Foundation Check In - 1.02 Whole number theory

1. What is the cube root of 125?
2. Which one of these numbers is a common multiple of 9 and 11?

9 11 81 189 198

1. Express 504 as a product of prime factors, giving your answer in index form.
2. Which of these are prime numbers?

 1 2 21 27 31

1. Find the Highest Common Factor of 144 and 342.
2. Two prime numbers bigger than three are added together. Explain why the total cannot be a prime number.
3. The Venn diagram below shows the factors of two numbers, A and B.

Calculate the numbers A and B.

B

A

7

 52

23

 3

1. Using the information in question 7, write down all the factors of A that are less than 20.
2. Two 2-digit numbers have a Highest Common Factor of 5 and a Lowest Common Multiple of 70. Find the two numbers.
3. Sue has some coins. If she divides them into piles of 2, 3, 4 or 5 she always has one coin left over. What is the smallest number of coins she could have?

**Extension**

Tom says, “There is no square number that ends in a 2”.

 Is Tom right? Explain your answer.

Answers

1. 5
2. 198
3. 23 × 32 × 7
4. 2 and 31
5. 18
6. Because all prime numbers bigger than three are odd and when you add two odd numbers together the answer is always even. To be a prime number the answer would have to be odd.
7. A = 168, B = 175
8. 1, 2, 3, 4, 6, 7, 8, 12 and 14
9. 10 and 35
10. 61

**OCR Resources**: *the small print*OCR’s resources are provided to support the teaching of OCR specifications, but in no way constitute an endorsed teaching method that is required by the Board, and the decision to use them lies with the individual teacher. Whilst every effort is made to ensure the accuracy of the content, OCR cannot be held responsible for any errors or omissions within these resources.
© OCR 2015 - This resource may be freely copied and distributed, as long as the OCR logo and this message remain intact and OCR is acknowledged as the originator of this work.

OCR acknowledges the use of the following content: n/a

Please get in touch if you want to discuss the accessibility of resources we offer to support delivery of our qualifications: resources.feedback@ocr.org.uk

**Extension**

Tom is right because when you square the digits 0 to 9, the answer always ends in 0, 1, 4, 5, 6 or 9.

We’d like to know your view on the resources we produce. By clicking on ‘Like’ or ‘Dislike’ you can help us to ensure that our resources work for you. When the email template pops up please add additional comments if you wish and then just click ‘Send’. Thank you.

If you do not currently offer this OCR qualification but would like to do so, please complete the Expression of Interest Form which can be found here: [www.ocr.org.uk/expression-of-interest](http://www.ocr.org.uk/expression-of-interest)

**OCR Resources**: *the small print*OCR’s resources are provided to support the teaching of OCR specifications, but in no way constitute an endorsed teaching method that is required by the Board, and the decision to use them lies with the individual teacher. Whilst every effort is made to ensure the accuracy of the content, OCR cannot be held responsible for any errors or omissions within these resources.
© OCR 2015 - This resource may be freely copied and distributed, as long as the OCR logo and this message remain intact and OCR is acknowledged as the originator of this work.

OCR acknowledges the use of the following content: n/a

Please get in touch if you want to discuss the accessibility of resources we offer to support delivery of our qualifications: resources.feedback@ocr.org.uk

We’d like to know your view on the resources we produce. By clicking on ‘Like’ or ‘Dislike’ you can help us to ensure that our resources work for you. When the email template pops up please add additional comments if you wish and then just click ‘Send’. Thank you.

If you do not currently offer this OCR qualification but would like to do so, please complete the Expression of Interest Form which can be found here: [www.ocr.org.uk/expression-of-interest](http://www.ocr.org.uk/expression-of-interest)

We’d like to know your view on the resources we produce. By clicking on ‘Like’ or ‘Dislike’ you can help us to ensure that our resources work for you. When the email template pops up please add additional comments if you wish and then just click ‘Send’. Thank you.

