



**THIRD SPACE  
LEARNING**

# Factor Tree Worksheet

Number and Quantity

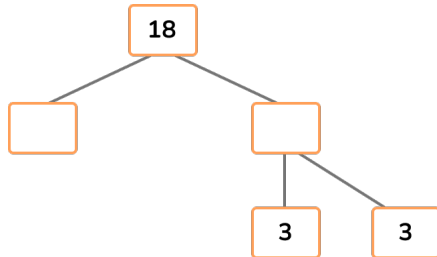
**Grades 6 to 8**

## Skill Questions

Name: .....

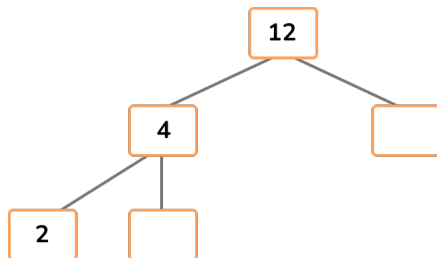
Date: .....

- 1 Complete the factor tree below.



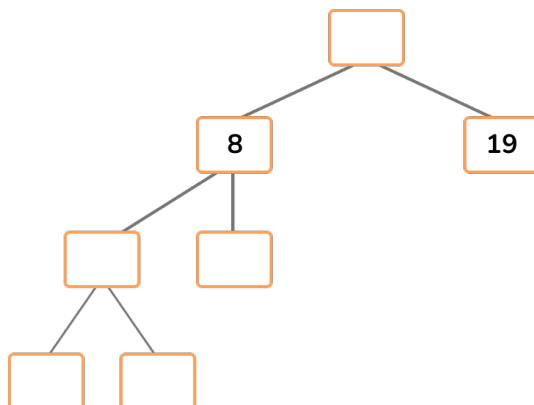
Answer

- 2 Complete the factor tree below.



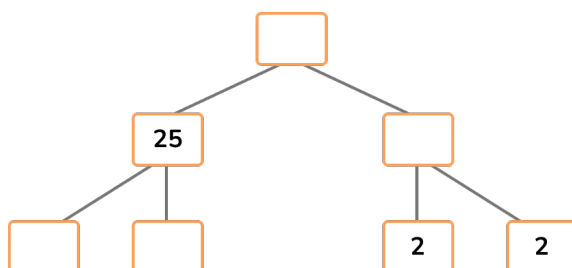
Answer

- 3 Complete the factor tree below.



Answer

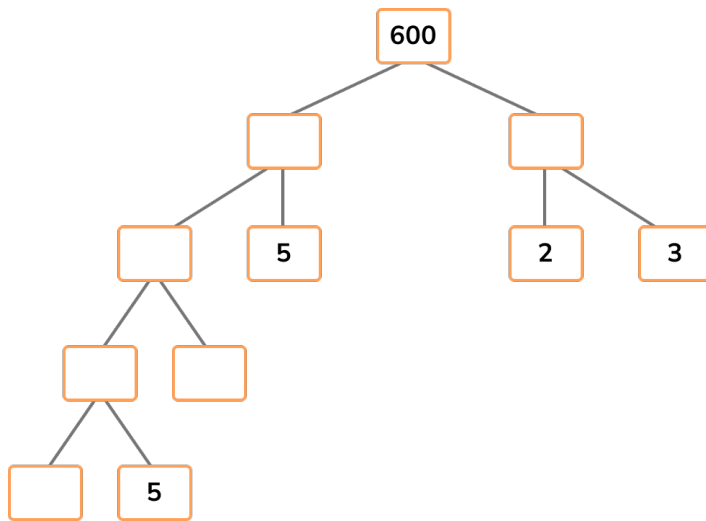
- 4 Complete the factor tree below.



