# Prime and Composite Numbers up to 100

**Unit: Factors & Multiples - Student Practice Worksheet**

***Overview: Anaya had 12 tiles and made a rectangle three different ways. Kabir had 13 tiles and could only make one — a single long line. Thirteen was not being difficult. It simply had nothing else to offer.***

## Practice Questions (30 Total)

### Section A - Easy

**Q1. Even teal block with only two factors. Which even number is prime?**

even, only two factors

- [ ] **A.** 4
- [ ] **B.** 0
- [ ] **C.** There is none
- [ ] **D.** 2

**Q2. How many factors does a prime number have?**

- [ ] **A.** Exactly 2
- [ ] **B.** Exactly 1
- [ ] **C.** More than 2
- [ ] **D.** It varies

**Q3. Is 9 a prime number?**

- [ ] **A.** Yes
- [ ] **B.** No, it has three factors
- [ ] **C.** Yes, because it is odd
- [ ] **D.** It is neither

**Q4. List every prime below 10.**

2 3 5 7 below 10

- [ ] **A.** 2, 3, 5, 7
- [ ] **B.** 1, 2, 3, 5, 7
- [ ] **C.** 1, 3, 5, 7, 9
- [ ] **D.** 3, 5, 7

**Q5. What kind of number is 1?**

- [ ] **A.** Prime
- [ ] **B.** Composite
- [ ] **C.** Neither prime nor composite
- [ ] **D.** Both

**Q6. Is 15 composite?**

- [ ] **A.** No, it is prime
- [ ] **B.** Yes, it is 3 × 5
- [ ] **C.** It is neither
- [ ] **D.** Only if it is even

**Q7. 12 shown as two rectangles. List all factors of 12.**

12 as 3×4 and 2×6

- [ ] **A.** 1, 2, 3, 12
- [ ] **B.** 1, 2, 3, 4, 6, 12
- [ ] **C.** 2, 3, 4, 6
- [ ] **D.** 1, 12

**Q8. How many factors does a composite number have?**

- [ ] **A.** Exactly 2
- [ ] **B.** Exactly 1
- [ ] **C.** Exactly 3
- [ ] **D.** More than 2

**Q9. Is 17 prime?**

- [ ] **A.** Yes, its only factors are 1 and 17
- [ ] **B.** No
- [ ] **C.** It is neither
- [ ] **D.** Only if you count 1

**Q10. What is the smallest prime, and why 1 is not it?**

- [ ] **A.** 0
- [ ] **B.** 1
- [ ] **C.** 2
- [ ] **D.** 3

## Section B - Medium

**Q11. Number line from 10 to 20. Which numbers in between are prime?**


- [ ] **A.** 11, 13, 15, 17, 19
- [ ] **B.** 11, 13, 17, 19
- [ ] **C.** 13, 17, 19
- [ ] **D.** 11, 13, 17, 19, 21

**Q12. A number has exactly 3 factors. What kind of number is it?**

- [ ] **A.** Prime
- [ ] **B.** Neither
- [ ] **C.** Impossible
- [ ] **D.** Composite

**Q13. List the prime numbers between 20 and 30.**

- [ ] **A.** 21, 23, 29
- [ ] **B.** 23, 27, 29
- [ ] **C.** 23, 29
- [ ] **D.** 23, 25, 29

**Q14. How many primes sit below 20?**

primes below 20: how many?

- [ ] **A.** 7
- [ ] **B.** 9
- [ ] **C.** 6
- [ ] **D.** 8

**Q15. Which pair are twin primes?**

- [ ] **A.** 7 and 9
- [ ] **B.** 23 and 25
- [ ] **C.** 11 and 13
- [ ] **D.** 2 and 4

**Q16. Is 51 prime?**

- [ ] **A.** No, it is 3 × 17
- [ ] **B.** Yes
- [ ] **C.** No, it is 7 × 7
- [ ] **D.** It is neither

**Q17. 36 as a square. List all of its factors.**

36 as a 6 by 6 square

- [ ] **A.** 1, 2, 3, 6, 12, 36
- [ ] **B.** 1, 4, 9, 36
- [ ] **C.** 1, 2, 3, 4, 6, 9, 12, 18, 36
- [ ] **D.** 2, 3, 4, 6, 9, 12, 18

**Q18. Which of these is composite?**

- [ ] **A.** 87
- [ ] **B.** 83
- [ ] **C.** 89

- [ ] **D.** 79

**Q19. Is 49 prime?**

- [ ] **A.** Yes
- [ ] **B.** No, it is 7 × 7
- [ ] **C.** No, it is 3 × 16
- [ ] **D.** It is neither

**Q20. Is 97 prime? Name the divisors you must test, up to 7.**

- [ ] **A.** No, it is 7 × 13
- [ ] **B.** No, it is divisible by 3
- [ ] **C.** It is neither
- [ ] **D.** Yes

## Section C - Challenge

**Q21. How many primes are there between 1 and 100?**

1 to 100

count the primes

- [ ] **A.** 20
- [ ] **B.** 30
- [ ] **C.** 25
- [ ] **D.** 26

**Q22. Why is 1 neither prime nor composite?**

- [ ] **A.** It has only one factor
- [ ] **B.** It is too small
- [ ] **C.** It is odd
- [ ] **D.** It divides everything

