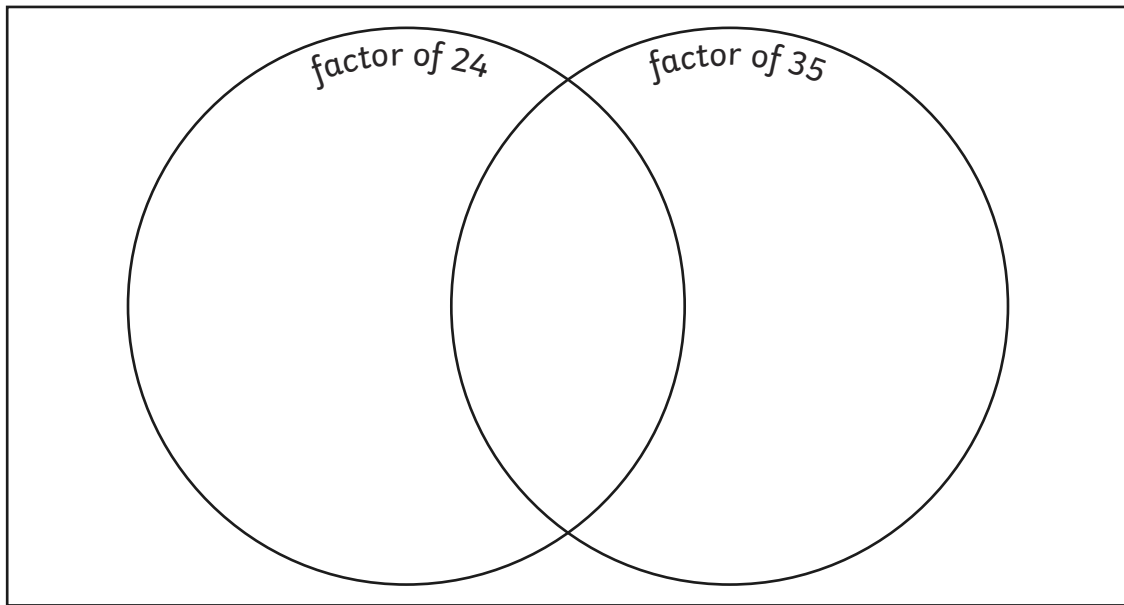


Common Factors

I can identify common factors.

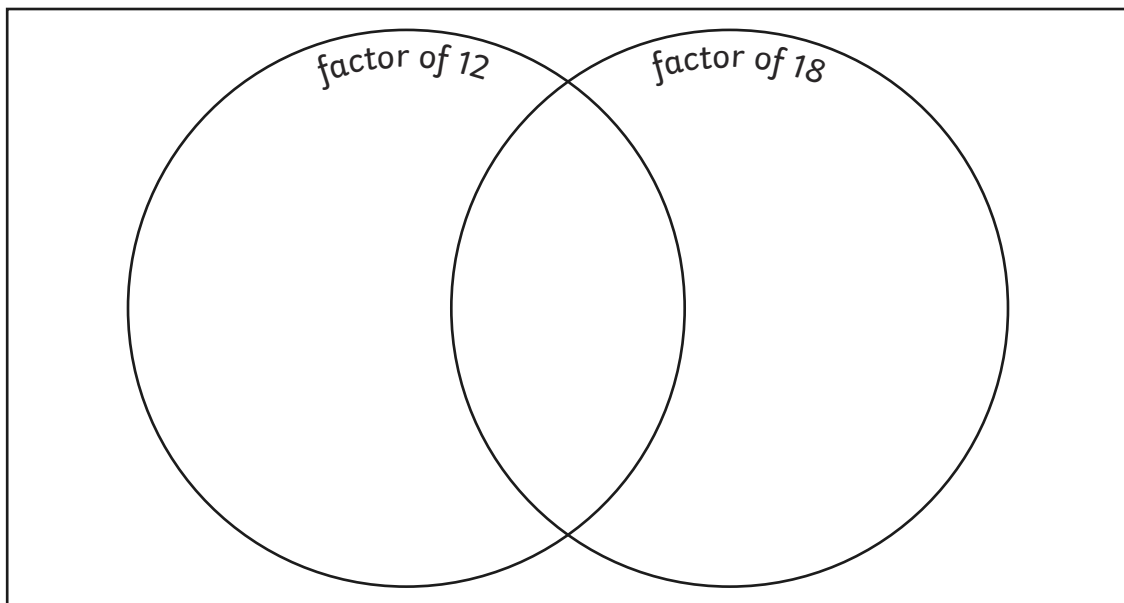


- 1) Place the numbers 1-35 correctly onto the Venn diagram.