Answer

## Factor Tree Worksheet | Grades 6 to 8

5 Complete the factor tree below.



Answer

6 By using factor trees, write the prime factorization for 22.

Answer

7 By using factor trees, write the prime factorization for 34.

Answer

8 By using factor trees, write the prime factorization for 45.

Answer

## Factor Tree Worksheet | Grades 6 to 8

9 By using factor trees, write the prime factorization for 150.

Answer

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10 By using factor trees, write the prime factorization for 240.

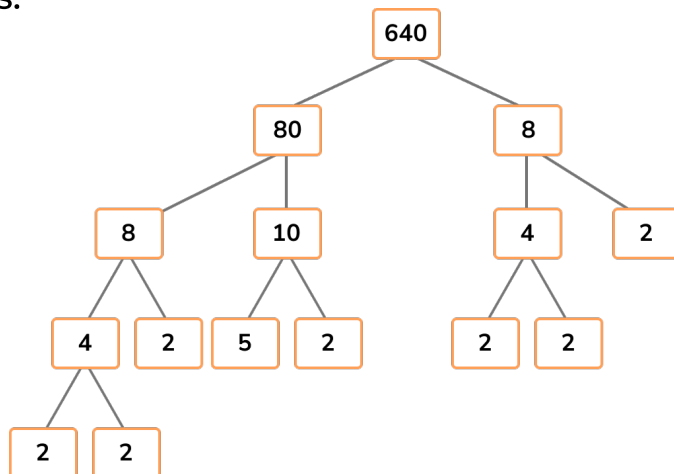
Answer

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## Applied Questions

- 11** Spot the mistake with the following calculation: Express 640 as a product of prime factors.

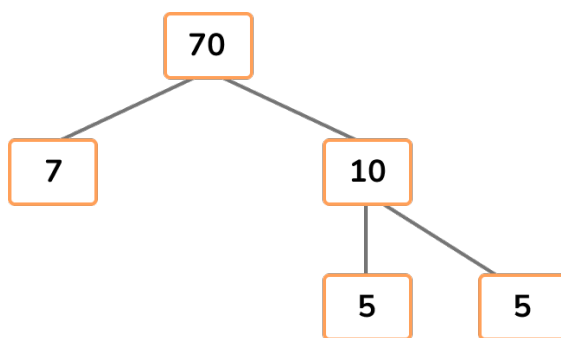


$$640 = 2 \times 2 \times 2 \times 2 \times 2 \times 5$$

$$640 = 2^5 \times 5$$

Answer

- 12** Spot the mistake with the following calculation: Express 70 as a product of prime factors.



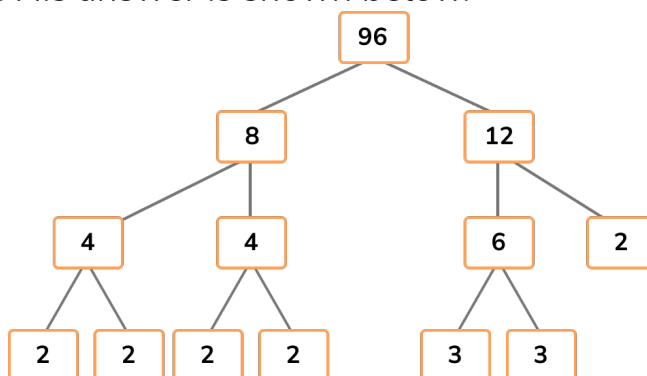
$$70 = 5^2 \times 7$$

Answer

- 13 Show that 324 is a square number.

Answer

- 14 Jake is trying to answer this question: Express the number 96 as a product of prime factors. His answer is shown below.

