GCSE Maths: Prime numbers (Foundation): answers

GCSE Maths - Factors, Multiples and Primes - Foundation - Lesson 2.2

Answers. Final answers to the worksheet questions. Full step-by-step solutions for every question are free at **websink.site/gcse/maths/ch02-factors-multiples-primes-powers/foundation/prime-numbers/**

Exercise 2B Prime numbers Non-calculator

1 Write down the prime numbers in each list.

(a) 2, 9, 11, 15, 17

Answer: 2, 11, 17

(b) 1, 4, 13, 21, 23

Answer: 13, 23

(c) 27, 29, 31, 33

Answer: 29, 31

(d) 35, 37, 39, 41

Answer: 37, 41

(e) 43, 45, 47, 49

Answer: 43, 47

(f) 51, 53, 55, 57

Answer: 53

2 List the prime numbers between 10 and 30.

Answer: 11, 13, 17, 19, 23, 29

3 Is each number prime? If not, write it as a product of two smaller numbers.

(a) 51

Answer: Not prime ($51 = 3 \times 17$)

(b) 57

Answer: Not prime ($57 = 3 \times 19$)

(c) 61

Answer: Prime

(d) 77

Answer: Not prime ($77 = 7 \times 11$)

(e) 87

Answer: Not prime ($87 = 3 \times 29$)

(f) 89

Answer: Prime

4 **Is each number prime? Use the test with primes up to the square root.**

(a) 101

Answer: Prime

(b) 119

Answer: Not prime (119 = 7 × 17)

(c) 133

Answer: Not prime (133 = 7 × 19)

(d) 143

Answer: Not prime (143 = 11 × 13)

(e) 149

Answer: Prime

(f) 157

Answer: Prime

5 **Find the prime number that is:**

(a) the only even prime number

Answer: 2

(b) between 90 and 100

Answer: 97

(c) one more than 4^2

Answer: 17

(d) the smallest prime number greater than 50

Answer: 53

(e) the largest prime number less than 30

Answer: 29

(f) a factor of 35 that is bigger than 5

Answer: 7

6 **Raffle tickets are numbered 1 to 30. A prime-numbered ticket wins a prize. How many tickets win?**

Answer: 10

7 **Two different prime numbers multiply to give the number shown. Find the two primes and add them.**

(a) 77

Answer: 7 and 11; sum 18

(b) 143

Answer: 11 and 13; sum 24

8 **Explain why 2 is the only even prime number.**

Answer: Every other even number is divisible by 2 so has at least three factors (1, 2 and itself)

9 **Zoe says: "All odd numbers are prime." Give an example to show she is wrong.**

Answer: 9 is odd but $9 = 3 \times 3$ is not prime

10 **Sam says: "1 is a prime number, because its only factors are 1 and itself." Explain his mistake.**

Answer: A prime must have exactly two factors. 1 has only one.

11 **Two prime numbers p and q have $p + q = 24$ and $p \times q = 143$. Find p and q.**

Answer: 11 and 13

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