

Subtest A

**Task 1**

- 1 h
- 2 b
- 3 g
- 4 a
- 5 d

**Task Two**

Say whether the following statements are 'True' (T), 'False' (F), or 'We do not know' (D). Circle the correct answer.

- 1 Soundararajan and Lemke Oliver first studied primes in base 10 up to 1,000.  
(False: Soundararajan studied base 3 up to 1,000, afterwards worked with Lemke Oliver to study primes in base 3 up to 400 billion, then other bases )
- 2 Soundararajan was inspired by a lecture on prime numbers given by Tadashi Tokieda.  
(D: topic not mentioned, just the fact that it mentioned coin tosses)
- 3 Soundararajan and Lemke Oliver have used their findings to prove the prime k-tuples conjecture.  
(False: the conjecture predicts their results, but there is no proof yet)
- 4 The prime k-tuples conjecture predicts the biases that Soundararajan and Lemke Oliver have found in primes.  
(True)
- 5 The prime k-tuples conjecture states precise patterns among prime numbers.  
(True)

Subtest B

**Task 2**

- 1 Coincident
- 2 Secant
- 3 Perpendicular
- 4 Osculating plane
- 5 Trihedron
- 6 Singularities
- 7 Indicatrix

Subtest C

- 1 codomain
- 2 stationary point
- 3 factorization
- 4 jump discontinuity / discontinuity of the first kind

## Subtest D

- 1 represent
- 2 include
- 3 a point
- 4 calculate
- 5 using
- 6 restrict
- 7 unit magnitude
- 8 normalised
- 9 combine
- 10 required
- 11 interpolating
- 12 equal
- 13 made up
- 14 similarity
- 15 properties

## Subtest G

### Task One

- 1 (has) encountered
- 2 reading
- 3 to be
- 4 to make
- 5 corresponding
- 6 estimating
- 7 exist(s)
- 8 are expressed
- 9 depend
- 10 to define (0.5)
- 11 to obtain (0.5)

### Task Two

- |             |         |         |
|-------------|---------|---------|
| 1 an        | 8 the   | 15 the  |
| 2 zero      | 9 the   | 16 zero |
| 3 the (0.5) | 10 the  |         |
| 4 a         | 11 a    |         |
| 5 zero      | 12 the  |         |
| 6 a         | 13 the  |         |
| 7 the (0.5) | 14 zero |         |

## Subtest H

**a/** For example, we can search for models where a given path property is true in a given initial state.

**b/** Theorem 1 is important for two reasons: First, it states that all relations where this theorem is applied contain an inconsistency.

c/ Instead of 20, 50 students participated in the experiment.

Subtest I

a/

The same holds for the semiring  $M_{n,n}(S)$ . **applies**

The same applies to the semiring  $M_{n,n}(S)$ .

b/

Choose point G to represent the number 0. **let**

Let point G represent the number 0.

c/

$p \in A$  implies that  $p \in A \cup B$ . **If**

If  $p \in A$ , then  $p \in A \cup B$ .

Subtest J

1 interpretation

2 inaccuracies

3 expressible

4 desirable

5 calculation

6 algebraic

7 requirement

8 sufficiently

9 closed

10 uniformly