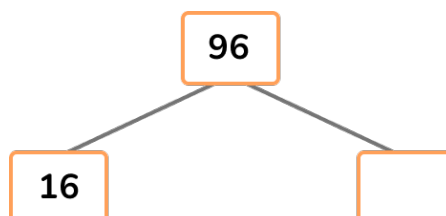


$$96 = 2, 2, 2, 2, 3, 3, 2$$

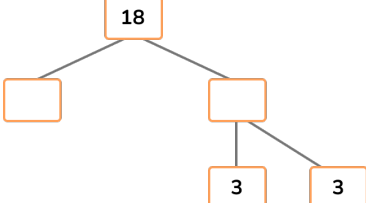
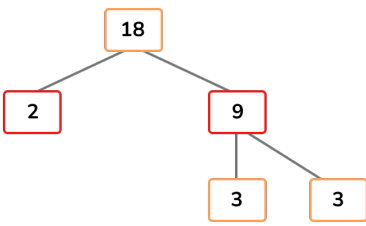
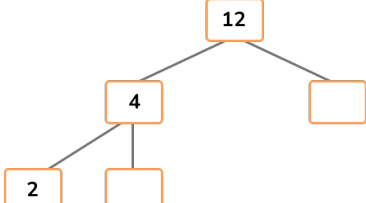
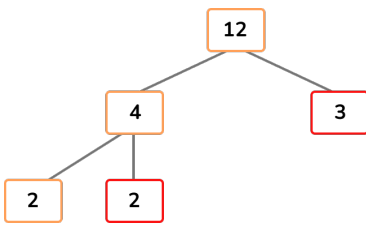
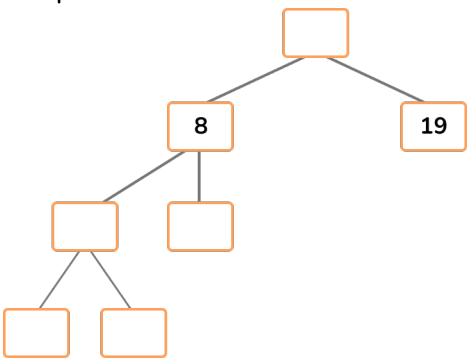
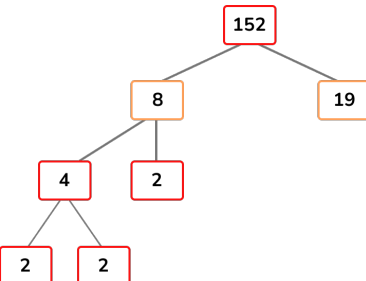
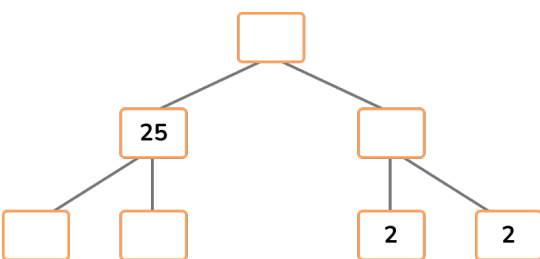
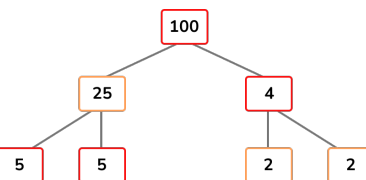
Is Jake correct?

Answer

- 15 Complete the different factor tree for the number 96 below. The start of the diagram has been drawn for you:



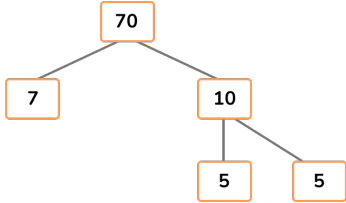
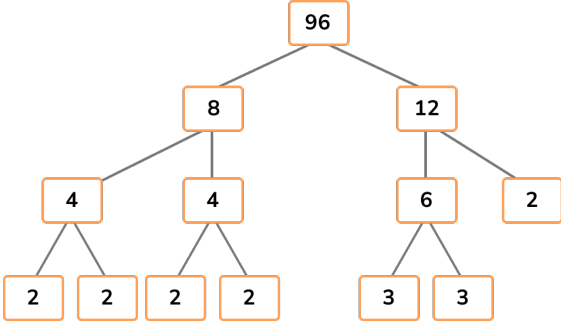
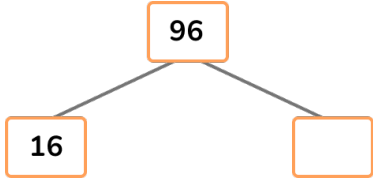
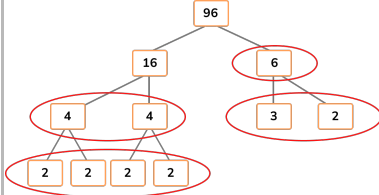
## Answers

