

# Year 5: Prime factors and factor trees: worksheet

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

Name: \_\_\_\_\_

Date: \_\_\_\_\_

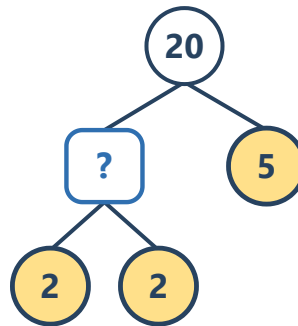
Score: \_\_\_\_\_

13 questions. Write your answers in the spaces. Answers and step-by-step help are free at [websink.site/ks2-sats/maths/year-5/ch03-factors-primes-squares-cubes/prime-factors-and-factor-trees/](https://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

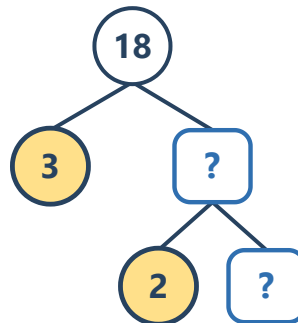
1 Write the missing numbers in each factor tree.

(a)



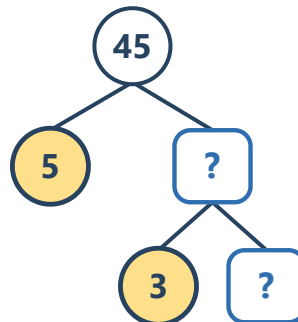
Answer: .....

(b)



Answer: .....

(c)



Answer: .....

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

(a) 14

Answer: .....

(b) 21

Answer: .....

(c) 35

Answer: .....

(d) 15

Answer: .....

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

(a) 24

Answer: .....

(b) 40

Answer: .....

(c) 45

Answer: .....

(d) 50

Answer: .....

**4 Write each number as a product of prime factors.**

(a) 60

Answer: .....

(b) 63

Answer: .....

(c) 72

Answer: .....

(d) 80

Answer: .....

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

(a) 90

Answer: .....

(b) 96

Answer: .....

(c) 98

Answer: .....

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

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

Answer: .....

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

Answer: .....

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

Answer:

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

Answer:

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

(a) 36

Answer:

(b) 100

Answer:

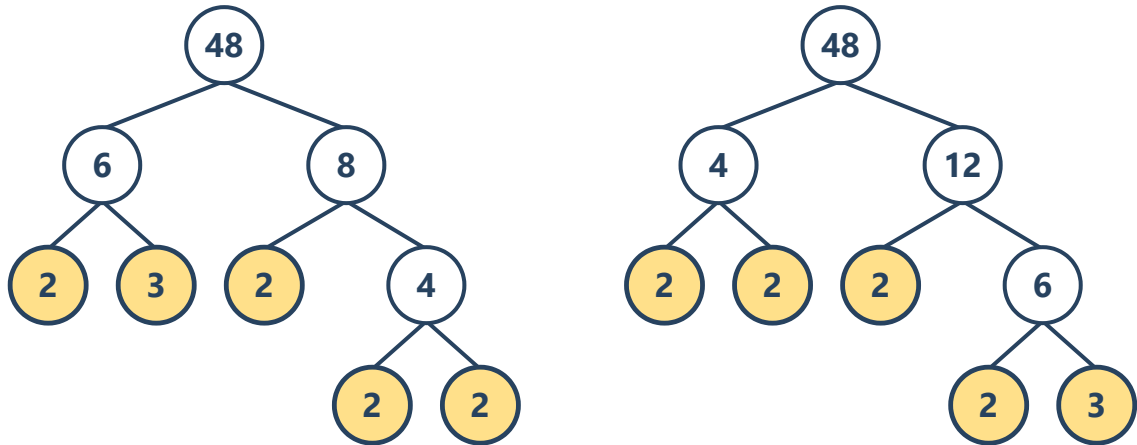
(c) 75

Answer:

(d) 84

Answer:

**8** Sam and Mia each draw a factor tree for 48. Sam starts with  $6 \times 8$ . Mia starts with  $4 \times 12$ .



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

Answer:

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

Answer:

(c) What do you notice?

Answer:

**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:

(b) 8

Answer:

(c) 18

Answer:

(d) 10

Answer:

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

Answer:

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

Answer:

- 12 Always, sometimes or never?

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

Answer:

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

Answer:

- 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: