

CLAT Community

daily
QT

SECTIONAL TEST

43

DAYS TO GO FOR
CLAT 2027



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OUR RANKERS

1 in every 4 of CLAT Community's students
are now placed in Top 5 NLU's.



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HRISHIT PODDAR



ROHAN YADAV



TEJAS ROY



ANIRUDDH BAJAJ



KABIR WADHWANI



CANCHI SISTLA AKSHARA



SHIVAM TRIPATHI



HARDIK GAUTAM



MANYA BHASKAR



NAMASHRITA GOPINATH



RONIL DHASAL



VEDA RAO



SAMANDAR SINGH



GANJI HAINDAVI



SAHISHNA



PRANAV. S

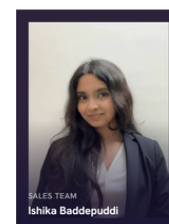
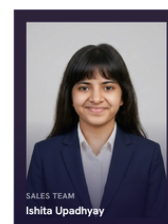
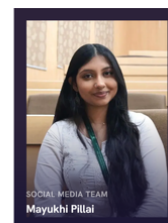
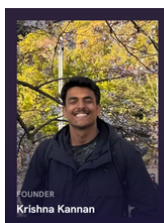
AND
MANY
MORE.

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OUR COURSES



OUR MENTORS



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MENTORS' NOTE

Good morning everyone,

If you're reading this, you're already doing something that thousands of CLAT aspirants never do—you've shown up today. That might sound like a small thing, but over the next few months you'll realise that success in CLAT is rarely decided by one brilliant mock or one 12-hour study session. It's decided by the hundreds of ordinary days where you choose to sit down and study even when you don't feel like it.

The entire CLAT Community team is rooting for you. Whenever you're stuck, ask doubts, discuss questions, and make use of the people around you. You don't have to prepare alone. We hope today's material helps you take one more step towards your dream.

Now stop reading this note and get to work. Your future self will thank you for the effort you put in today.

All the best.

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DAILY QT

PASSAGE 1 — GRIDPRIME LABS: DIVISOR COUNTING, DIVISOR SUMS & CONSTRAINED DIVISORS

GridPrime Labs assigns each industrial component a serial number that is an integer, and its quality team studies the divisors of those numbers to design batch-testing schedules. The team's current serial number is 5040. Its prime factorisation is $2^4 \times 3^2 \times 5 \times 7$, which the lab uses as a standard reference for all divisor-based calculations in this passage.

A divisor of a serial number is a positive integer that divides it exactly. The team counts divisors by adding one to each prime exponent and multiplying the results, a rule that works for any number in prime-factored form. Testing rounds are scheduled according to divisors of the serial number: a batch of size d can be tested in full only if d divides the serial exactly. Because the lab must keep records clean, it also tracks which divisors are perfect squares, which divisors are odd, and which are multiples of 12.

Auditors sometimes confuse the number of divisors with the sum of divisors. The sum of divisors follows a separate rule: for each prime power, add the powers of that prime from its zeroth to its full exponent, then multiply those sums together. Auditors are also asked to find divisors that share no common factor with 30, since such batch sizes avoid overlap with the lab's other testing cycles. Unless stated otherwise, all divisors are positive integers and the serial number remains 5040 throughout.

1. The number of positive divisors of the serial number 5040 is:

- (A) 48
- (B) 60
- (C) 72
- (D) 54

2. The sum of all positive divisors of 5040 is:

- (A) 18720

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(B) 17136

(C) 19344

(D) 20160

3. The number of divisors of 5040 that are perfect squares is:

(A) 4

(B) 8

(C) 6

(D) 3

4. The number of divisors of 5040 that are multiples of 12 is:

(A) 20

(B) 24

(C) 30

(D) 18

5. The number of odd divisors of 5040 that are less than 100 is:

(A) 12

(B) 8

(C) 9

(D) 10

6. The number of divisors of 5040 that share no common factor with 30 is:

(A) 1

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(B) 2

(C) 4

(D) 6

PASSAGE 2 — PATTERN STUDIO: TRIANGULAR NUMBERS & THEIR PROPERTIES

Pattern Studio makes tile designs in which tiles are arranged in triangular rows. The n th triangular number $T(n)$ counts the tiles in a triangle with n rows, and it is given by the formula $T(n) = n(n+1)/2$. The first few values are 1, 3, 6, 10, 15, and each new value is obtained by adding the next counting number to the previous one.