What are the common factors? _____

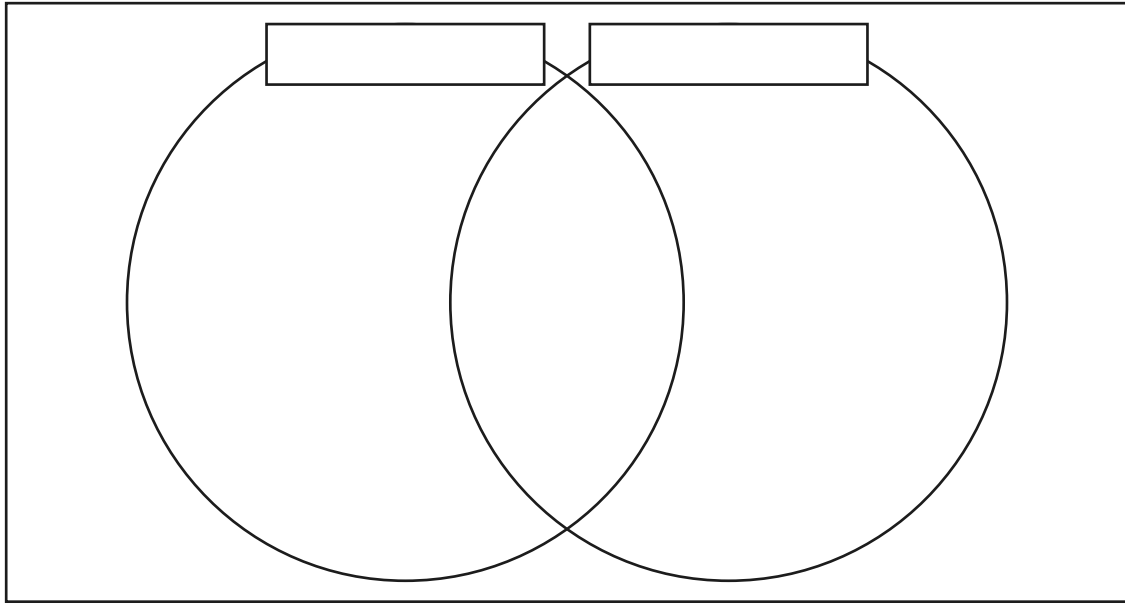
- 2) Place the numbers 1-18 correctly onto the Venn diagram.



