

Year 5: Prime factors and factor trees: answers

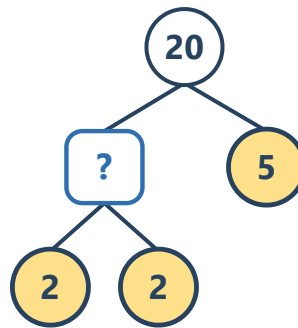
Year 5 - Prime Numbers, Factors, Squares and Cubes - Lesson 3.5

Answers. Final answers to the worksheet questions. Full step-by-step solutions for every question are free at websink.site/ks2-sats/maths/year-5/ch03-factors-primes-squares-cubes/prime-factors-and-factor-trees/

Exercise 3F Prime factors and factor trees Non-calculator

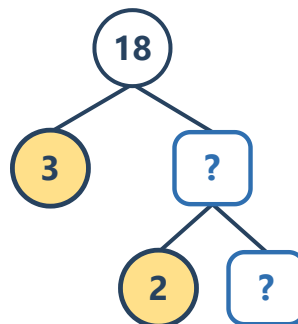
1 Write the missing numbers in each factor tree.

(a)



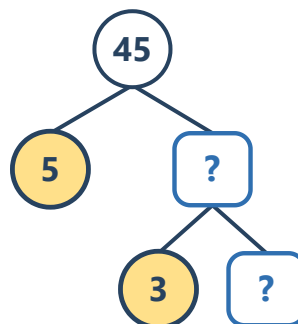
Answer: 4

(b)



Answer: 6, 3

(c)



Answer: 9, 3

2 Use a factor tree to write each number as a product of two prime numbers.

(a) 14

Answer: 2×7

(b) 21

Answer: 3×7

(c) 35

Answer: 5×7

(d) 15

Answer: 3×5

3 Write each number as a product of prime factors. Draw a factor tree to help.

(a) 24

Answer: $2 \times 2 \times 2 \times 3$

(b) 40

Answer: $2 \times 2 \times 2 \times 5$

(c) 45

Answer: $3 \times 3 \times 5$

(d) 50

Answer: $2 \times 5 \times 5$

4 Write each number as a product of prime factors.

(a) 60

Answer: $2 \times 2 \times 3 \times 5$

(b) 63

Answer: $3 \times 3 \times 7$

(c) 72

Answer: $2 \times 2 \times 2 \times 3 \times 3$

(d) 80

Answer: $2 \times 2 \times 2 \times 2 \times 5$

5 Write each number as a product of prime factors. Take care: there are more than three primes in each.

(a) 90

Answer: $2 \times 3 \times 3 \times 5$

(b) 96

Answer: $2 \times 2 \times 2 \times 2 \times 2 \times 3$

(c) 98

Answer: $2 \times 7 \times 7$

6 Each number is written as a product of prime factors. Work out the number.

(a) $2 \times 2 \times 3$

Answer: 12

(b) $2 \times 3 \times 5$

Answer: 30

(c) $3 \times 3 \times 5$

Answer: 45

(d) $2 \times 2 \times 2 \times 7$

Answer: 56

7 What are the prime factors of each number? Write each different prime once.

(a) 36

Answer: 2 and 3

(b) 100

Answer: 2 and 5

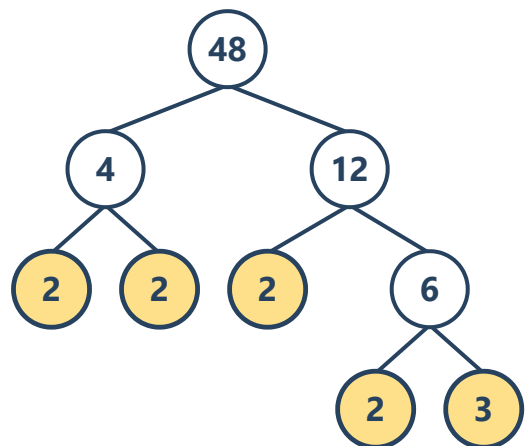
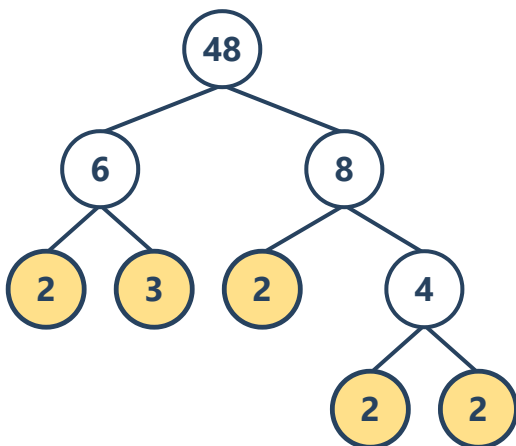
(c) 75

Answer: 3 and 5

(d) 84

Answer: 2, 3 and 7

8 Sam and Mia each draw a factor tree for 48. Sam starts with 6×8 . Mia starts with 4×12 .



(a) Write the prime factors from Sam's tree as a product.

Answer: $2 \times 2 \times 2 \times 2 \times 3$

(b) Write the prime factors from Mia's tree as a product.

Answer: $2 \times 2 \times 2 \times 2 \times 3$

(c) What do you notice?

Answer: The primes are exactly the same

9 A number is $2 \times 2 \times 3 \times 3$. Is each of these a factor of the number? Write Yes or No.

(a) 12

Answer: Yes

(b) 8

Answer: No

(c) 18

Answer: Yes

(d) 10

Answer: No

10 Noah writes, " $36 = 4 \times 9$, so the prime factors of 36 are 4 and 9." Is Noah right? Explain.

Answer: No. 4 and 9 are not prime. $36 = 2 \times 2 \times 3 \times 3$.

11 Which number does **not** have 3 as a prime factor? 18 27 45 50

Answer: 50

12 Always, sometimes or never?

(a) If a number is even, then 2 is one of its prime factors.

Answer: Always

(b) If 3 is a prime factor of a number, then the number is odd.

Answer: Sometimes

13 Challenge! I am an odd number less than 100. I am made by multiplying exactly four prime numbers (they can be the same). What number am I?

Answer: 81