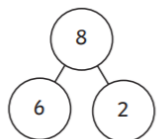


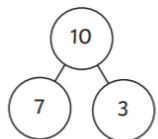
Complete work in the exercise books provided

Challenge 1 : Addition and subtraction fact families

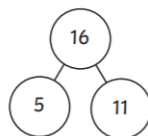
Challenge 1: For each set of numbers, write four different addition and subtraction facts.



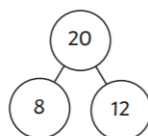
$$\begin{array}{rcl} \square & + & \square = \square \\ \square & + & \square = \square \\ \square & - & \square = \square \\ \square & - & \square = \square \end{array}$$



$$\begin{array}{rcl} \square & + & \square = \square \\ \square & + & \square = \square \\ \square & - & \square = \square \\ \square & - & \square = \square \end{array}$$



$$\begin{array}{rcl} \square & + & \square = \square \\ \square & + & \square = \square \\ \square & - & \square = \square \\ \square & - & \square = \square \end{array}$$



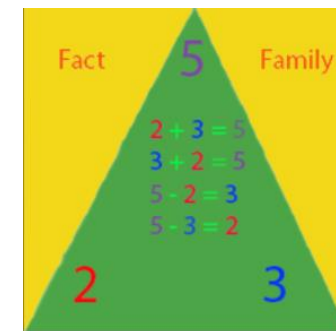
$$\begin{array}{rcl} \square & + & \square = \square \\ \square & + & \square = \square \\ \square & - & \square = \square \\ \square & - & \square = \square \end{array}$$

14	
10	4

$$\begin{array}{rcl} \square & + & \square = \square \\ \square & + & \square = \square \\ \square & - & \square = \square \\ \square & - & \square = \square \end{array}$$

13	
6	7

$$\begin{array}{rcl} \square & + & \square = \square \\ \square & + & \square = \square \\ \square & - & \square = \square \\ \square & - & \square = \square \end{array}$$



Challenge 2: Related facts

Questions for discussions

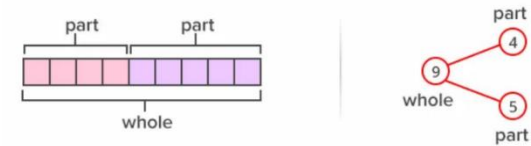
What is the same and what is different?

If we know $12+1=13$, what else do we know?

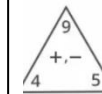
Can you see any patterns?

If we know that $15-3=12$, why can't we see $3-15=12$?

Examples of fact families



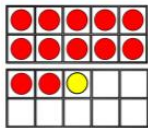
Addition and Subtraction Fact Family



$$\begin{array}{l} \text{part} + \text{part} = \text{whole} \\ 4 + 5 = 9 \\ 4 + 5 = 9 \end{array}$$

$$\begin{array}{l} \text{whole} - \text{part} = \text{part} \\ 9 - 5 = 4 \\ 9 - 4 = 5 \end{array}$$

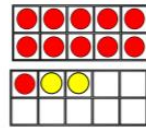
Complete the addition sentences.



$$12 + 1 = 13$$

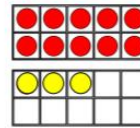
Can you write a subtraction sentence for each?

$$13 - 1 = 12$$



$$11 + \underline{\quad} = 13$$

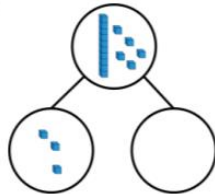
$$13 - \underline{\quad} = \underline{\quad}$$



$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} - \underline{\quad} = \underline{\quad}$$

Complete:



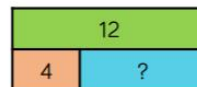
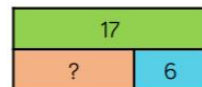
$$15 - \underline{\quad} = 3$$

$$15 - 3 = \underline{\quad}$$

$$3 + \underline{\quad} = 15$$

$$\underline{\quad} + 3 = 15$$

Complete and write addition and subtraction sentences for each bar model.