What are the common factors? _____

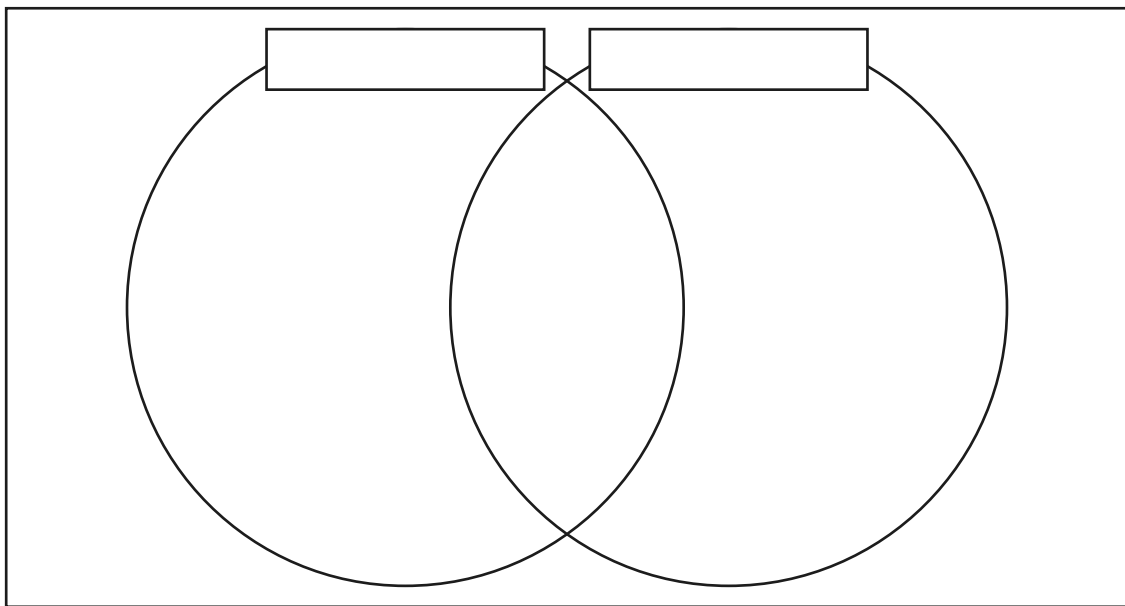
What is the highest common factor? _____

- 3) Choose two numbers to compare. Complete the Venn diagram and identify the highest common factor.



The highest common factor is _____ .

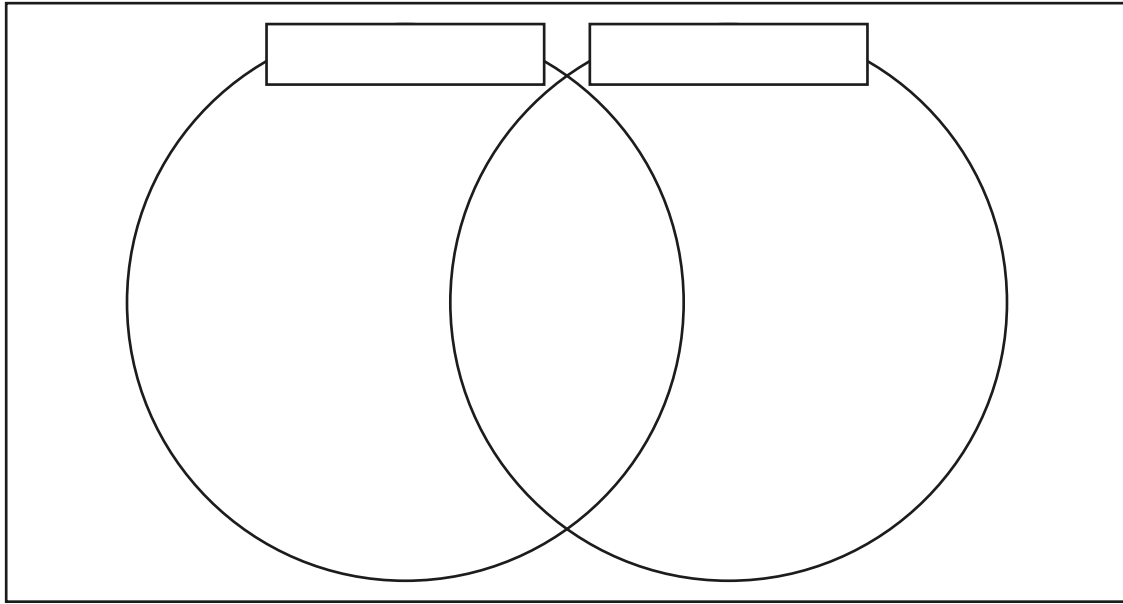
- 4) Choose two numbers to compare. Complete the Venn diagram and identify the highest common factor.



The highest common factor is _____ .

