Name:

Exam Style Questions

Product of Primes
LCM and HCF

Corbettmaths

Equipment needed: Pen and Calculator

Guidance

1. Read each question carefully before you begin answering it.
2. Check your answers seem right.
3. Always show your workings

Video Tutorial

www.corbettmaths.com/contents

Videos 223, 224

Answers and Video Solutions

1.   Express 36 as a product of its prime factors.

....
(2)

2.   Express 100 as a product of its prime factors.

....
(2)

3.   Write 42 as a product of its prime factors.

....
(2)

4. Write 24 as the product of its prime factors.
Give your answer in index form.

....
(3)

5. Write 360 as a product of its prime factors.

....
(2)

6. Write 5760 as a product of prime factors.

Give your answer in index form.

....
(1)

7. A number is written as a product of its prime factors as $2 \times 3^2 \times 5$

Work out the number.

....
(2)

8. Given that $18000 = 2^a \times 3^b \times 5^c$

Find the values of a, b and c.

a = ...

b = ...

c = ...
(2)

9. $3x^2 = 75$

where x is a prime number.

(a) Find the value of x.

....
(2)

(b) Express 75 as a product of its prime factors.

....
(2)

10.   Given that $3x^3 = 375$ and x is a prime number.
       Find the value of x.

....
                                                                            (2)

11.   You are given that $m = 2^3 \times 5$

       (a) Work out 10m

....
                                                                            (2)

       (b) Write 10m as a product of primes

....
                                                                            (2)

12. $y = 3^2 \times 5^4$

Write $50y$ as a product of prime factors in index form.

....

(2)

___

13. (a) Write 48 as a product of its prime factors.

....

(2)

(b) Find the Highest Common Factor (HCF) of 48 and 56.

....

(2)

14. (a) Write 60 as a product of its prime factors.

....
(2)

(b) Find the Lowest Common Multiple (LCM) of 60 and 75.

....
(2)

15. (a) Write 132 as a product of its prime factors.

....
(2)

(b) Find the Highest Common Factor (HCF) of 88 and 132.

....
(2)

16. Find the lowest common multiple (LCM) of 28 and 63.

....
(2)

17. Find the lowest common multiple (LCM) of 36 and 54.

....
(2)

18. $480 = 2^5 \times 3 \times 5$

Find the highest common factor (HCF) of 480 and 168

....

(3)

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19. $C = 2^5 \times 3^2 \times 7^4 \qquad D = 2 \times 3^2 \times 5 \times 7^2$

(a) Find the highest common factor (HCF) of C and D.

....

(2)

(b) Find the lowest common multiple (LCM) of C and D.

....

(2)

20. You are given that $45 = 3^2 \times 5$

(a) Write each of the following as the product of prime factors in index form.

(i) 90

....
(1)

(ii) 135

....
(1)

(iii) 450

....
(1)

(b) What is the lowest common multiple (LCM) of 36 and 45.

....
(2)

(c) What is the highest common factor (HCF) of 36 and 45.

....
(2)

21.   (a) Express 108 as a product of its prime factors.
         Give your answer in index form.

....
                                                                          (2)

      (b) Find the Highest Common Factor (HCF) of 108 and 72.

....
                                                                          (2)

22.   Find the Lowest Common Multiple (LCM) of 140 and 200

....
                                                                          (3)

23.   (a) Work out 6 x 12 as the product of prime factors.
       Give your answer in index form.

....

(3)

(b) Find the Highest Common Factor (HCF) of y and 5y.

....

(1)

24.   (a) Write 1008 as a product of prime factors.
       Express your answer in index form.

....

(2)

(b) Hence find the **lowest** whole number by which 1008 would need to be
     multiplied by to give a square number.

....

(1)

25. Find the lowest common multiple of 19 and 34.

....
(2)

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26. $16200 = 2^3 \times 3^4 \times 5^2$

Write down the lowest whole number by which 16200 needs to be multiplied by to make a **cube** number.

....
(2)

---

27. $4116 = 2^2 \times 3 \times 7^3$

Write down the lowest integer by which 4116 needs to be multiplied by to make a **square** number.

....
(2)

28. (a) Write 576 as a product of primes.

....
(2)

(b) Hence find $\sqrt{576}$

....
(2)

---

29. (a) Write 1728 as a product of primes.

....
(2)

(b) Hence find $\sqrt[3]{1728}$

....
(2)

30. $A = 3^3 \times c$

$B = 3^2 \times c^2 \times d$

The highest common factor (HCF) of A and B is 99

The lowest common multiple (LCM) of A and B is 16335

Find B.

....

(4)