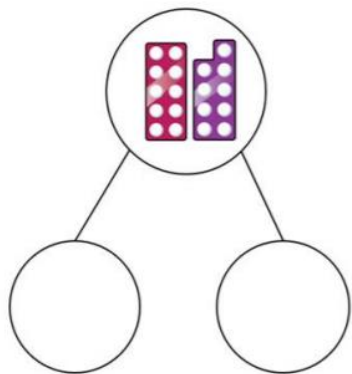
Can you use the numbers 8, 7 and 15 to make a bar model?

Can you write addition and subtraction sentences for this bar model?

Challenge 3 Related facts: Reasoning and problem solving

1.

Use the cards to write as many addition and subtraction sentences as you can.



nine

add

ten

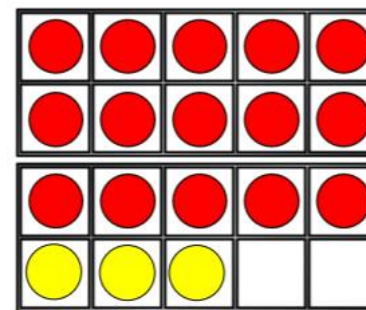
subtract

nineteen

is equal to

2.

Circle the addition and subtraction number sentences that match the ten frames.



$15 + 3 = 18$

$15 - 3 = 18$

$3 + 18 = 15$


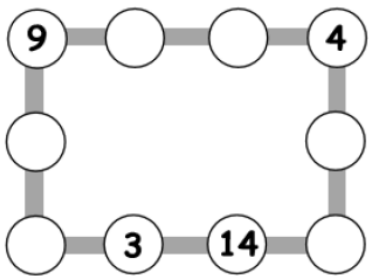

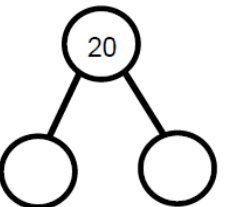
$18 - 15 = 3$

$18 + 3 = 15$

$18 - 3 = 15$

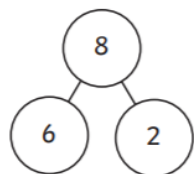
$18 = 3 + 15$

$15 - 18 = 3$

	National Curriculum Statement	All students		
		Fluency	Reasoning	Problem Solving
Addition and Subtraction	Add and subtract one digit and two digit numbers to 20, including zero.	<ul style="list-style-type: none"> Fill in the missing gaps: $20 - \square = 10$ $\square + 13 = 19$ $\square = 17 - 13$  Alan baked 16 cookies. He gave 14 of them away. How many are left? If you know that $22 + 12 = 34$, complete: $20 = 12 + \underline{\quad}$ $12 = 16 - \underline{\quad}$ $19 - \underline{\quad} = 11$ 	<ul style="list-style-type: none"> Martin is subtracting single digits from 20. He says, "The lowest answer I can get is 11." Do you agree? Explain why. Make each line add up to 20  Explain why $20 - 10 = 10$ Sarah has 11 toy cars and Tim has 5. They have written a number sentence to help them solve the problem. Have they done it correctly? Explain why. Is there another way you could partition the numbers and get the same answer? <div style="display: flex; align-items: center; justify-content: center; gap: 10px;"> <div style="border: 1px solid black; padding: 5px;">11</div> <div>+</div> <div style="border: 1px solid black; padding: 5px;">1</div> <div>+</div> <div style="border: 1px solid black; padding: 5px;">5</div> <div>=</div> <div style="border: 1px solid black; padding: 5px;">16</div> </div> 	<ul style="list-style-type: none"> Look at the digit cards below.  <p>How many calculations and answers can you make? How do you know you have found them all?</p> Roll three dice and add the numbers to get an answer. Use a ten frame to help if needed. What are the highest and lowest possible answers? How do you know? How many part-whole models can you make where the whole number is 40? Can you have 3 parts?  The answer is 18. How many ways can you get to this answer?

