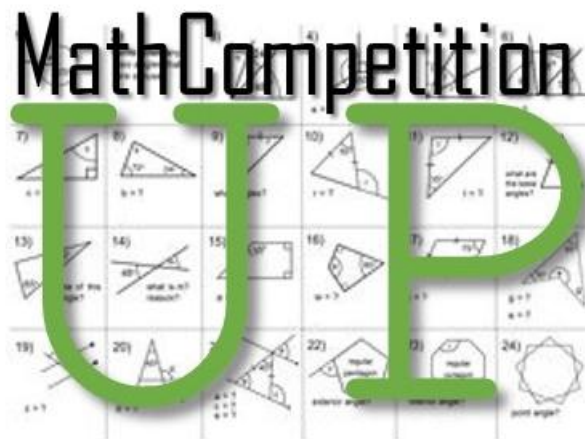


Math Competition

UJEP



Department of Mathematics and Applied
Mathematics
Departement Wiskunde en Toegepaste Wiskunde

GRADES 6 AND 7

GRADE 6 EN 7

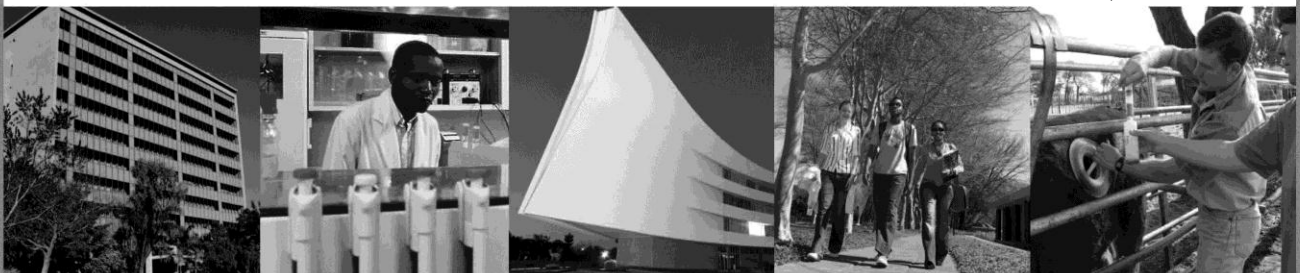
30 July – 3 Aug 2018

30 Julie – 3 Aug 2018

TIME: 2 HOURS

TYD: 2 URE

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Denkleiers • Leading Minds • Dikgopolo tša Dihlalefi

Leading Minds

INSTRUCTIONS

- ◆ No calculators or other calculation aids are allowed.
- ◆ **Mark allocation**
Every question counts 1 mark.
Random guessing is not advisable, as the mark allocated to a question may be deducted for a wrong answer.
- ◆ Every question has five possible answers, (A) to (E).
Only **ONE** answer is correct.
Colour in the rectangle of the correct answer on the answer sheet.
Do not colour outside the rectangle.
Use a soft pencil.

Example:

Suppose Question 21 reads:

The smallest integer larger than 1 is

(A) 0 (B) -1 (C) 1 (D) 2 (E) 3

The correct answer is 2, which is answer (D).

On the answer sheet you must colour in the rectangle (D) against Question 21.

Question 21 / Vraag 21 (A) (B) (C) (D) (E)

INSTRUKSIES

- ◆ Geen sakrekenaars of ander rekenhulpmiddels word toegelaat nie.
- ◆ **Puntetoekenning**
Elke vraag tel 1 punt.
Raaiery word nie aanbeveel nie, aangesien die punt toegeken aan die vraag afgetrek mag word vir 'n verkeerde antwoord.
- ◆ Elke vraag het vyf moontlike antwoorde, (A) tot (E).
Slegs **EEN** antwoord is korrek.
Kleur die reghoek van die korrekte antwoord op die antwoordvel in.
Moenie buite die reghoek inkleur nie.
Gebruik 'n sagte potlood.

Voorbeeld:

Gestel Vraag 21 is:

Die kleinste heelgetal groter as 1 is

(A) 0 (B) -1 (C) 1 (D) 2 (E) 3

Die korrekte antwoord is 2, en dit is antwoord (D).

Op die antwoordvel moet jy die reghoek (D) inkleur teenoor Vraag 21.

Question 21 / Vraag 21 (A) (B) (C) (D) (E)

Question 1

$20 \times 18 - 20 - 18 = ?$

- (A) 250 (B) 282 (C) 328 (D) 330 (E) 322
-

Vraag 1**Question 2**

If a square has perimeter 28 cm, what is the area of the square, in cm^2 ?

- (A) 14 (B) 28 (C) 49 (D) 56 (E) 196
-

Vraag 2

As 'n vierkant 'n omtrek van 28 cm het, wat is die oppervlakte van die vierkant, in cm^2 ?

Question 3

A water tank that is 80 percent full, contains 96 liters of water. If 24 liters of water is drawn from the tank, what percentage of the tank is filled with water?

