

Reasoning and Problem Solving

Step 4: Related Facts

National Curriculum Objectives:

Mathematics Year 2: (2C1) [Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100](#)

Differentiation:

Questions 1, 4 and 7 (Reasoning)

Developing Explain whether an addition fact to 10 has been correctly used to derive a related addition fact to 100.

Expected Explain whether an addition/subtraction fact to 10 has been correctly used to derive a related addition/subtraction fact to 100.

Greater Depth Explain whether an addition/subtraction fact to 10 has been correctly used to derive a related addition/subtraction fact to 100, where a change occurs in one or both place value columns, i.e. $3 + 4 = 7$, $30 + 40 = 70$, $33 + 44 = 77$.

Questions 2, 5 and 8 (Reasoning)

Developing Spot the odd one out of four representations of a fact family, using addition facts to 10 and related addition facts to 100.

Expected Spot the odd one out of four representations of a fact family, using addition and subtraction facts to 10 and related addition and subtraction facts to 100.

Greater Depth Spot the odd one out of four representations of a fact family, using addition and subtraction facts to 10 and related addition and subtraction facts to 100, where a change occurs in one or both place value columns, i.e. $3 + 4 = 7$, $30 + 40 = 70$, $33 + 44 = 77$.

Questions 3, 6 and 9 (Problem Solving)

Developing Find 3 numbers that complete a set of related calculations that use addition facts to 10 to derive related addition facts to 100.

Expected Find 3 numbers that complete a set of related calculations that use addition and subtraction facts to 10 to drive related addition and subtraction facts to 100.

Greater Depth Find 3 numbers that complete a set of related calculations that use addition and subtraction facts to 10 to drive related addition and subtraction facts to 100, where a change occurs in one or both place value columns, i.e. $3 + 4 = 7$, $30 + 40 = 70$, $33 + 44 = 77$.

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

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

Related Facts

1a. Patrick says,

I know that $4 + 3 = 7$, so
 $40 + 30 = 60$.



Is he correct? Explain why.



R

Related Facts

1b. Zoe says,

I know that $2 + 4 = 6$, so
 $20 + 40 = 60$.



Is she correct? Explain why.



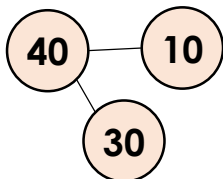
R

2a. Spot the odd one out.

A.

$$3 + 1 = 4$$

B.



C.

4	
3	1

D.

$$20 + 10 = 30$$

Explain your choice.



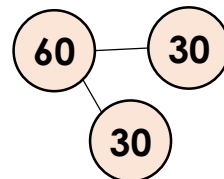
R

2b. Spot the odd one out.

A.

$$2 + 3 = 5$$

B.



C.

50	
30	20

D.

$$3 + 2 = 5$$

Explain your choice.



R

3a. Using only 3 numbers, complete the related fact calculations below.

$$\square + 5 = \square$$

$$2 + \square = \square$$

$$50 + \square 0 = \square 0$$

$$\square 0 + \square 0 = 70$$



PS

3b. Using only 3 numbers, complete the related fact calculations below.

$$\square = 3 + \square$$

$$3 + \square = \square$$

$$60 + \square 0 = \square 0$$

$$\square 0 + 60 = 90$$



PS

Related Facts

Related Facts

4a. Jonny says,

I know that $7 - 3 = 4$, so
 $70 - 30 = 50$.



Is he correct? Explain why.



R

4b. Laylah says,

I know that $8 - 5 = 3$, so
 $80 - 50 = 30$.



Is she correct? Explain why.



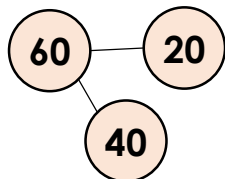
R

5a. Spot the odd one out.

A.

$$60 - 20 = 40$$

B.



C.

6		
4	2	

D.

$$60 - 30 = 30$$

Explain your choice.



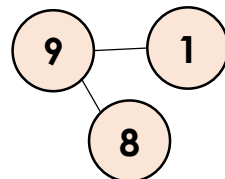
R

5b. Spot the odd one out.

A.

$$10 + 80 = 90$$

B.



C.

9		
7	2	

D.

$$90 - 80 = 10$$

Explain your choice.



R

6a. Using only 3 numbers, complete the related fact calculations below.

$$\square - 1 = \square$$

$$2 + \square = \square$$

$$\square 0 - \square 0 = 1 0$$

$$2 0 + \square 0 = \square 0$$



PS

6b. Using only 3 numbers, complete the related fact calculations below.

$$\square - 5 = \square$$

$$4 + \square = \square$$

$$9 0 - \square 0 = 4 0$$

$$5 0 + \square 0 = \square 0$$



PS

Related Facts

Related Facts

7a. Bella says,

I know that $8 - 2 = 6$, so
 $88 - 22 = 66$.



