

## ΔΕΙΓΜΑ ΤΕΣΤ ΥΠΟΤΡΟΦΙΩΝ ΓΙΑ ΤΟ IB DIPLOMA PROGRAMME

### ΜΑΘΗΜΑΤΙΚΑ

#### ΠΑΡΑΔΕΙΓΜΑΤΑ ΑΣΚΗΣΕΩΝ ΠΟΛΛΑΠΛΩΝ ΕΠΙΛΟΓΩΝ:

➤ Η λύση της ανίσωσης  $\frac{|x-1|}{x} > 2$  είναι:

- a)  $x > \frac{1}{3}$       b)  $x > 0$       c)  $x < \frac{1}{3}$       d)  $0 < x < \frac{1}{3}$       e)  $\frac{1}{3} < x < 1$

➤ Μία καινούρια μηχανή παράγει  $x$  τεμάχια σε  $y$  λεπτά, ενώ η παλιά μηχανή παράγει  $u$  τεμάχια σε  $w$  ώρες. Εάν και οι δύο μηχανές λειτουργήσουν συγχρόνως, πόσα τεμάχια μπορούν να παράγουν σε  $t$  ώρες?

- a)  $t(\frac{x}{60y} + \frac{u}{w})$       b)  $t(\frac{60x}{y} + \frac{u}{w})$       c)  $60t(\frac{x}{y} + \frac{u}{w})$       d)  $t(\frac{y}{60x} + \frac{w}{u})$       e)  $t(\frac{x}{y} + \frac{60u}{w})$

#### ΠΑΡΑΔΕΙΓΜΑΤΑ ΑΝΑΛΥΤΙΚΩΝ ΑΣΚΗΣΕΩΝ :

➤ Να απλοποιήσετε την παράσταση:

$$\frac{1}{\sqrt{2} + 1} + \frac{1}{\sqrt{3} + \sqrt{2}} + \frac{1}{\sqrt{4} + \sqrt{3}} + \dots + \frac{1}{\sqrt{99} + \sqrt{98}}$$

➤ Τα ψηφία ενός πενταψήφιου αριθμού ΑΒΓΔΕ είναι **όλα διαφορετικά μεταξύ τους** και ικανοποιούν την ισότητα :

$$A \times B \times (\Gamma + \Delta + E + 5) = 33.$$

Πόσοι τέτοιοι αριθμοί ΑΒΓΔΕ υπάρχουν?

## ΤΕΣΤ ΛΟΓΙΚΗΣ ΣΚΕΨΗΣ

### ΠΑΡΑΔΕΙΓΜΑΤΑ ΑΣΚΗΣΕΩΝ :

- Three runners, Euclid, Gauss and Hilbert took part in a cross country race. Prior to the race, four spectators from the audience A, B, C and D, made their prognoses as follows:

A: Either Euclid or Gauss will win

B: If Gauss is the second, Hilbert will win

C: If Gauss is the third, Euclid will not win

D: Either Gauss or Hilbert will be the second

After the race, it turned out, that all four statements were correct. In what order did the runners finish?

- a) Euclid, Gauss, Hilbert
- b) Euclid, Hilbert, Gauss
- c) Hilbert, Gauss, Euclid
- d) Gauss, Hilbert, Euclid
- e) Impossible to determine

- Anna is writing twelve numbers chosen from 1 to 9 in the cells of a 4×3 grid, so that the sum of the numbers in every row is the same, and the sum of the numbers in every column is the same. Anna has already written some of the numbers, as shown. What number should Anna write in the **shaded square**?

2	4		2
	3	3	
6		1	

- a) 1
- b) 4
- c) 6
- d) 8
- e) 9

**SAMPLE QUESTION WRITTEN EXPRESSION:**

Choose **one** of the five the topics below and write a personal essay expressing your opinion. Before you begin writing, think carefully about what you want to say and how the organization and development of your ideas communicate your message effectively in writing.

1. "A joke is a very serious thing." – *Winston Churchill*
2. Heisenberg claims that you cannot know both the position and momentum of an electron with total certainty. Choose two other concepts that cannot be know simultaneously and discuss the implications. Do not consider yourself limited to the field of Physics.
3. Dog and Cat. Coffee and Tea. Tom and Jerry. Everyone knows there are two types of people in the world. What are they? Which type are you?
4. "A scientific man ought to have no wishes, no affections - a mere heart of stone." - *Charles Darwin*

**SAMPLE QUESTION LITERARY TEXT ANALYSIS:**

Read the poem below. Choose the **best answer** in the questions that follow.

	Against that time (if ever that time come)
	When I shall see thee frown on my defects,
	When as thy love hath cast his utmost sum,
	Called to that audit by advised respects—
Line 5	Against that time when thou shalt strangely pass,
	And scarcely greet me with that sun, thine eye,
	When love, converted from the thing it was,
	Shall reasons find of settled gravity—
	Against that time do I ensconce me here
Line 10	Within the knowledge of mine own desert,
	And this my hand against myself uprear,
	To guard the lawful reasons on thy part.
	To leave poor me thou has the strength of laws,
	Since why to love I can allege no cause.
	- <i>Sonnet 49, William Shakespeare</i>

1. If the speaker is implying in line 10 that he is not deserving of love, which of the following most strongly supports the implication?
  - (A) "defects" (line 2)
  - (B) "utmost sum" (line 3)
  - (C) "strangely" (line 5)
  - (D) "love, converted" (line 7)
  - (E) "settled gravity" (line 8)

2. The tone of the poem can best be described as
  - (A) playful and light-hearted
  - (B) hesitant and confused
  - (C) confident and determined
  - (D) reasoned and optimistic
  - (E) self-deprecating and apprehensive
  
3. One theme of the poem appears to be that
  - (A) unrequited love is still sweet
  - (B) time transforms lust into love
  - (C) the value of true love cannot be calculated
  - (D) relationships should be controlled by laws
  
4. In lines 1-12, which of the following is a main verb?
  - (A) "come" (line 1)
  - (B) "shall see" (line 2)
  - (C) "shalt pass" (line 5)
  - (D) "shall find" (line 8)
  - (E) "do ensconce" (line 9)
  
5. Which of the following best describes the language of the poem?
  - (A) Concrete and matter-of-fact
  - (B) Euphemistic and prosaic
  - (C) Metaphoric and logical
  - (D) Informal and conversational
  - (E) Ironic and amused