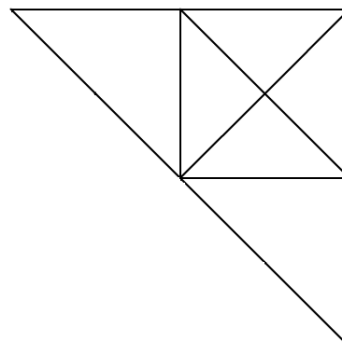
- (A) 30 (B) 40 (C) 50 (D) 60 (E) 70
-

Vraag 3

'n Watertenk wat 80 persent vol is, bevat 96 liters water. As 24 liters water uit die tenk getap word, watter persentasie van die tenk is vol water?

Question 4

How many different triangles are there in this figure? Some do overlap.



- (A) 9 (B) 11 (C) 13 (D) 15 (E) 17
-

Vraag 4

Hoeveel verskillende driehoeke is daar in die figuur? Sommiges oorvleuel.

Question 5

What is the most number of intersection points of a circle and a square of any given size?

- (A) 2 (B) 4 (C) 6 (D) 8 (E) 10
-

Vraag 5

Wat is die maksimum aantal snyppunte van 'n sirkel en 'n vierkant van enige gegewe grootte?

Question 6

What number is exactly halfway between $\frac{1}{3}$ and $\frac{2}{5}$?

- (A) $\frac{1}{3}$ (B) $\frac{11}{30}$ (C) $\frac{13}{30}$ (D) $\frac{7}{15}$ (E) $\frac{1}{2}$
-

Vraag 6

Watter getal is presies halfpad tussen $\frac{1}{3}$ en $\frac{2}{5}$?

Question 7

Calculate the value of $1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{3}}}$.

- (A) $\frac{11}{7}$ (B) $\frac{7}{11}$ (C) $\frac{7}{4}$ (D) $\frac{10}{3}$ (E) $\frac{16}{3}$
-

Vraag 7

Bereken die waarde van $1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{3}}}$.

Question 8

In 2017 one thousand two hundred learners wrote the UP Math Competition. The statistics shows that $\frac{3}{4}$ of the learners were boys of which $\frac{1}{3}$ wrote in Gauteng. If $\frac{1}{6}$ of the boys that wrote in Gauteng achieved a mark of 30% or less, how many of the boys from Gauteng achieved a mark of more than 30%?

- (A) 50 (B) 150 (C) 200 (D) 250 (E) 300
-

Vraag 8

In 2017 het een-duisend-twee-honderd leerders die UP Wiskunde Kompetisie geskryf. Die statistiek wys dat $\frac{3}{4}$ van die leerders seuns was, waarvan $\frac{1}{3}$ in Gauteng geskryf het. As $\frac{1}{6}$ van die seuns wat in Gauteng geskryf het 'n punt van 30% of minder behaal het, hoeveel van die seuns in Gauteng het 'n punt van meer as 30% behaal?

Question 9

Which number is the largest?

- (A) $99 \times 99 \times 9$
- (B) 999×99
- (C) 9999×9
- (D) $9 \times 9 \times 9 \times 9 \times 9$
- (E) $999 \times 9 \times 9$

Vraag 9

Watter getal is die grootste?

Question 10

What is the smallest number that is divisible by 1, 2, 3, 4, 5, 6, 7, 8 and 9?

- (A) 1260 (B) 2520 (C) 10080 (D) 7460 (E) 5040

Vraag 10

Wat is die kleinste getal wat deelbaar is deur 1, 2, 3, 4, 5, 6, 7, 8 en 9?

Question 11

The average of twelve numbers is 9. If a thirteenth number is added to these numbers, the new average is 11. What is the thirteenth number added?

- (A) 10 (B) 11 (C) 35 (D) 36 (E) 37
-

Vraag 11

Die gemiddeld van twaalf getalle is 9. As 'n dertiende getal bygetel word, is die gemiddeld 11. Wat is die dertiende getal?

Question 12

You can use emojis to reply to a Whatsapp message. Figure 1 has 12 emojis. In how many ways below, can you choose three different emojis, so that every row and every column has at most one emoji? For example, figure 2 is a possibility.



Fig. 1

Vraag 12

Jy kan emojis gebruik om te antwoord op 'n Whatsapp boodskap. Figuur 1 het 12 emojis. Op hoeveel maniere kan jy drie verskillende emojis hieronder kies, sodat elke ry en elke kolom op die meeste een het? By voorbeeld, figuur 2 is 'n moontlikheid.

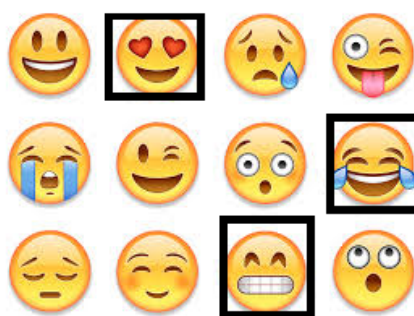


Fig. 2

- (A) 36 (B) 18 (C) 16 (D) 24 (E) 48

Question 13

A quadrilateral is a polygon with four sides and four corners, a parallelogram is a quadrilateral of which both pairs of opposite sides are parallel and a rhombus is a parallelogram with all sides of equal length. Which one of these statements is false?

