 - 53 = \square$

$\square + 53 = \square$

3 Complete the number fact families.

a $32 + 46 = \square$

$\square + \square = \square$

$\square - \square = \square$

$\square - \square = \square$

b $11 + 62 = \square$

$\square + \square = \square$

$\square - \square = \square$

$\square - \square = \square$

c $75 + 23 = \square$

$\square + \square = \square$

$\square - \square = \square$

$\square - \square = \square$

d $54 + 34 = \square$

$\square + \square = \square$

$\square - \square = \square$

$\square - \square = \square$

Name

1 Fill in the second number sentence.

a $245 + 673 = 818$

$673 + 145 = \square$

b $326 + 484 = 810$

$484 + \square = \square$

c $555 + 222 = 777$

$\square + \square = \square$

d $987 - 516 = 471$

$987 - \square = \square$

e $676 - 265 = 411$

$\square - \square = \square$

f $324 - 119 = 205$

$\square - \square = \square$

2 Find the answer. Complete the related number sentence.

a $302 + 589 = \square$

$\square - 589 = \square$

b $918 - 709 = \square$

$\square + 709 = \square$

c $425 + 159 = \square$

$\square - 159 = \square$

d $875 - 653 = \square$

$\square + 653 = \square$

e $285 + 385 = \square$

$\square - 385 = \square$

f $548 - 128 = \square$

$\square + 128 = \square$

3 Complete the number fact families.

a $629 + 131 = \square$

$\square + \square = \square$

$\square - \square = \square$

$\square - \square = \square$

b $352 + 507 = \square$

$\square + \square = \square$

$\square - \square = \square$

$\square - \square = \square$

Name _____

1 Are these equivalent number sentences? ✓ for yes. ✗ for no.

a $8 + 7 = 20 - 5$ b $19 - 8 = 6 + 6$

c $13 + 5 = 18 + 1$ d $22 - 8 = 30 - 16$

e $32 + 25 = 60 - 3$ f $87 - 43 = 22 + 23$

2 Make these number sentences equivalent.

a $13 + 22 = 40 - \square$ b $29 - 13 = 15 + \square$

c $49 + \square = 60 + 19$ d $84 - \square = 79 - 15$

e $56 + 15 = \square - 22$ f $96 - 24 = \square + 42$

3 Write an equivalent number sentence.

a $9 + 23 = \underline{\hspace{2cm}}$ b $49 - 17 = \underline{\hspace{2cm}}$

c $14 + 52 = \underline{\hspace{2cm}}$ d $95 - 33 = \underline{\hspace{2cm}}$

e $29 + 26 = \underline{\hspace{2cm}}$ f $78 - 39 = \underline{\hspace{2cm}}$

g $64 + 17 = \underline{\hspace{2cm}}$ h $81 - 45 = \underline{\hspace{2cm}}$

4 Make these number sentences equivalent.

a $41 + \square = 71 - \square$ b $29 - \square = 11 + \square$

c $23 + \square = 32 + \square$ d $88 - \square = 95 - \square$

e $\square + 16 = \square - 20$ f $\square - 31 = \square + 10$

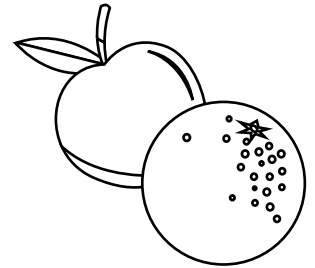
Name _____

1 Complete the equivalent equations to find the answers.

- a** Gina and Maria picked the same number of pieces of fruit. Gina picked five apples and seven oranges. Maria picked two apples and some oranges.

How many oranges did Maria pick? _____

$$5 + 7 = 2 + \square$$



- b** Max and Bella each get 30 minutes of screen time a day. Today Max had 14 minutes in the morning and Bella had 21. How much time does each child have in the afternoon?

$$14 + \square = 21 + \square \quad \text{Max } \underline{\hspace{2cm}} \quad \text{Bella } \underline{\hspace{2cm}}$$

- c** Lim had 40 chocolates. Yee had 32. They each ate some of their chocolates. Then they both had 25 left. How many chocolates did they each eat?

$$40 - \square = 32 - \square \quad \text{Lim } \underline{\hspace{2cm}} \quad \text{Yee } \underline{\hspace{2cm}}$$

2 Find the equivalent number sentences.

- a** Roshi had nine cards and Adit had three. They were supposed to both have five cards. Write equivalent number sentences to show how they end up with five cards each.

$$\underline{\hspace{4cm}} = \underline{\hspace{4cm}}$$

- b** Abdul and Issy have two jobs each, taking the same amount of time. Abdul vacuums for 17 minutes and dusts for 8 minutes. Issy mops for 13 minutes and cleans the sinks.

How long does Issy take to clean the sinks? _____ minutes

$$\underline{\hspace{4cm}} = \underline{\hspace{4cm}}$$