

Divisibility Rules for 2, 3, 4, 5, 6, 9 and 10

Unit: Factors & Multiples - Student Practice Worksheet

Overview: 234 chairs, to be arranged in rows of 3 with none left over. Kabir started dividing. Anaya added 2, 3 and 4 in her head, got 9, and said yes. She was finished before he had written the first line.

Practice Questions (30 Total)

Section A - Easy

Q1. Last digit of 48 highlighted. Divisible by 2?

4 **8**

- ☐ A. Yes, it ends in an even digit
- ☐ B. No
- ☐ C. Only if you add the digits
- ☐ D. You must divide to know

Q2. Which digits may a number end in to be divisible by 5?

- ☐ A. 0 only
- ☐ B. 0 or 5
- ☐ C. 5 only
- ☐ D. Any odd digit

Q3. Is 27 divisible by 3?

- ☐ A. No
- ☐ B. Only by 9
- ☐ C. Yes, its digit sum is 9
- ☐ D. Yes, because it is odd

Q4. For divisibility by 10, what must the last digit be?

...n must end in

0

- ☐ A. 5
- ☐ B. An even digit
- ☐ C. 1
- ☐ D. 0

Q5. Which digits does the divisibility test for 4 look at?

- ☐ A. The last digit
- ☐ B. The last two digits
- ☐ C. The digit sum
- ☐ D. The first two digits

Q6. Is 51 divisible by 2?

- ☐ A. Yes
- ☐ B. Yes, its digit sum is 6
- ☐ C. No, it ends in an odd digit
- ☐ D. Only by 4

Q7. Add the digits of 56. What is the digit sum?

$$5 + 6 = ?$$

- ☐ A. 56
- ☐ B. 11
- ☐ C. 30
- ☐ D. 13

Q8. Is 85 divisible by 10?

- ☐ A. No, it does not end in 0
- ☐ B. Yes
- ☐ C. Yes, because it ends in 5
- ☐ D. Only if you add the digits

Q9. Is 72 divisible by 6?

- ☐ A. No
- ☐ B. Only by 2
- ☐ C. Only by 3
- ☐ D. Yes, it passes both the 2 and 3 tests

Q10. Is 63 divisible by 9, and what does that imply for 3?

- ☐ A. Yes, its digit sum is 9
- ☐ B. No
- ☐ C. Only by 3
- ☐ D. Only if it is even

Section B - Medium

Q11. Last two digits of 1236 highlighted. Divisible by 4?

12

36

- ☐ A. No
- ☐ B. Yes, because 36 divides by 4
- ☐ C. Yes, because its digit sum is 12
- ☐ D. Only by 2

Q12. A number is even and its digit sum is 15. Which of these must divide it?

- ☐ A. 9
- ☐ B. 4
- ☐ C. 6
- ☐ D. 5

Q13. Is 4050 divisible by 9?

- ☐ A. No
- ☐ B. Only by 3
- ☐ C. Yes, its digit sum is 9
- ☐ D. Only by 5

Q14. Last two digits of 5432 highlighted. Divisible by 4?

54

32

- ☐ A. Yes, because 32 divides by 4
- ☐ B. No
- ☐ C. Yes, because it is even
- ☐ D. Only by 8

Q15. Which of these divides 3690 exactly?

- ☐ A. 2, 3, 5, 9 and 10
- ☐ B. 2 and 5 only
- ☐ C. 3 and 9 only
- ☐ D. 4 and 6 only

Q16. Is 738 divisible by 6?

- ☐ A. No, it fails the 2 test
- ☐ B. No, it fails the 3 test
- ☐ C. Only by 3
- ☐ D. Yes, it passes both tests

Q17. 2345 ends in maroon 5. Divisible by 5?

234

5

- ☐ A. No
- ☐ B. Only by 10
- ☐ C. Only if its digit sum divides by 5
- ☐ D. Yes, it ends in 5

Q18. Is 8100 divisible by 9?

- ☐ A. No
- ☐ B. Only by 3
- ☐ C. Yes, its digit sum is 9

☐ **D.** Only by 10

Q19. What is the digit sum of 6789, and is the number divisible by 3?

☐ **A.** 30, and no

☐ **B.** 30, and yes

☐ **C.** 21, and yes

☐ **D.** 24, and no

Q20. Is 1111 divisible by 2, and why the digit sum does not decide it?

☐ **A.** Yes

☐ **B.** Yes, its digit sum is 4

☐ **C.** Only by 11

☐ **D.** No, it ends in an odd digit

Section C - Challenge

Q21. Which digits x make $34x$ divisible by 3?

34 **x** divisible by 3

☐ **A.** 2 only

☐ **B.** 2 and 5

☐ **C.** 2, 5 and 8

☐ **D.** 0, 3, 6 and 9

Q22. Why does the divisibility rule for 4 use only the last two digits?

☐ **A.** Because 100 divides exactly by 4

☐ **B.** Because 4 is an even number

☐ **C.** Because two digits are easier to check

☐ **D.** Because 10 divides by 4

Q23. Find the digit x that makes $12x$ divisible by 9.

☐ **A.** 3

☐ **B.** 0

☐ **C.** 9

☐ D. 6

Q24. Smallest 3-digit number divisible by both 4 and 9.

$\div 4$ and $\div 9$

smallest 3-digit

☐ A. 108

☐ B. 100

☐ C. 144

☐ D. 136

Q25. If a number is divisible by 3, must it be divisible by 9?