If you do not currently offer this OCR qualification but would like to do so, please complete the Expression of Interest Form which can be found here: [www.ocr.org.uk/expression-of-interest](http://www.ocr.org.uk/expression-of-interest)

**OCR Resources**: *the small print*OCR’s resources are provided to support the teaching of OCR specifications, but in no way constitute an endorsed teaching method that is required by the Board, and the decision to use them lies with the individual teacher. Whilst every effort is made to ensure the accuracy of the content, OCR cannot be held responsible for any errors or omissions within these resources.
© OCR 2015 - This resource may be freely copied and distributed, as long as the OCR logo and this message remain intact and OCR is acknowledged as the originator of this work.

OCR acknowledges the use of the following content: n/a

Please get in touch if you want to discuss the accessibility of resources we offer to support delivery of our qualifications: resources.feedback@ocr.org.uk

**OCR Resources**: *the small print*OCR’s resources are provided to support the teaching of OCR specifications, but in no way constitute an endorsed teaching method that is required by the Board, and the decision to use them lies with the individual teacher. Whilst every effort is made to ensure the accuracy of the content, OCR cannot be held responsible for any errors or omissions within these resources.
© OCR 2015 - This resource may be freely copied and distributed, as long as the OCR logo and this message remain intact and OCR is acknowledged as the originator of this work.

OCR acknowledges the use of the following content: n/a

Please get in touch if you want to discuss the accessibility of resources we offer to support delivery of our qualifications: resources.feedback@ocr.org.uk

**OCR Resources**: *the small print*OCR’s resources are provided to support the teaching of OCR specifications, but in no way constitute an endorsed teaching method that is required by the Board, and the decision to use them lies with the individual teacher. Whilst every effort is made to ensure the accuracy of the content, OCR cannot be held responsible for any errors or omissions within these resources.
© OCR 2015 - This resource may be freely copied and distributed, as long as the OCR logo and this message remain intact and OCR is acknowledged as the originator of this work.

OCR acknowledges the use of the following content: n/a

Please get in touch if you want to discuss the accessibility of resources we offer to support delivery of our qualifications: resources.feedback@ocr.org.uk

**OCR Resources**: *the small print*OCR’s resources are provided to support the teaching of OCR specifications, but in no way constitute an endorsed teaching method that is required by the Board, and the decision to use them lies with the individual teacher. Whilst every effort is made to ensure the accuracy of the content, OCR cannot be held responsible for any errors or omissions within these resources.
© OCR 2015 - This resource may be freely copied and distributed, as long as the OCR logo and this message remain intact and OCR is acknowledged as the originator of this work.

OCR acknowledges the use of the following content: n/a

Please get in touch if you want to discuss the accessibility of resources we offer to support delivery of our qualifications: resources.feedback@ocr.org.uk

To give us feedback on, or ideas about the OCR resources you have used, email resourcesfeedback@ocr.org.uk

To give us feedback on, or ideas about the OCR resources you have used, email resourcesfeedback@ocr.org.uk

To give us feedback on, or ideas about the OCR resources you have used, email resourcesfeedback@ocr.org.uk

To give us feedback on, or ideas about the OCR resources you have used, email resourcesfeedback@ocr.org.uk

To give us feedback on, or ideas about the OCR resources you have used, email resourcesfeedback@ocr.org.uk

To give us feedback on, or ideas about the OCR resources you have used, email resourcesfeedback@ocr.org.uk

**OCR Resources**: *the small print*OCR’s resources are provided to support the teaching of OCR specifications, but in no way constitute an endorsed teaching method that is required by the Board, and the decision to use them lies with the individual teacher. Whilst every effort is made to ensure the accuracy of the content, OCR cannot be held responsible for any errors or omissions within these resources.
© OCR 2014 - This resource may be freely copied and distributed, as long as the OCR logo and this message remain intact and OCR is acknowledged as the originator of this work.

