

# Use Prime Factor Decomposition



# Use Prime Factor Decomposition

1. Work out.

a)  $2^2 \times 3$

b)  $2 \times 3^2$

2. True or false?

a)  $\frac{2^4 \times 3}{2^4} = 3$

b)  $\frac{2^4 \times 3 \times 7}{2^3} = 3 \times 7$

c)  $\frac{2^4 \times 3 \times 7}{2^4 \times 7} = 3$

d)  $\frac{2^2 \times 3 \times 7}{2^4} = 2^2$

3. Match the number cards

Double  $3^2 \times 7$

$3 \times 7$

$3^2 \times 7$  tripled

$3^3 \times 7$

$2 \times 3 \times 7$  halved

$2 \times 3^2 \times 7$

4. Which cards are factors of  $2 \times 3^2 \times 11$ ?

$3^3$

3

$2 \times 3^2$

$2 \times 11$

$2 \times 3 \times 11$

$2^2 \times 11$



# Use Prime Factor Decomposition

5. Square each number.

Give your answer in prime index form.

a)  $3 \times 5^3 \times 7$

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

6. Work out the square root of each number. Give your answer in prime index form.

a)  $3^2 \times 5^2$

b)  $3^2 \times 5^4$

7.

$$A = 3 \times 5^3 \times 7$$

$$B = 2 \times 3^2 \times 5$$

Decide whether each statement is true or false. Explain your answer.

a) A is even.

b) 3 is a factor of both A and B.

c) 15 is a factor of both A and B.



# Answers



# Use Prime Factor Decomposition

1. Work out.

a)  $2^2 \times 3 = 12$

b)  $2 \times 3^2 = 18$

2. True or false?

a)  $\frac{2^4 \times 3}{2^4} = 3$

True

b)  $\frac{2^4 \times 3 \times 7}{2^3} = 3 \times 7$

False

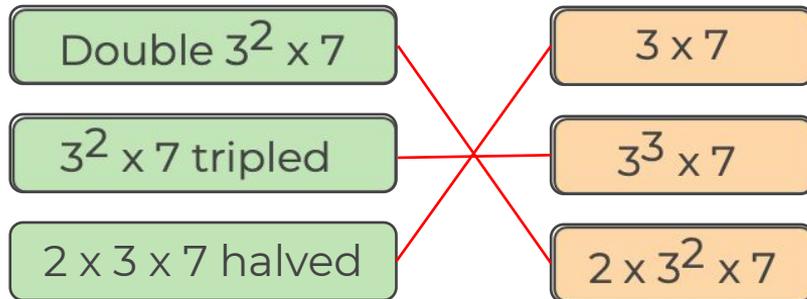
c)  $\frac{2^4 \times 3 \times 7}{2^4 \times 7} = 3$

True

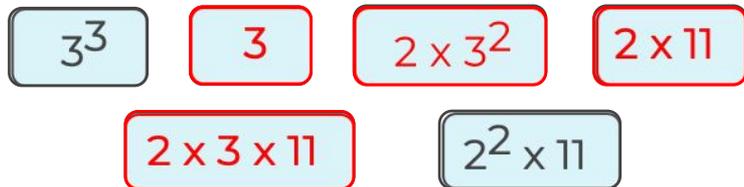
d)  $\frac{2^2 \times 3 \times 7}{2^4} = 2^2$

False

3. Match the number cards



4. Which cards are factors of  $2 \times 3^2 \times 11$ ?



# Use Prime Factor Decomposition

5. Square each number.

Give your answer in prime index form.

a)  $3 \times 5^3 \times 7$

$3^2 \times 5^6 \times 7^2$

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

$2^2 \times 3^4 \times 5^2$

6. Work out the square root of each number. Give your answer in prime index form.

a)  $3^2 \times 5^2$

$3 \times 5$

b)  $3^2 \times 5^4$

$3 \times 5^2$

7.

$$A = 3 \times 5^3 \times 7$$

$$B = 2 \times 3^2 \times 5$$

Decide whether each statement is true or false. Explain your answer.

a) A is even.

False – it doesn't have 2 as a factor.

b) 3 is a factor of both A and B. True – they both have 3 in their prime factorisation.

c) 15 is a factor of both A and B.

True – they both have  $3 \times 5$  in their prime factorisation.