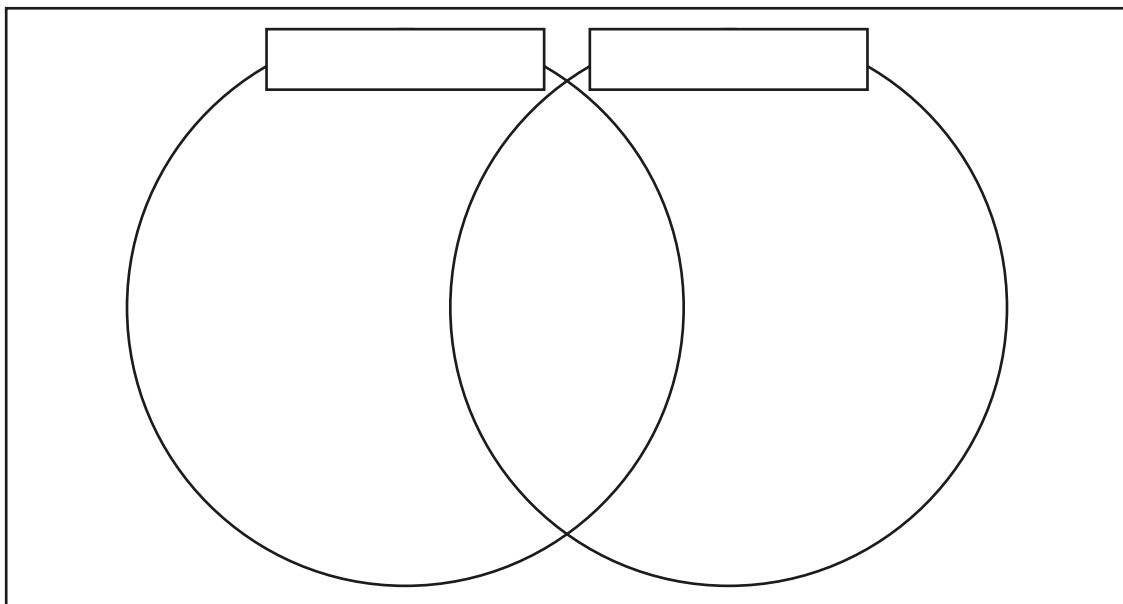


- 5) Choose two numbers to compare. Complete the Venn diagram and identify the highest common factor.



The highest common factor is _____ .

