

## 80. Prime Factors

### Practice Questions:

1. Write 20 as a product of its prime factors.

2. Write 28 as a product of its prime factors.

3. Write 32 as a product of its prime factors.

4. Write 45 as a product of its prime factors.

5. Write 50 as a product of its prime factors.

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### Practice Questions:

6. Write 42 and 56 as products of their prime factors. Use this to find the HCF of 42 and 56.

7. Write 48 and 60 as products of their prime factors. Use this to find the HCF of 48 and 60.

8. Write 18 and 30 as products of their prime factors. Use this to find the LCM of 18 and 30.

9. Write 21 and 35 as products of their prime factors. Use this to find the LCM of 21 and 35.

10. Write 36 and 54 as products of their prime factors. Use this to find both the HCF and the LCM of 36 and 54.

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### Scenario Questions:

1. A teacher is setting a maths puzzle. She chooses the number 48 and asks students to write it as a product of its prime factors. What should they write?

2. A farmer counts 36 chickens in the yard. Express 36 as a product of its prime factors.

3. A baker bakes 51 loaves of bread. Write 51 as a product of its prime factors.

4. A builder orders 50 bricks. Express 50 as a product of its prime factors.

5. A cyclist records a distance of 84 km in a week. Write 84 as a product of its prime factors.

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### Scenario Questions:

6. A teacher says, " $72 = 2^3 \times 3^2$ ." Is she correct? Use prime factorisation to show your working.

7. Write down the prime factor decomposition of 60. Then use it to list all the factors of 60.

8. The number 96 can be written as 2 to the power of something, multiplied by 3. Find its prime factor decomposition.

9. Two numbers are given:  $48 = 2^4 \times 3$  and  $54 = 2 \times 3^3$ . Use their prime factor decompositions to find the highest common factor (HCF).

10. A student claims that  $2 \times 3 \times 7 \times 11 = 462$ . Is he correct? Show your working by checking the prime factor decomposition of 462.

# ANSWERS

## *Topic 80. Prime Factors*

### Practice Questions:

1.  $2^2 \times 5$

2.  $2^2 \times 7$

3.  $2^5$

4.  $3^2 \times 5$

5.  $2 \times 5^2$

6.  $\text{HCF} = 14$

7.  $\text{HCF} = 12$

8.  $\text{LCM} = 90$

9.  $\text{LCM} = 105$

10.  $\text{HCF} = 18, \text{LCM} = 108$

### Scenario Questions:

1.  $2^4 \times 3$

2.  $2^2 \times 3^2$

3.  $3 \times 17$

4.  $2 \times 5^2$

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

6. No –  $2^3 \times 3^2$

7.  $60 = 2^2 \times 3 \times 5$

8.  $2^5 \times 3$

9.  $\text{HCF} = 6$

10. No –  $2 \times 3 \times 7 \times 11$

**Verify Answers**