Answers

Challenge 1

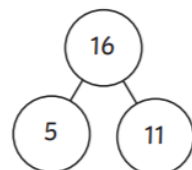


$$6 + 2 = 8$$

$$2 + 6 = 8$$

$$8 - 2 = 6$$

$$8 - 6 = 2$$

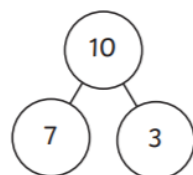


$$5 + 11 = 16$$

$$11 + 5 = 16$$

$$16 - 5 = 11$$

$$16 - 11 = 5$$

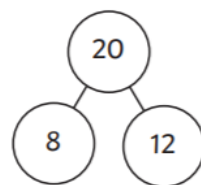


$$7 + 3 = 10$$

$$3 + 7 = 10$$

$$10 - 7 = 3$$

$$10 - 3 = 7$$



$$8 + 12 = 20$$

$$12 + 8 = 20$$

$$20 - 8 = 12$$

$$20 - 12 = 8$$

14	
10	4

$$10 + 4 = 14$$

$$4 + 10 = 14$$

$$14 - 10 = 4$$

$$14 - 4 = 10$$

13	
6	7

$$6 + 7 = 13$$

$$7 + 6 = 13$$

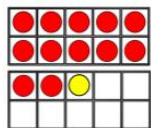
$$13 - 7 = 6$$

$$13 - 6 = 7$$

Answers

Challenge 2

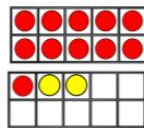
Complete the addition sentences.



$$12 + 1 = 13$$

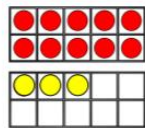
Can you write a subtraction sentence for each?

$$13 - 1 = 12$$



$$11 + _ = 13$$

$$13 - _ = _$$



$$_ + _ = _$$

$$_ - _ = _$$

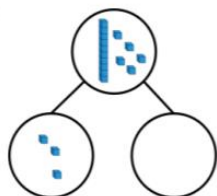
$$11 + 2 = 13$$

$$13 - 2 = 11$$

$$10 + 3 = 13$$

$$13 - 3 = 10$$

Complete:



$$15 - _ = 3$$

$$15 - 3 = _$$

$$3 + _ = 15$$

$$_ + 3 = 15$$

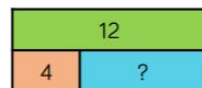
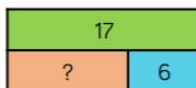
$$15 - 12 = 3$$

$$15 - 3 = 12$$

$$3 + 12 = 15$$

$$12 + 3 = 15$$

Complete and write addition and subtraction sentences for each bar model.



Can you use the numbers 8, 7 and 15 to make a bar model?

Can you write addition and subtraction sentences for this bar model?

$$17 - 6 = 11$$

$$17 - 11 = 6$$

$$6 + 11 = 17$$

$$11 + 6 = 17$$

$$12 - 4 = 8$$

$$12 - 8 = 4$$

$$8 + 4 = 12$$

$$4 + 8 = 12$$

15	
7	8

$$7 + 8 = 15$$

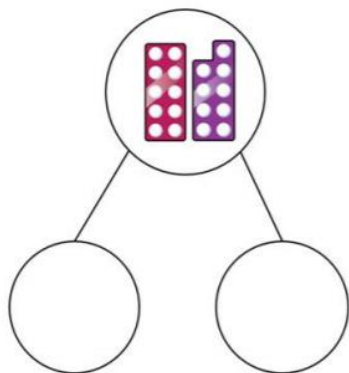
$$8 + 7 = 15$$

$$15 - 8 = 7$$

$$15 - 7 = 8$$

Answers challenge 3:

Use the cards to write as many addition and subtraction sentences as you can.



nine

add

ten

subtract

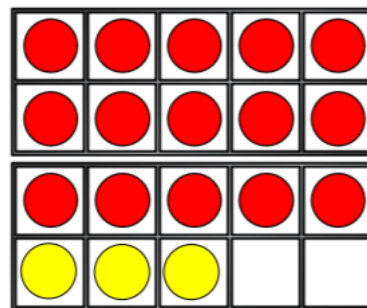
nineteen

is equal to

Children can use the words to create sentences

Possible answers:
Nine add ten is equal to nineteen.
Nine is equal to nineteen subtract ten.

Circle the addition and subtraction number sentences that match the ten frames.



$15 + 3 = 18$

$15 - 3 = 18$

$3 + 18 = 15$

$18 - 15 = 3$

$18 + 3 = 15$

$18 - 3 = 15$

$18 = 3 + 15$

$15 - 18 = 3$

$15 + 3 = 18$

$18 - 15 = 3$

$18 - 3 = 15$

$18 = 3 + 15$