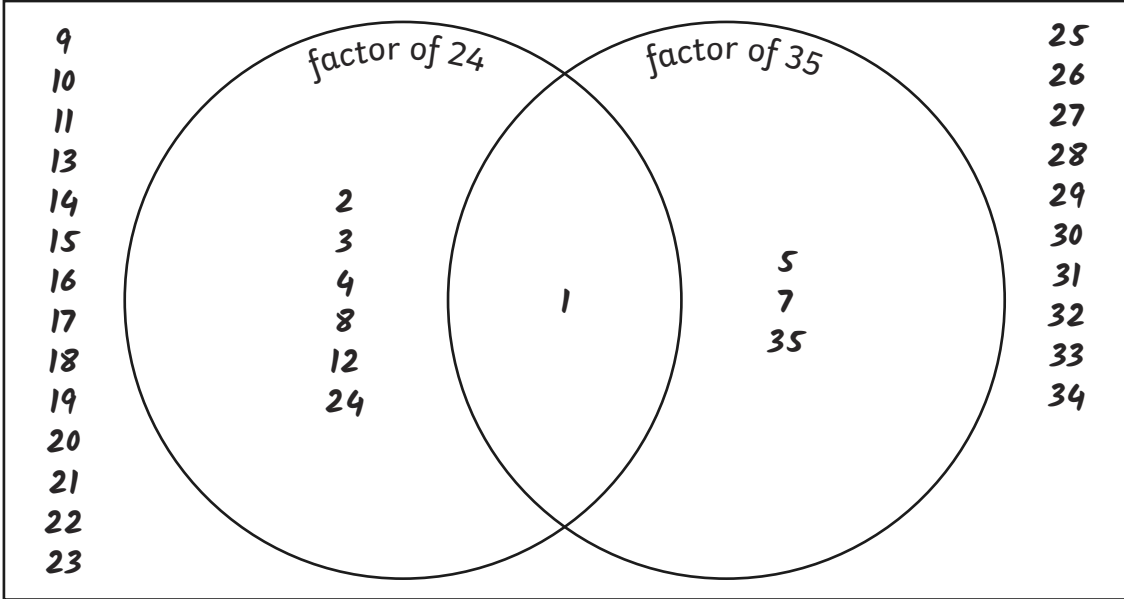
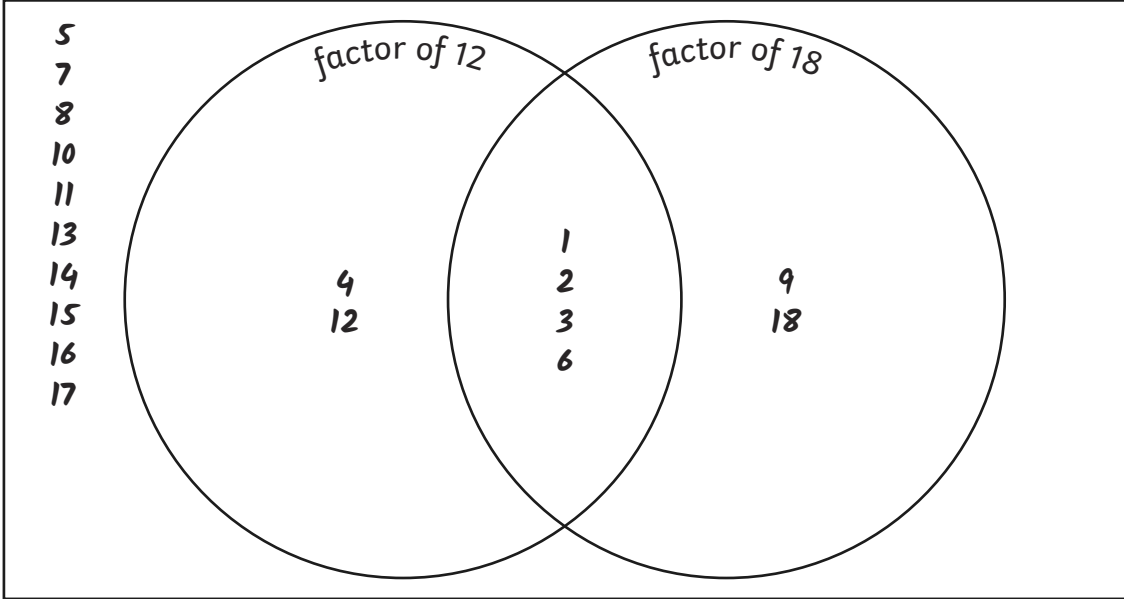
- 6) Choose two numbers to compare. Complete the Venn diagram and identify the highest common factor.



The highest common factor is _____ .



Common Factors Answers

Question	Answer
1.	Place the numbers 1-35 correctly onto the Venn diagram.
	 <p>What are the common factors? 1</p>
2.	Place the numbers 1-18 correctly onto the Venn diagram.
	 <p>What are the common factors? 1, 2, 3, 6</p> <p>What is the highest common factor? 6</p>

What is the highest common factor of 45 and 52?

13

What is the highest common factor of 38 and 76?

9

What is the highest common factor of 28 and 44?

10

What is the highest common factor of 45 and 78?

6

What is the highest common factor of 12 and 18?

3

What is the highest common factor of 20 and 50?

4

What is the highest common factor of 63 and 99?

38

What is the highest common factor of 65 and 156?

1

Extra Challenge **Answers**

Question	Answer
What is the highest common factor of 45 and 52?	
	1
What is the highest common factor of 38 and 76?	
	38
What is the highest common factor of 28 and 44?	
	4
What is the highest common factor of 45 and 78?	
	3

What is the highest common factor of 12 and 18?	
	6
What is the highest common factor of 20 and 50?	
	10
What is the highest common factor of 63 and 99?	
	9
What is the highest common factor of 65 and 156?	
	13



1)

a)

12	15
1, 12, 2, 6, 3, 4	1, 15, 3, 5
1, 3	

b)

24	36
1, 24, 2, 12, 3, 8, 4, 6	1, 36, 2, 18, 3, 12, 4, 9, 6
1, 2, 3, 4, 6	

c)