**Q23. To test whether 97 is prime, up to which divisor must you check?**

- [ ] **A.** 96
- [ ] **B.** 9
- [ ] **C.** 48

- [ ] **D.** 5

**Q24. Largest prime below 50, on the 40-to-50 stretch.**

40 50

- [ ] **A.** 47
- [ ] **B.** 49
- [ ] **C.** 43
- [ ] **D.** 51

**Q25. Can the product of two prime numbers ever be prime?**

- [ ] **A.** Yes, sometimes
- [ ] **B.** Only if one of them is 2
- [ ] **C.** No — it has at least four factors
- [ ] **D.** Only for twin primes

**Q26. Is 143 prime?**

- [ ] **A.** Yes
- [ ] **B.** No, it is 11 × 13
- [ ] **C.** No, it is 3 × 47
- [ ] **D.** No, it is 7 × 21

**Q27. Sieve to 100: which multiples do you cross out?**

sieve to 100

cross 2, 3, 5, 7

- [ ] **A.** All multiples of every number
- [ ] **B.** Only the even numbers
- [ ] **C.** Multiples of 2 to 50
- [ ] **D.** Multiples of 2, 3, 5 and 7

**Q28. Kabir tested 91 against 2, 3 and 5, found nothing, and called it prime. What did he miss?**

- [ ] **A.** That 91 is even
- [ ] **B.** That its digit sum is 10
- [ ] **C.** That 91 is above 100
- [ ] **D.** He stopped before testing 7

**Q29. Which pair of primes adds up to 20?**

- [ ] **A.** 1 and 19
- [ ] **B.** 3 and 17
- [ ] **C.** 9 and 11
- [ ] **D.** 5 and 15

**Q30. Prime factors of 60, without listing 1 or 6.**

- [ ] **A.** 1, 2, 3, 5
- [ ] **B.** 2, 3, 5, 6
- [ ] **C.** 2, 4, 15
- [ ] **D.** 2, 3, 5

## Answer Key

**Q1:** (D) (d) 2. Every other even number has 2 as an extra factor, making it composite.

**Q2:** (A) (a) Exactly 2 — one and itself. Option (b) describes the number 1, which is why 1 is not prime.

**Q3:** (B) (b) No, it has three factors: 1, 3 and 9. Option (c) is the common trap that odd means prime.

**Q4:** (A) (a) 2, 3, 5, 7. Option (b) wrongly includes 1, and option (c) includes 9, which is 3 × 3.

**Q5:** (C) (c) Neither prime nor composite. It has only one factor, so it fits neither definition.

**Q6:** (B) (b) Yes, it is 3 × 5. Its factors are 1, 3, 5 and 15 — four in all.

**Q7:** (B) (b) 1, 2, 3, 4, 6, 12. Six factors, which is why 12 makes three different rectangles.

**Q8:** (D) (d) More than 2. It may have three, four or many more — the point is simply that it is over two.

**Q9:** (A) (a) Yes, its only factors are 1 and 17. Nothing from 2 to 4 divides it, and 5 × 5 already passes 17.

**Q10:** (C) (c) 2. Option (b) is the usual answer but 1 has only one factor.

**Q11:** (B) (b) 11, 13, 17, 19. Option (a) includes 15, which is 3 × 5.

**Q12:** (D) (d) Composite, since three is more than two. Numbers like 9, 25 and 49 have exactly three factors.

**Q13:** (C) (c) 23 and 29. Option (b) includes 27, which is 3 × 9, and option (d) includes 25, which is 5 × 5.

**Q14:** (D) (d) 8 — namely 2, 3, 5, 7, 11, 13, 17 and 19. Option (b) usually comes from counting 1 as well.

**Q15:** (C) (c) 11 and 13 — both prime and exactly two apart. In the other options one member of each pair is composite.

**Q16:** (A) (a) No, it is 3 × 17. Its digit sum is 6, which flags the factor of 3 immediately.

**Q17:** (C) (c) 1, 2, 3, 4, 6, 9, 12, 18, 36 — nine factors. Option (d) forgets both 1 and 36.

**Q18:** (A) (a) 87, which is 3 × 29 — its digit sum is 15. The other three are all prime.

**Q19:** (B) (b) No, it is 7 × 7. Anyone who stops testing at 5 will call this prime by mistake.

**Q20:** (D) (d) Yes. Test 2, 3, 5 and 7 — none divides it, and 11 × 11 already passes 97.

**Q21:** (C) (c) 25. Option (d) is what you get by also counting 1.

**Q22:** (A) (a) It has only one factor. Prime needs exactly two and composite needs more than two, so 1 misses both.

**Q23:** (B) (b) 9, because 10 × 10 = 100 already passes 97. Option (d) is the usual stopping point that misses factors of 7.

**Q24:** (A) (a) 47. Option (b) is 7 × 7, and option (d) is above 50 as well as being 3 × 17.

**Q25:** (C) (c) No — it has at least four factors: 1, each prime, and the product itself. So it is always composite.

**Q26:** (B) (b) No, it is 11 × 13. Since 143 is above 100 you must test 11 as well, which is why it escapes the shorter check.

**Q27:** (D) (d) Multiples of 2, 3, 5 and 7. Beyond 7 is wasted work, because 11 × 11 already exceeds 100.

**Q28:** (D) (d) He stopped before testing 7, and 91 = 7 × 13. Stopping at 5 is the single most common way to call a composite prime.

**Q29:** (B) (b) 3 and 17, both prime. Option (a) uses 1, which is not prime, and the other options each contain a composite.

**Q30:** (D) (d) 2, 3 and 5, since 60 = 2 × 2 × 3 × 5. Option (a) includes 1, which is not prime, and option (b) includes 6, which is composite.

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***You've got this! Keep learning and shining! - Ruchi Math Coaching***