Is she correct? Explain why.



R

7b. Bartosz says,

I know that $5 + 3 = 8$, so
 $55 + 3 = 88$.



Is he correct? Explain why.



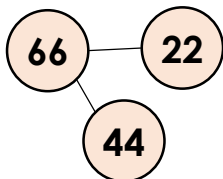
R

8a. Spot the odd one out.

A.

$$60 + 20 = 80$$

B.



C.

6	
4	2

D.

$$66 - 22 = 44$$

Explain your choice.



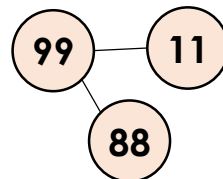
R

8b. Spot the odd one out.

A.

$$11 + 88 = 99$$

B.



C.

9	
8	1

D.

$$88 - 11 = 77$$

Explain your choice.



R

9a. Using only 3 numbers, complete the related fact calculations below.

$$\square - 3 = \square$$

$$4 + \square = \square$$

$$7 \square - 3 \square = \square 4$$

$$4 \square + 3 \square = \square \square$$



PS

9b. Using only 3 numbers, complete the related fact calculations below.

$$\square = \square - 3$$

$$5 + \square = \square$$

$$8 \square - 3 \square = 5 \square$$

$$5 \square + 3 \square = \square \square$$



PS

Reasoning and Problem Solving Related Facts

Developing

1a. Patrick is not correct. $40 + 30$ is the same as 4 tens + 3 tens. $4 + 3 = 7$, so $40 + 30 = 70$.

2a. D is the odd one out. A, B and C all use the addition fact $3 + 1 = 4$.

3a.

$$\begin{array}{r} \boxed{2} + 5 = \boxed{7} \\ 2 + \boxed{5} = \boxed{7} \\ 50 + \boxed{2}0 = \boxed{7}0 \\ \boxed{2}0 + \boxed{5}0 = 70 \end{array}$$

Expected

4a. Jonny is not correct. $70 - 30$ is the same as 7 tens - 3 tens. $7 - 3 = 4$, so $70 - 30 = 40$.

5a. D is the odd one out. A, B and C all use the addition fact $6 - 2 = 4$.

6a.

$$\begin{array}{r} \boxed{3} - 1 = \boxed{2} \\ 2 + \boxed{1} = \boxed{3} \\ \boxed{3}0 - \boxed{2}0 = 10 \\ 20 + \boxed{1}0 = \boxed{3}0 \end{array}$$

Greater Depth

7a. Bella is correct. $88 - 22$ is the same as 8 tens - 2 tens and 8 ones - 2 ones. $8 - 2 = 6$, so $88 - 22 = 66$.

8a. A is the odd one out. B, C and D all use the addition fact $4 + 2 = 6$.

9a.

$$\begin{array}{r} \boxed{7} - 3 = \boxed{4} \\ 4 + \boxed{3} = \boxed{7} \\ 7\boxed{7} - 3\boxed{3} = \boxed{4}4 \\ 4\boxed{4} + 3\boxed{3} = \boxed{7}\boxed{7} \end{array}$$

Reasoning and Problem Solving Related Facts

Developing

1b. Zoe is correct. $20 + 40$ is the same as 2 tens + 4 tens. $2 + 4 = 6$, so $20 + 40 = 60$.

2b. B is the odd one out. A, C and D all use the addition fact $2 + 3 = 5$.

3b.

$$\begin{array}{r} \boxed{9} = 3 + \boxed{6} \\ 3 + \boxed{6} = \boxed{9} \\ 60 + \boxed{3}0 = \boxed{9}0 \\ \boxed{3}0 + 60 = 90 \end{array}$$

Expected

4b. Laylah is correct. $80 - 50$ is the same as 8 tens - 5 tens. $8 - 5 = 3$, so $80 - 50 = 30$.

5b. C is the odd one out. A, B and D all use the addition fact $1 + 8 = 9$.

6b.

$$\begin{array}{r} \boxed{9} - 5 = \boxed{4} \\ 4 + \boxed{5} = \boxed{9} \\ 90 - \boxed{5}0 = 40 \\ 50 + \boxed{4}0 = \boxed{9}0 \end{array}$$

Greater Depth

7b. Bartosz is not correct. $55 + 3$ is the same as 5 tens + 0 tens and 5 ones + 3 ones. $5 + 0 = 5$ so the tens column does not change. $5 + 3 = 8$, so $55 + 3 = 58$.

8b. D is the odd one out. A, B and C all use the addition fact $1 + 8 = 9$.

9b.

$$\begin{array}{r} \boxed{5} = \boxed{8} - 3 \\ 5 + \boxed{3} = \boxed{8} \\ 8\boxed{8} - 3\boxed{3} = 5\boxed{5} \\ 5\boxed{5} + 3\boxed{3} = \boxed{8}\boxed{8} \end{array}$$