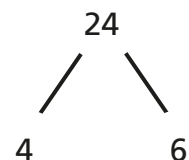
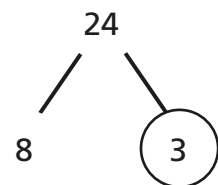
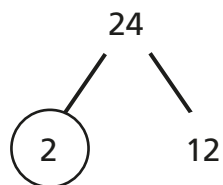


Write a number as a product of its prime factors

- 1 a) Complete the factor trees for the number 24



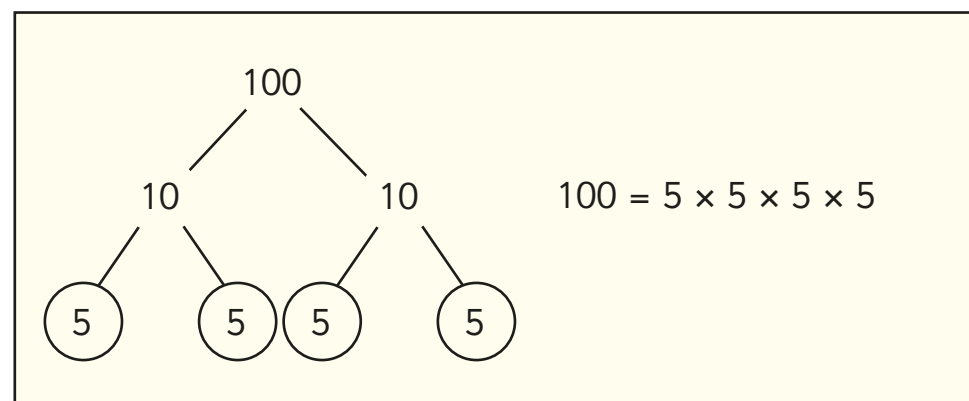
- b) What is 24, as a product of its prime factors?

$$24 = \square \times \square \times \square \times \square$$

- c) Discuss with a partner what you notice about your factor trees in part a).

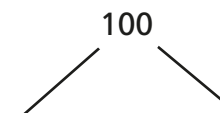


- 2 Scott completes a factor tree for the number 100



- a) What mistake has he made?

- b) Correct Scott's mistake.



$$100 = \square \times \square \times \square \times \square$$

- 3 Complete a factor tree for each number.
Write each number as a product of its prime factors.

- a)

80

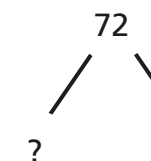
- b)

68

$$80 = \underline{\hspace{2cm}}$$

$$68 = \underline{\hspace{2cm}}$$

- 4 a) What number could replace the question mark in the factor tree?



- b) Discuss your answer with a partner.
Is there more than one solution?

- c) Write 72 as a product of its prime factors.

$$72 = \underline{\hspace{2cm}}$$



5 Write the numbers as products of their prime factors.

- a) $9 =$ _____ b) $8 =$ _____
 $18 =$ _____ $32 =$ _____
 $36 =$ _____ $64 =$ _____
 $81 =$ _____ $128 =$ _____

What do you notice about your answers?

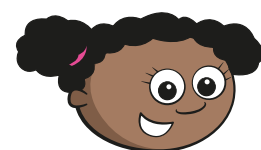
6 Four numbers have been written on cards as the product of their prime factors.

$$2 \times 3 \times 3 \times 5$$

$$2 \times 2 \times 2 \times 3 \times 5$$

$$2 \times 3 \times 5 \times 5$$

$$2 \times 2 \times 3 \times 5$$



The greatest number is the second card, as that has the most prime factors.

a) Do you agree with Whitney? _____

Explain your answer.

b) Write the numbers in ascending order.

7 Dani works out $450 = 2 \times 3 \times 3 \times 5 \times 5$

Use this information to write these numbers as a product of their prime factors.

$$900 =$$

$$225 =$$

$$4,500 =$$

$$150 =$$

8 A number has been written as the product of its prime factors.

The answer is $2^2 \times 3 \times 11^2$

Is 66 a factor of this number? _____

Explain how you know.

9 a)

f and g are prime numbers.
 $5fg = 275$ and $g > f$

What is the value of g ?

$$g =$$

b)

$192 = 2^a b$
 a and b are prime numbers.

Find the values of a and b .

$$a =$$

$$b =$$

c)

495 can be written as $c^2 de$.

What are the values of c , d and e ?

$$c =$$

$$d =$$

$$e =$$

10

$$A = 5^2 \times 7^2 \times 11^3 \times 13$$

$$B = 5^2 \times 7^3 \times 11^3 \times 13$$

How many times greater is B than A ? _____

Explain how you know.