The studio's designers use triangular numbers in several ways. They check whether a triangle can be completed as a perfect square of tiles, which happens only for particular values of n . They also determine how many rows are needed to exceed a set number of tiles, and they add consecutive triangular numbers to create larger layouts. Sums of the first several triangular numbers form a sequence in its own right, which designers call tetrahedral, because the same totals count stacked spheres in a pyramid.

For large layouts, designers test divisibility of $T(n)$ by small numbers, since tiles must split evenly into packs of ten. A triangular number is divisible by 10 when its last digit is zero, and the studio uses this rule to plan packaging. Unless stated otherwise, n is a positive integer and every triangle is built from full rows, with no tiles left over.

7. The number of positive integers n with $1 \leq n \leq 100$ for which $T(n)$ is a perfect square is:

(A) 3

(B) 2

(C) 4

(D) 5

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8. The smallest positive integer n for which $T(n)$ exceeds 1000 is:

- (A) 44
- (B) 46
- (C) 45
- (D) 50

9. The sum $T(1) + T(2) + \dots + T(10)$ is:

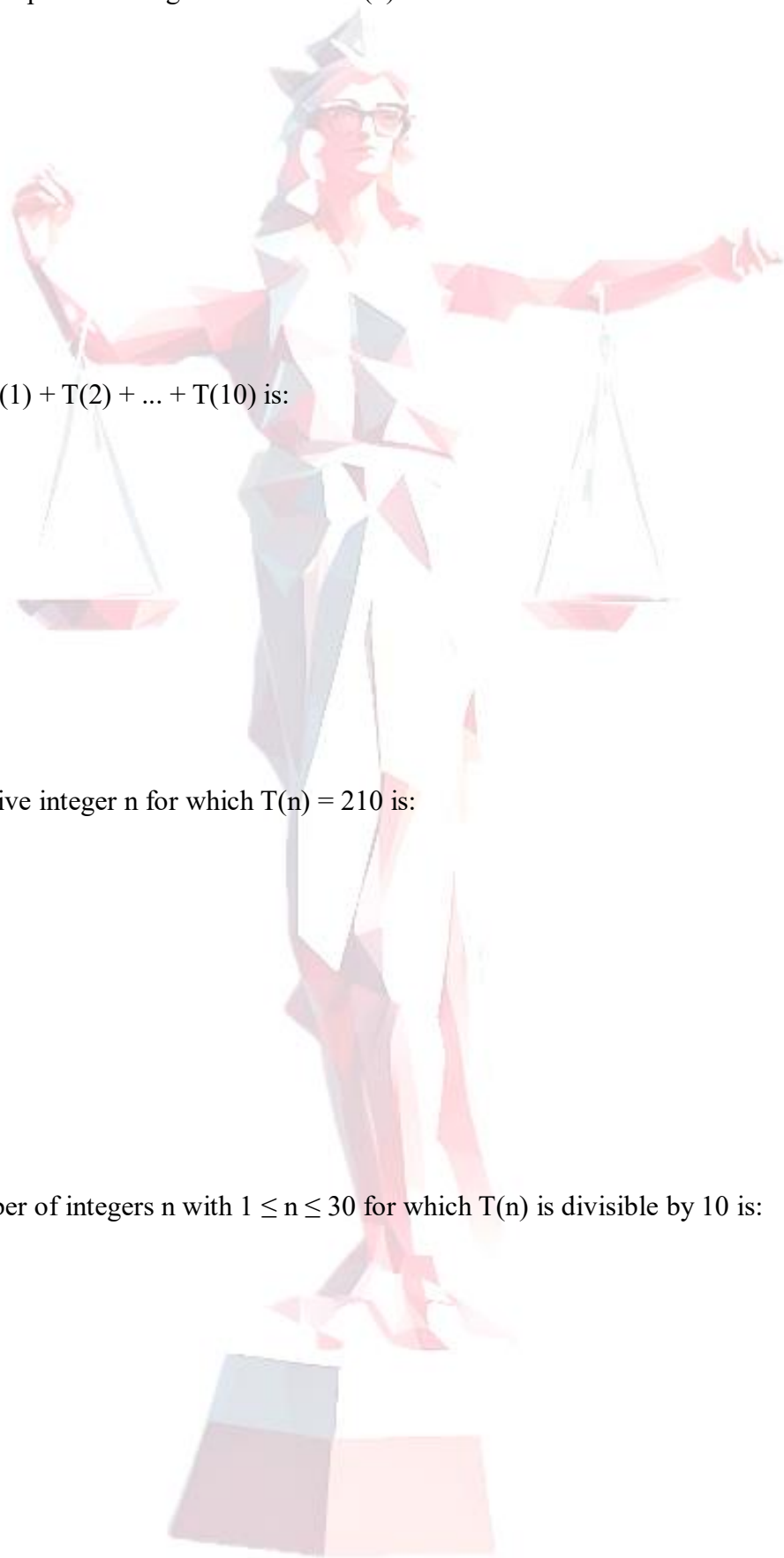
- (A) 210
- (B) 220
- (C) 230
- (D) 200

10. The positive integer n for which $T(n) = 210$ is:

- (A) 18
- (B) 21
- (C) 19
- (D) 20

11. The number of integers n with $1 \leq n \leq 30$ for which $T(n)$ is divisible by 10 is:

- (A) 4
- (B) 5
- (C) 6
- (D) 3