☐ A. Yes, always

☐ B. No — 12 is a counterexample

☐ C. Only if it is even

☐ D. Only if it ends in 3

Q26. Is 111111 divisible by 3?

☐ A. No

☐ B. Only by 11

☐ C. Only by 7

☐ D. Yes, its digit sum is 6

Q27. 234 chairs in rows of 3: digit sum 9. Why does that settle it?

$$2+3+4 = 9$$

☐ A. Its digit sum is 9, a multiple of 3

☐ B. Because 234 is even

☐ C. Because it ends in 4

☐ D. She divided it quickly in her head

Q28. Why does adding the digits test for divisibility by 3?

☐ A. Because digits are always smaller than 10

- ☐ **B.** Because every power of ten leaves remainder 1 when divided by 3
- ☐ **C.** Because 3 is an odd number
- ☐ **D.** It is a rule with no explanation

Q29. A number passes both the 2 test and the 3 test. What else must be true?

- ☐ **A.** It is divisible by 9
- ☐ **B.** It is divisible by 5
- ☐ **C.** It is divisible by 6
- ☐ **D.** It is divisible by 12

Q30. Why 2-and-6 tests fail for 12, using 18 as the counterexample.

- ☐ **A.** Because 12 is too large
- ☐ **B.** Because 6 has no divisibility rule
- ☐ **C.** Because there is no rule for 12
- ☐ **D.** Because 2 and 6 share a factor, so 18 passes both

Answer Key

Q1: (A) (a) Yes, it ends in an even digit. The 2 test needs only the last digit.

Q2: (B) (b) 0 or 5. Option (a) is the rule for 10, which is stricter.

Q3: (C) (c) Yes, its digit sum is 9. Option (d) gives the right answer for entirely the wrong reason — being odd has nothing to do with it.

Q4: (D) (d) 0. Ending in 5 makes it divisible by 5 but not by 10.

Q5: (B) (b) The last two digits, because 100 divides exactly by 4 and so contributes no remainder.

Q6: (C) (c) No, it ends in an odd digit. Its digit sum of 6 does make it divisible by 3, which is what option (b) is baiting.

Q7: (B) (b) 11. Five plus six. Since 11 is not a multiple of 3, neither is 56.

Q8: (A) (a) No, it does not end in 0. Ending in 5 gets you divisibility by 5 only.

Q9: (D) (d) Yes, it passes both the 2 and 3 tests. It is even, and $7 + 2 = 9$.

Q10: (A) (a) Yes, its digit sum is 9. And since 9 divides it, 3 must divide it too.

Q11: (B) (b) Yes, because 36 divides by 4. Option (c) uses the digit-sum rule, which belongs to 3 and 9, not 4.

Q12: (C) (c) 6. It passes the 2 test and the 3 test. It fails 9 because 15 is not a multiple of 9.

Q13: (C) (c) Yes, its digit sum is 9. It happens to be divisible by 5 too, but that is a separate rule.

Q14: (A) (a) Yes, because 32 divides by 4. Option (c) is not enough — every number divisible by 4 is even, but not every even number is divisible by 4.

Q15: (A) (a) 2, 3, 5, 9 and 10. It ends in 0 and its digit sum is 18, so it passes every one of those tests.

Q16: (D) (d) Yes, it passes both tests. It is even, and $7 + 3 + 8 = 18$.

Q17: (D) (d) Yes, it ends in 5. Option (c) invents a rule — there is no digit-sum test for 5.

Q18: (C) (c) Yes, its digit sum is 9. Zeros contribute nothing to a digit sum.

Q19: (B) (b) 30, and yes. Six plus seven plus eight plus nine is 30, which is a multiple of 3.

Q20: (D) (d) No, it ends in an odd digit. The digit sum in option (b) is irrelevant to the 2 test.

Q21: (C) (c) 2, 5 and 8. The digit sum is $7 + x$, which must reach 9, 12 or 15. Option (d) answers as though the sum were already a multiple of 3.

Q22: (A) (a) Because 100 divides exactly by 4. Every hundred, thousand and beyond therefore contributes no remainder. Option (d) is false — $10 \div 4$ leaves 2.

Q23: (D) (d) 6. The digit sum is $3 + x$, and only $3 + 6 = 9$ works for a single digit. Option (a) makes the sum 6, which passes the 3 test but not the 9 test.

Q24: (A) (a) 108. It must be a multiple of 36, and $36 \times 3 = 108$ is the first with three digits. Option (d) divides by 4 but its digit sum is 10.

Q25: (B) (b) No — 12 is a counterexample. Its digit sum is 3, so it passes the 3 test, but $12 \div 9$ leaves a remainder.

Q26: (D) (d) Yes, its digit sum is 6. Six ones add to 6, which is a multiple of 3.

Q27: (A) (a) Its digit sum is 9, a multiple of 3. Being even, as option (b) says, tests for 2 rather than 3.

Q28: (B) (b) Because every power of ten leaves remainder 1 when divided by 3, so each digit contributes exactly itself as a leftover.

Q29: (C) (c) It is divisible by 6, since 6 is 2×3 and those two share no factor. Option (d) does not follow — 18 passes both tests and is not divisible by 12.

Q30: (D) (d) Because 2 and 6 share a factor, so 18 passes both and is not divisible by 12. Use 3 and 4 instead, which share no factor.

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