**OCR Resources**: *the small print*OCR’s resources are provided to support the teaching of OCR specifications, but in no way constitute an endorsed teaching method that is required by the Board, and the decision to use them lies with the individual teacher. Whilst every effort is made to ensure the accuracy of the content, OCR cannot be held responsible for any errors or omissions within these resources.
© OCR 2014 - This resource may be freely copied and distributed, as long as the OCR logo and this message remain intact and OCR is acknowledged as the originator of this work.

OCR acknowledges the use of the following content::
⚫ Garden: Elen Eliseeva/Shutterstock.com ⚫ Flag: Pixel Europe/Shutterstock.com

To give us feedback on, or ideas about the OCR resources you have used, email resourcesfeedback@ocr.org.uk

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Assessment Objective** | **Qu.** | **Topic** | **R** | **A** | **G** |  | **Assessment Objective** | **Qu.** | **Topic** | **R** | **A** | **G** |
| AO1 | 1 | Find the cube root |  |  |  |  | AO1 | 1 | Find the cube root |  |  |  |
| AO1 | 2 | Identify common multiples |  |  |  |  | AO1 | 2 | Identify common multiples |  |  |  |
| AO1 | 3 | Express a number as a product of prime factors using powers |  |  |  |  | AO1 | 3 | Express a number as a product of prime factors using powers |  |  |  |
| AO1 | 4 | Identify primes |  |  |  |  | AO1 | 4 | Identify primes |  |  |  |
| AO1 | 5 | Find the Highest Common Factor |  |  |  |  | AO1 | 5 | Find the Highest Common Factor |  |  |  |
| AO2 | 6 | Apply properties of primes |  |  |  |  | AO2 | 6 | Apply properties of primes |  |  |  |
| AO2 | 7 | Evaluate products of prime factors |  |  |  |  | AO2 | 7 | Evaluate products of prime factors |  |  |  |
| AO2 | 8 | Interpret the product of prime factors |  |  |  |  | AO2 | 8 | Interpret the product of prime factors |  |  |  |
| AO3 | 9 | Solve a problem using the product of prime factors |  |  |  |  | AO3 | 9 | Solve a problem using the product of prime factors |  |  |  |
| AO3 | 10 | Solve a problem involving factors and multiples |  |  |  |  | AO3 | 10 | Solve a problem involving factors and multiples |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Assessment Objective** | **Qu.** | **Topic** | **R** | **A** | **G** |  | **Assessment Objective** | **Qu.** | **Topic** | **R** | **A** | **G** |
| AO1 | 1 | Find the cube root |  |  |  |  | AO1 | 1 | Find the cube root |  |  |  |
| AO1 | 2 | Identify common multiples |  |  |  |  | AO1 | 2 | Identify common multiples |  |  |  |
| AO1 | 3 | Express a number as a product of prime factors using powers |  |  |  |  | AO1 | 3 | Express a number as a product of prime factors using powers |  |  |  |
| AO1 | 4 | Identify primes |  |  |  |  | AO1 | 4 | Identify primes |  |  |  |
| AO1 | 5 | Find the Highest Common Factor |  |  |  |  | AO1 | 5 | Find the Highest Common Factor |  |  |  |
| AO2 | 6 | Apply properties of primes |  |  |  |  | AO2 | 6 | Apply properties of primes |  |  |  |
| AO2 | 7 | Evaluate products of prime factors |  |  |  |  | AO2 | 7 | Evaluate products of prime factors |  |  |  |
| AO2 | 8 | Interpret the product of prime factors |  |  |  |  | AO2 | 8 | Interpret the product of prime factors |  |  |  |
| AO3 | 9 | Solve a problem using the product of prime factors |  |  |  |  | AO3 | 9 | Solve a problem using the product of prime factors |  |  |  |
| AO3 | 10 | Solve a problem involving factors and multiples |  |  |  |  | AO3 | 10 | Solve a problem involving factors and multiples |  |  |  |