



Year 6 Maths
25.01.21- 29.01.21
Answers

Monday

Factors



- 1 Alex arranges 16 counters in different ways. She is trying to work out some factors.



a) Use the array to complete the sentence.

and are both factors of 16

b) Alex rearranges the counters.



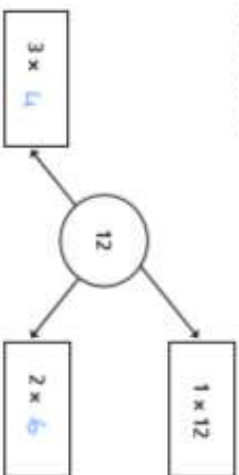
How does this array show that 5 is not a factor of 16?

The bottom row isn't complete

- 2 Use 20 counters.

- a) Show that 2 and 10 are factors of 20
 b) Rearrange the counters to show why 4 and 5 are also factors of 20
 c) Show why 6 is not a factor of 20

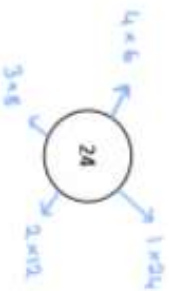
- 3 a) Complete the diagram to show the pairs of numbers that multiply to make 12



List all the factors of 12

1, 2, 3, 4, 6, 12

- b) Draw a similar diagram to show the pairs of numbers that multiply to make 24



List all the factors of 24

1, 2, 3, 4, 6, 8, 12, 24

- 4 a) List all the factors of 32

1, 2, 4, 8, 16, 32

- b) How can you check that you have found all the factors?



- 5 a) Circle the factors of 30

5 15 25 3 30 4 2 12 60 0

- b) These numbers are all factors of a 2-digit number.

1 3 5 9

What could the number be?

45

- 6 Amir and Eva are describing numbers using factors.



The number 11 does not have any factors.

Amir

My number lies between 20 and 25. It only has two factors.



Eva

- a) Is Amir correct? no

Explain your answer.

$1 \times 11 = 11$ so 1 and 11 are factors

- b) What number is Eva thinking of?

23

- 7 Which number has the most factors? Tick your answer.

64

48

- 8 Look at each statement.

Explain the mistakes that have been made.

- a) 20, 30 and 40 are all factors of 10

These are multiples not factors.

- b) 0.5 is a factor of 8 as 16 halves equals 8

Factors have to be integers.

- 9 How do we know that these statements are true?

- a) 5 is a factor of 195 but not a factor of 196

195 ends in 5 so 5 is a factor 196 is even

even then a multiple of 5 so 5 isn't a factor

- b) 3 is a factor of 177 but not a factor of 178

$1 + 7 + 7 = 15$ is a multiple of 3 so 3

is a factor of 177 therefore not a factor of 178

- c) 20 is a factor of 180 but not a factor of 190

$180 \div 20 = 9$ 190 is 10 more than 180

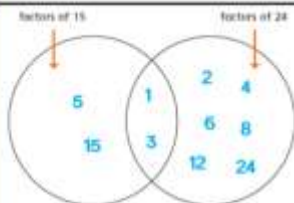
so 20 can't be a factor

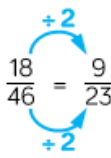
- 10 Is this statement always, sometimes or never true?

A number will always have an even number of factors because factors come in factor pairs.

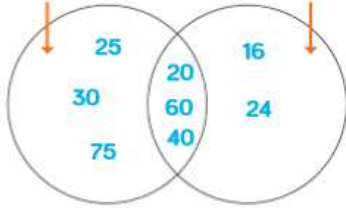
Tuesday

Y6 - Autumn - Block 2 - Step 9 - Common factors Answers

Question	Answer
1	a) 1, 2, 3, 6, 9, 18 b) 1, 2, 3, 4, 6, 8, 12, 24 c) 1, 2, 3, 6
2	
3	a) 1, 2, 4 b) 1 c) 1, 2, 5, 10 d) 1, 2, 4, 5, 10, 20

4	<table border="1"> <thead> <tr> <th>Factor pairs of 50</th> <th>Factor pairs of 75</th> <th>Factor pairs of 100</th> </tr> </thead> <tbody> <tr> <td>1 × 50</td> <td>1 × 75</td> <td>1 × 100</td> </tr> <tr> <td>2 × 25</td> <td>3 × 25</td> <td>2 × 50</td> </tr> <tr> <td>5 × 10</td> <td>5 × 15</td> <td>4 × 25</td> </tr> <tr> <td></td> <td></td> <td>5 × 20</td> </tr> <tr> <td></td> <td></td> <td>10 × 10</td> </tr> </tbody> </table>	Factor pairs of 50	Factor pairs of 75	Factor pairs of 100	1 × 50	1 × 75	1 × 100	2 × 25	3 × 25	2 × 50	5 × 10	5 × 15	4 × 25			5 × 20			10 × 10
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5 × 10	5 × 15	4 × 25																	
		5 × 20																	
		10 × 10																	
b) 1, 5, 25																			
5	60, 90, 180																		
6	No. If she puts 5 sweets and 5 balloons in each bag, she will make 5 bogs, but she will have 10 sweets left over. She can make 5 bags, with 7 sweets and 5 balloons in each bag.																		
7	70																		
8	Identify a common factor and divide both the top and bottom by this factor, e.g. 18: 1, 2, 3, 6, 9, 18 46: 1, 2, 23, 46 																		