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12. The sum $T(20) + T(21) + \dots + T(25)$ is:

(A) 1495

(B) 1595

(C) 1695

(D) 1555



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ANSWER KEY**PASSAGE 1 — GRIDPRIME LABS (DIVISOR COUNTING & SUMS)**

Q1: (B) 60 — $(4+1)(2+1)(1+1)(1+1) = 5 \times 3 \times 2 \times 2 = 60$.

Q2: (C) 19344 — Sum = $(1+2+4+8+16)(1+3+9)(1+5)(1+7) = 31 \times 13 \times 6 \times 8 = 19344$.

Q3: (C) 6 — Square divisors use even exponents: $2^0, 2^2, 2^4$ (3 choices) $\times 3^0, 3^2$ (2 choices) $\times 5^0 \times 7^0 = 6$.

Q4: (B) 24 — Divisors $2^a \times 3^b \times 5^c \times 7^d$ with $a \geq 2$ and $b \geq 1$: $3 \times 2 \times 2 \times 2 = 24$.

Q5: (D) 10 — Odd divisors are divisors of $315 = 3^2 \times 5 \times 7$, which has 12 divisors. Of these, 1, 3, 5, 7, 9, 15, 21, 35, 45 and 63 are below 100, giving 10.

Q6: (B) 2 — Divisors coprime to 30 cannot contain 2, 3 or 5, so they are divisors of 7. These are 1 and 7.

PASSAGE 2 — PATTERN STUDIO (TRIANGULAR NUMBERS)

Q7: (A) 3 — $T(n)$ is a perfect square for $n = 1, 8$ and 49 within 1 to 100, giving $T = 1, 36$ and 1225 .

Q8: (C) 45 — $T(44) = 990$ and $T(45) = 1035$.

Q9: (B) 220 — The tetrahedral sum is $10 \times 11 \times 12 / 6 = 220$.

Q10: (D) 20 — $T(20) = 20 \times 21 / 2 = 210$.

Q11: (B) 5 — $T(n)$ ends in 0 for $n = 4, 15, 19, 20$ and 24 within 1 to 30, giving $T = 10, 120, 190, 210$ and 300 .

Q12: (B) 1595 — $T(20)$ to $T(25)$ are 210, 231, 253, 276, 300 and 325, with sum 1595.

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