81	60
1, 81, 3, 27, 9	1, 60, 2, 30, 3, 20, 4, 15, 5, 12, 6, 10
1, 3	

d)

45	16
1, 45, 3, 15, 5, 9	1, 16, 2, 8, 4
1	

e)

56	20
1, 56, 2, 28, 4, 14, 7, 8	1, 20, 2, 10, 4, 5
1, 2, 4	

f)

28	48
1, 28, 2, 14, 4, 7	1, 48, 2, 24, 3, 16, 4, 12, 6, 8
1, 2, 4	

2) Multiple answers possible. Here are some possibilities:

a)

3
12 and 15 or 81 and 60 or 36 and 15

b)

4
56 and 20 or 28 and 48 or 20 and 28

c)

6
24 and 36 or 12 and 18 or 6 and 60

- a) This is sometimes true. For example, 24 has 8 factors: 1 and 24; 2 and 12; 3 and 8; and 4 and 6. So 24 has an even number of factors. However, 16 has 5 factors: 1 and 16; 2 and 8; and 4.
- b) This is sometimes true. For example, 45 and 15 are a pair of odd numbers. They have three common factors: 1, 3 and 5. 28 and 48 are a pair of even numbers. They also have three common factors: 1, 2 and 4. This proves that pairs of even numbers don't always have more common factors than odd numbers.
- c) This is always true. Every number has at least two factors: 1 and itself. For example, 7 has two factors: 1 and 7.
- d) This is never true. As every number has at least one pair of factors, 1 and itself, then every pair of numbers will always share at least one common factor: 1. For example, 45 and 16 share only one common factor: 1.



1) Aaron is correct. 8 is a common factor of 64 and 48. 6 is only a factor of 48, and not 64.

2)

- a) He could cut the ribbon into lengths of 5cm, 10cm, 20cm, 30cm or 60cm.
- b) 40 is a factor of 240, but it is not a factor of 180. If he cut the 180cm ribbon into 40cm lengths, he would have 20cm left over.





1) List all the factors of each number in the box below it. Then list the common factors for each number pair in the larger space below that.

a)

12	15

b)

24	36

c)

81	60

d)

45	16

e)

56	20

f)

28	48

2) Each number below is the highest common factor of a pair of numbers. What could each pair of numbers be?

a)

3

b)

4

c)

6

Look at these statements. Decide if each one is always, sometimes or never true. Explain your reasoning for each statement.



Always, sometimes, never?

a) A number has an even number of factors.

b) Pairs of even numbers have more common factors than pairs of odd numbers.

c) A number has at least two factors.

d) Some pairs of numbers have no common factors.



- 1) Stefan has two different packs of football cards. He has 64 red football cards and 48 green football cards. He wants to put them into an album with some pages of red cards and some pages of green cards. He wants to have the same number of cards on each page of the album. He asks his friends for some help.



Libby

Each page should have 6 cards on it.



Aaron

Each page should have 8 cards on it.

Who do you agree with? Explain your answer.

- 2) Pawel is working on a craft project. He has two pieces of ribbon. One is 180cm long and the other is 240cm long. He needs to cut the ribbons into equal pieces. He doesn't want to waste any ribbon by having any left over.

a) Can you find all the different possible lengths of ribbon he could cut?

b) Can you explain why he would not be able to cut the ribbons into lengths of 40cm?

1) For each question, list all the factors of each number. Then, below that, list the common factors for each number pair.



- a)

12	15
----	----

 b)

24	36
----	----
- c)

81	60
----	----

 d)

45	16
----	----
- e)

56	20
----	----

 f)

28	48
----	----

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- a) 3 b) 4 c) 6

Look at these statements. Decide if each one is always, sometimes or never true. Explain your reasoning for each statement.



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24	36
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81	60
----	----

 d)

45	16
----	----
- e)

56	20
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 f)

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- b) Can you explain why he would not be able to cut the ribbons into lengths of 40cm?

1

2

3

4

5

6

7

8



9

10

11

12

13

14

15

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15