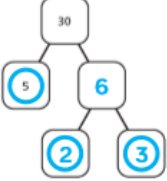
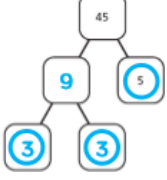
Wednesday

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2	<p>multiples of 5 multiples of 4</p>  <p>b) 20, 40, 60 c) They are all multiples of $4 \times 5 = 20$ Any multiple of 20 is a common multiple of 4 and 5 No, we will never run out of common multiples.</p>																																																																																																				
3	<p>Multiples of 5: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70</p> <p>Multiples of 7: 7, 14, 21, 28, 35, 42, 49, 56, 63, 70, 77, 84, 91, 98</p>																																																																																																				
4	<p>Jack's method will find common multiple, but Rosie is also correct that he will miss some. 12, 36, 60, ... are also multiples of 4 and 6 All multiples of 12 are multiples of 4 and 6</p>																																																																																																				
5	<p>a) 6, 12, 18, 24, 30 b) 12, 24, 36, 48, 60 c) 30, 60, 90, 120, 150</p>																																																																																																				
6	<p>any two ages from: 5, 6, 9, 10, 15, 18</p>																																																																																																				
7	<p>72 cm or 96 cm</p>																																																																																																				








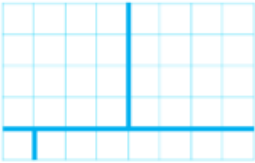
Thursday

Question	Answer
1	<p>a) The factors of 6 are 1, 2, 3, 6 The factors of 8 are 1, 2, 4, 8 The factors of 9 are 1, 3, 9</p> <p>b) The factors of 3 are 1, 3 The factors of 5 are 1, 5 The factors of 7 are 1, 7</p> <p>c) All the numbers in both part a) and part b) have 1 and the number as factors. In part a) there are also other factors, but in part b) these are the only factors. All the numbers in part b) are prime numbers.</p>
2	$18 = 1 \times 18$ $18 = 2 \times 9$ $18 = 3 \times 6$ 18 has 6 factors so it is not prime.
3	<p>a) 1 2 3 4 5 6 7</p> <p>b) 17 22 9 36 21 35 23</p> <p>c) 10 18 38 74 92 2 14</p>
4	<p>a) An integer has exactly two factors, 1 and the number. 1 only has one factor (1) so is not prime.</p> <p>b) Many people think that no even numbers can be prime, since they are all a multiple of 2. But the only factors of 2 are 1 and zero, so 2 is prime.</p>

5	<table border="1"> <thead> <tr> <th></th> <th>Even</th> <th>Not even</th> </tr> </thead> <tbody> <tr> <th>Prime</th> <td style="text-align: center;">2</td> <td>multiple possible answers, e.g. 3, 11, 19</td> </tr> <tr> <th>Not prime</th> <td>multiple possible answers, e.g. 6, 10, 12</td> <td>multiple possible answers, e.g. 9, 21, 25</td> </tr> </tbody> </table>		Even	Not even	Prime	2	multiple possible answers, e.g. 3, 11, 19	Not prime	multiple possible answers, e.g. 6, 10, 12	multiple possible answers, e.g. 9, 21, 25																															
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7	<p>No. $87 = 3 \times 29$, so is not prime.</p>																																								

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8	<p>a)</p>  <pre> graph TD 30 --> 5 30 --> 6 6 --> 2 6 --> 3 </pre> <p>b)</p>  <pre> graph TD 45 --> 9 45 --> 5 9 --> 3 9 --> 3 </pre> <p>c) multiple possible prime factor trees, depending on how 36 is factorised Prime factors are: 2, 2, 3, 3</p> <p>d) multiple possible prime factor trees, depending on how 66 is factorised Prime factors are: 2, 3, 11</p>
9	<p>3 and 97 11 and 89 17 and 83 29 and 71 41 and 59 47 and 53</p>

Friday

Question	Answer																		
1	   $2 \times 2 = 4$ $3 \times 3 = 9$ $4 \times 4 = 16$																		
2	    <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px;">4 cubed</div> <div style="border: 1px solid black; padding: 2px;">3 squared</div> <div style="border: 1px solid black; padding: 2px;">4 x 4</div> <div style="border: 1px solid black; padding: 2px;">2²</div> </div>																		
3	27																		
4	<table border="1" style="width: 100%; text-align: center;"> <tbody> <tr> <td>2²</td> <td>2 × 2</td> <td>4</td> </tr> <tr> <td>2³</td> <td>2 × 2 × 2</td> <td>8</td> </tr> <tr> <td>3²</td> <td>3 × 3</td> <td>9</td> </tr> <tr> <td>3³</td> <td>3 × 3 × 3</td> <td>27</td> </tr> <tr> <td>5²</td> <td>5 × 5</td> <td>25</td> </tr> <tr> <td>5³</td> <td>5 × 5 × 5</td> <td>125</td> </tr> </tbody> </table>	2 ²	2 × 2	4	2 ³	2 × 2 × 2	8	3 ²	3 × 3	9	3 ³	3 × 3 × 3	27	5 ²	5 × 5	25	5³	5 × 5 × 5	125
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5	2 squared < 2 cubed 2 squared = 2 × 2 2 squared = 4 2 squared > 1 cubed																		
6																			
7	121, 144, 169, 196																		
8	7,600																		
9	a) multiple possible answers, e.g. 1 and 4, 4 and 9 b) 1 and 3																		