

## Year 7 Core- Prime Numbers and Proof Questions

1.

32	21	30	
4	3	27	37

From the numbers in the box, write down:

- A factor of 16  
\_\_\_\_\_
  
- A multiple of 6  
\_\_\_\_\_
  
- A factor of 63 and multiple of 7  
\_\_\_\_\_
  
- An odd number that is greater than 30  
\_\_\_\_\_

2.

Match the sequence to its name.

2, 3, 5, 7, ...	Square numbers
1, 4, 9, 16, ...	Triangular numbers
1, 3, 6, 10, ...	Prime numbers

3.

Write down a prime number between 40 and 50

\_\_\_\_\_

4.

What is the highest common factor of 16 and 36?

\_\_\_\_\_

Explain why  $2x$  is a common factor of the three expressions below.

$4x^2$        $8xy$        $6wx$

5.

Two lights flash together.  
The red light then flashes every 8 seconds.  
The blue light flashes every 6 seconds.

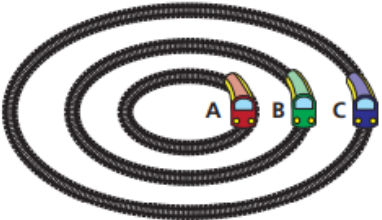
After how many seconds will the lights flash together again?

\_\_\_\_\_ seconds

## Year 7 Core- Prime Numbers and Proof Questions

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|---|---|
| <p>6. <b>When you add two prime numbers, the total is always even.</b><br/>Give an example to show this is false.</p> <p><b>The sum of two consecutive integers is odd.</b><br/>Give an example to show that this is true.</p> <p>Show that there are exactly 3 square numbers between 20 and 50</p>      | <p>7. Express 72 as a product of its prime factors.</p> |
|   | <p>8. Find the lowest common multiple of 45 and 63</p>  |
| <p>9. Jane has 24 lollies, 60 chews and 96 chocolates. She wants to arrange the sweets into identical packets, without having any sweets left over.</p> <p>a) What is the maximum number of identical packets Jane can make?</p> <p>b) How many of each type of sweet should Jane put in each packet.</p> |   |

## Year 7 Higher – Prime Numbers and Proof Questions

1.	<p>Jack and Kim complete a test.</p> <ul style="list-style-type: none"> <li>● The highest possible score is 80 marks.</li> <li>● Jack's score is a multiple of 9</li> <li>● Kim's score is a multiple of 7</li> <li>● Kim scored 16 fewer marks than Jack.</li> </ul> <p>How many marks did Jack score out of 80?</p> <div style="border: 1px solid black; width: 60px; height: 30px; margin-left: 20px;"></div>	2.	<p>Use the clues to find four consecutive numbers that fit in the boxes.</p> <div style="text-align: center; margin: 20px 0;"> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <div style="border: 1px solid black; width: 40px; height: 30px; margin: 0 auto;"></div> <p style="font-size: 8px; margin: 0;">triangular number</p> </div> <div style="text-align: center;"> <div style="border: 1px solid black; width: 40px; height: 30px; margin: 0 auto;"></div> <p style="font-size: 8px; margin: 0;">prime number</p> </div> <div style="text-align: center;"> <div style="border: 1px solid black; width: 40px; height: 30px; margin: 0 auto;"></div> <p style="font-size: 8px; margin: 0;">multiple of 4</p> </div> <div style="text-align: center;"> <div style="border: 1px solid black; width: 40px; height: 30px; margin: 0 auto;"></div> <p style="font-size: 8px; margin: 0;">square number</p> </div> </div> </div>
3.	<p>Write a common factor of <math>15a^2 + 10a</math></p>	4.	<p>Complete a factor tree and give the number as a product of its prime factors.</p> <p style="text-align: center; margin: 20px 0;"><b>80</b></p> <p style="text-align: center; margin-top: 100px;">80 = _____</p>
5.	<p>Three toy trains are on different tracks. Kim lines up the trains and sets them off.</p> <div style="text-align: center; margin: 20px 0;">  </div> <ul style="list-style-type: none"> <li>● Train A takes 15 seconds to complete a circuit.</li> <li>● Train B takes 20 seconds to complete the circuit.</li> <li>● Train C takes 35 seconds to complete the circuit.</li> </ul> <p>After how many minutes will the trains next line up in the same position?</p> <div style="display: flex; align-items: center; margin-top: 10px;"> <div style="border: 1px solid black; width: 60px; height: 30px; margin-right: 10px;"></div> <span>minutes</span> </div>	6.	<p>The range of five numbers is 1 The smallest number is 3</p> <p>Aisha thinks the median must be 3.5 as the greatest number of 4 and 3.5 is in the middle.</p> <p>Give a counter-example to Aisha's conjecture.</p> <hr style="border: 0.5px solid black; margin-top: 20px;"/>