| Question number | Question                                                                                                               | Answers                                                                              | Standard |
|-----------------|------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|----------|
| 1               | Complete the factor tree below.<br>   |    | 4.OA.B.4 |
| 2               | Complete the factor tree below.<br>  |   | 4.OA.B.4 |
| 3               | Complete the factor tree below.<br> |  | 4.OA.B.4 |
| 4               | Complete the factor tree below.<br> |  | 4.OA.B.4 |

# Factor Tree Worksheet | Grades 6 to 8 | Answers

| Question number | Question                                                                                                                                                                                                          | Answers                                                             | Standard |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|----------|
| 5               | <p>Complete the factor tree below.</p>                                                                                                                                                                            |                                                                     | 4.OA.B.4 |
| 6               | By using factor trees, write the prime factorization for 22.                                                                                                                                                      | $22 = 2 \times 11$                                                  | 4.OA.B.4 |
| 7               | By using factor trees, write the prime factorization for 34.                                                                                                                                                      | $34 = 2 \times 17$                                                  | 4.OA.B.4 |
| 8               | By using factor trees, write the prime factorization for 45.                                                                                                                                                      | $45 = 3^2 \times 5$                                                 | 4.OA.B.4 |
| 9               | By using factor trees, write the prime factorization for 150.                                                                                                                                                     | $150 = 2 \times 3 \times 5^2$                                       | 4.OA.B.4 |
| 10              | By using factor trees, write the prime factorization for 240.                                                                                                                                                     | $240 = 2^4 \times 3 \times 5$                                       | 4.OA.B.4 |
| 11              | <p>Spot the mistake with the following calculation: Express 640 as a product of prime factors.</p> <p> <math>640 = 2 \times 2 \times 2 \times 2 \times 2 \times 5</math><br/> <math>640 = 25 \times 5</math> </p> | <p>Incorrect power of 2<br/>Should be <math>2^7 \times 5</math></p> | 4.OA.B.4 |

# Factor Tree Worksheet | Grades 6 to 8 | Answers

| Question number | Question                                                                                                                                                                                                                                                                             | Answers                                                                                                                                                                                                                                                                                     | Standard |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 12              | <p>Spot the mistake with the following calculation: Express 70 as a product of prime factors.</p>  <p><math>70 = 5^2 \times 7</math></p>                                                            | <p>Factor pair of 10 incorrect (<math>10 = 2 \times 5</math>, not <math>5 \times 5</math>) Should be <math>70 = 2 \times 5 \times 7</math></p>                                                                                                                                              | 4.OA.B.4 |
| 13              | <p>Show that 324 is a square number.</p>                                                                                                                                                                                                                                             | $324 = 2 \times 2 \times 9 \times 9$                                                                                                                                                                                                                                                        | 4.OA.B.4 |
| 14              | <p>Jake is trying to answer this question: Express the number 96 as a product of prime factors. His answer is shown below.</p>  <p><math>96 = 2, 2, 2, 2, 3, 3, 2</math><br/>Is Jake correct?</p> | <p>No.</p> <p>Factors of 6 are incorrect (should be 2 and 3)</p> <p>Factors of 8 are incorrect (should be 4 and 2)</p> <p>The prime factors should be multiplied, not listed (<math>96 = 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3</math> or <math>2^5 \times 3^2</math>)</p> | 4.OA.B.4 |
| 15              | <p>Complete the different factor tree for the number 96 below. The start of the diagram has been drawn for you:</p>                                                                               |                                                                                                                                                                                                         | 4.OA.B.4 |

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