

## UTS Entrance Exam Practice: Mathematics and English

### UTS Mathematics Exam (40 minutes)

#### Mathematical content

The UTS Math exam questions are designed to be answerable by a good problem-solver with a strong mathematics background. Early questions require only concepts found in the Grade 5 and 6 curriculum common to all Canadian provinces. The problem solving questions are designed to test ingenuity and insight. Rather than testing content, most of the test problems test logical thinking and mathematical problem solving.

#### Format and timing

- 12-16 short answer questions | Time allotted: 20 minutes
- 3-4 problem solving questions | Time allotted: 20 minutes

#### Possible topics covered on the exam

##### Number Sense and Numeration

- Basic arithmetic operations (+, -, , ÷) with whole numbers and decimal numbers
- The meaning of the words “sum,” “difference,” “product” and “quotient”
- Ordering and comparing whole numbers, decimal numbers and fractions
- Average (arithmetic mean) of whole numbers and decimal numbers
- Rounding numbers to a specified digit, including decimal numbers
- Approximating calculations involving decimal numbers
- The meaning of the word “digit” in reference to a number (847 has three digits: 8, 4 and 7)
- The divisibility tests for 2 and 5 (last digit) and 3 (adding the digits)
- The meaning of the words “even” and “odd” with respect to whole numbers
- Quickly calculating products involving 5 2 (such as 25 5 7 2 2 4)
- Identifying numbers as prime or composite.
- Numerical calculation of numbers with exponents (such as 7<sup>2</sup>)
- The meaning of the words “square” (or “perfect square”), “cube” (or “perfect cube”) and “power” in reference to exponents
- The square root symbol
- The meaning of “dozen” and “dozen dozen”
- Problem solving involving money, using trial and error or listing
- Meanings of “penny,” “nickel,” “dime,” “quarter,” “loonie,” “toonie,” and “dollar”
- Difference between “revenue” (money from sales) and “profit” (revenue minus expenses)
- Ratio and simple proportions
- Fractions and percentages when represented in drawings (what fraction is shaded?)
- Numerical problems of the type that can be solved with a two-circle Venn diagram
- Roman and Arabic numerals

### Measurement

- Applying formulas for the area of a rectangle, square or triangle
- Perimeter of any polygon (and especially the rectangle)
- Volume and surface area of a rectangular prism.
- Metric prefixes and conversions
- Given a length, area or volume, naming a common object of that approximate size
- Approximating perimeters, areas or volumes
- Time measurements, including the Gregorian calendar and the number of days in each month

### Geometry and Spatial Sense

- Knowledge of angles up to  $360^\circ$
- Understanding of a standard analog clock and its relationships with geometry
- Using a protractor to measure an angle
- Classification of angles (acute, right, obtuse, straight, reflex)
- Classification of triangles by sides (scalene, isosceles, equilateral) and angles (acute, right, obtuse)
- Classification of polygons (esp. triangle, quadrilateral, pentagon, hexagon and octagon)
- Approximating an angle's degree measure
- The sum of the angles in any triangle is  $180^\circ$
- Identifying a solid from its net

### Patterning

- Finding missing terms in simple sequences
- Simple division-and-remainder problems in modular arithmetic
- Extending patterns to find later terms

### Data Management and Probability

- Reading graphs and tables and evaluating data presented in these formats
- Calculating probabilities in simple experiments, expressing answers as fractions

## UTS English Exam (20 minutes)

### English Content

The UTS English exam consists of a Cloze exercise that is designed to assess the strength of a student's comprehension and vocabulary. A cloze test consists of a passage with certain words removed and the student must fill in the blanks to replace the missing words. Cloze texts test a student's ability to understand the context of the passage and identify the appropriate word or type of word to complete the passage. The passage for the UTS English exam meets the Grade 5 and 6 curriculum standards for literacy common to all Canadian provinces.

### Format and timing

- The cloze passage is one page in length with approximately 50 blanks
- Time allotted: 20 minutes

### Practice Cloze Test

The following passage is missing many words. Fill in each blank so the passage makes sense. There can ONLY be ONE word for every blank.

#### The Invention of Basketball

The National Basketball Association (NBA) is made up of 30 individual teams: twenty-nine of them are in the United States, but only one is based in Canada. So, it may come as a huge \_\_\_\_\_ that the NBA owes its existence \_\_\_\_\_ a Canadian named James Naismith, who \_\_\_\_\_ the game of Basketball in 1891.

\_\_\_\_\_ Naismith was born in 1861, long \_\_\_\_\_ the invention of television and video \_\_\_\_\_. So, instead of *Super Mario*, James \_\_\_\_\_ his friends played outside. One of \_\_\_\_\_ favourite games was called "Duck on \_\_\_\_\_ Rock". On a huge boulder, the \_\_\_\_\_ would place "ducks" which were really hand-\_\_\_\_\_ rocks. The object of the game \_\_\_\_\_ to knock a "duck" from the \_\_\_\_\_ rock, by throwing another rock at \_\_\_\_\_ "duck". After a while, the boys figured \_\_\_\_\_ that if the throwing rock was \_\_\_\_\_ like a baseball, it was faster, \_\_\_\_\_ had less accuracy. So, the boys \_\_\_\_\_ throwing in a lobbing arc shot \_\_\_\_\_ offered more accuracy and control.

Like \_\_\_\_\_ childhood experiences, “Duck on a Rock” was forgotten until years \_\_\_\_\_, after Naismith had received a Bachelor \_\_\_\_\_ Arts degree from McGill University, and \_\_\_\_\_ teaching Physical Education in Springfield, Massachusetts.

\_\_\_\_\_ 1891, as part of his work, \_\_\_\_\_ was asked to invent a fun \_\_\_\_\_ challenging indoor game that involved skill \_\_\_\_\_ well as strength. The only two \_\_\_\_\_: the game had to be fair, \_\_\_\_\_ without too much physical contact. Naismith \_\_\_\_\_ about rugby, lacrosse, baseball, and soccer. \_\_\_\_\_ quickly realized that games became safer \_\_\_\_\_ players did not have to run and \_\_\_\_\_ the ball at the same time. \_\_\_\_\_, his first decision was to take \_\_\_\_\_ running away from the ball. His \_\_\_\_\_ observation was that the most dangerous \_\_\_\_\_ on any field was the net-minding position, \_\_\_\_\_ as goalie. So, instead of creating \_\_\_\_\_ defensive position for his game, he \_\_\_\_\_ the goal up and out of \_\_\_\_\_ way. In his new game, points \_\_\_\_\_ earned by shooting the ball into \_\_\_\_\_ peach basket. With the basket high \_\_\_\_\_ the air, the goal could never be \_\_\_\_\_ guarded, and therefore the players would \_\_\_\_\_ safer.

Unfortunately, the new basket location \_\_\_\_\_ scoring more difficult. And that’s where “Duck on a Rock” \_\_\_\_\_ back into the picture. Naismith remembered the lobbed arching \_\_\_\_\_, and made that the way in \_\_\_\_\_ to successfully score a basket. With \_\_\_\_\_ decisions, the game of basketball came \_\_\_\_\_ life.

Basketball was an immediate success, \_\_\_\_\_ if it took more than ten \_\_\_\_\_ before open-ended nets stopped the \_\_\_\_\_ to manually retrieve the ball every \_\_\_\_\_ someone scored a basket.

In 1936, the game of Basketball was admitted into the Olympics, and James Naismith finally understood the impact his game had on the world.