Vraag 13

'n Vierhoek is 'n veelhoek met vier sye en vier hoekpunte of hoeke, 'n parallellogram is 'n veelhoek waarvan beide pare teenoorgestelde sye parallel is en 'n rombus is 'n parallellogram met alle sye ewe lank. Watter een van die volgende bewerings is onwaar?

- (A) All squares are rectangles/Alle vierkante is reghoeke
(B) All rhombuses are quadrilaterals/Alle rombusse is vierhoeke
(C) All rhombuses are squares/Alle rombusse is vierkante
(D) All squares are rhombuses/Alle vierkante is rombusse
(E) All rectangles are parallelograms/Alle reghoeke is parallellogramme
-

Question 14

The price of a cupcake is R2.40 more than the price of an ice cream cone. Mary buys 2 cupcakes and 5 ice cream cones and receives R2.50 change for R50. What is the price of a cupcake?

- (A) R6.10 (B) R7.50 (C) R8 (D) R8.50 (E) R9
-

Question 15

What digit appears the least number of times between the numbers 1 and 1000?

- (A) 0 (B) 1 (C) 2 (D) 3 (E) 5
-

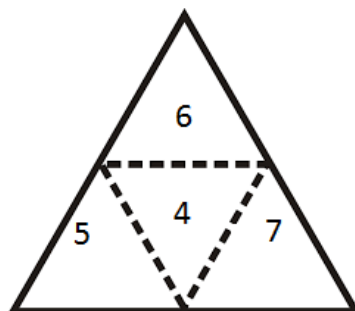
Question 16

A man has 53 socks in his drawer: 21 identical black, 15 identical brown and 17 identical white. Due to a power outage, he is completely in the dark. How many socks must he take out to make 100 percent sure he has taken out a pair of black socks?

- (A) 23 (B) 34 (C) 38 (D) 40 (E) 53
-

Question 17

The figure below can be folded to form a pyramid. What is the LARGEST sum of the three numbers on faces sharing the same corner?



- (A) 14 (B) 15 (C) 16 (D) 17 (E) 18
-

Vraag 14

Die prys van 'n kolwyntjie is R2.40 meer as die prys van 'n roomyshorinkie. Mary koop 2 kolwyntjies en 5 roomyshorinkies en ontvang R2.50 kleingeld vir R50. Wat is die prys van 'n kolwyntjie ?

Vraag 15

Watter syfer kom die minste voor tussen die getalle 1 en 1000?

Vraag 16

'n Man het 53 sokkies in sy laai: 21 identies swart, 15 identies bruin en 17 identies wit. Weens 'n kragonderbreking is hy heeltemal in die donker. Hoeveel sokkies moet hy uithaal om 100 persent seker te maak dat hy 'n paar swart sokkies uitghaal het?

Vraag 17

Die figuur hieronder kan gevou word om 'n piramide te vorm. Wat is die GROOTSTE som van die drie getalle op vlakke met 'n gemeenskaplike hoekpunt?

Question 18

In mathematics a square number is an integer that is the square of an integer. For example 36 is a square number. Which one of the following numbers is not the sum of two squares?

- (A) 162 (B) 200 (C) 225 (D) 343 (E) 265
-

Question 19

In the Cook family there is a father, a mother, a daughter and a son. The sum of their ages is 107 now. Now, the father is 2 years older than the mother and the son is 3 years younger than the daughter. Three years ago, the mother was 3 times as old as the daughter. What is the age of the daughter now?



- (A) 13 (B) 14 (C) 15 (D) 16 (E) 17
-

Question 20

Andrew, Britney and Carol take part in a 100 meters race. All of them run at a constant speed throughout the race.

Andrew beats Britney by 20 meters.
Britney beats Carol by 20 meters.

By how many meters does Andrew beat Carol?

- (A) 64 (B) 60 (C) 40 (D) 36 (E) 20
-

Vraag 18

In wiskunde is 'n vierkantgetal 'n heelgetal wat die vierkant is van 'n heelgetal. Byvoorbeeld 36 is 'n vierkantgetal. Wat ter een van die volgende getalle is nie die som van twee vierkante nie?

Vraag 19

In die Cook gesin is daar 'n pa, 'n ma, 'n dogter en 'n seun. Die som van hulle ouderdomme is nou 107. Die pa is nou 2 jaar ouer as die ma en die seun is 3 jaar jonger as die dogter. Drie jaar gelede was die ma 3 keer so oud as die dogter. Wat is die ouderdom van die dogter nou?

Vraag 20

Andrew, Britney en Carol neem aan 'n 100 meter wedloop deel. Hulle hardloop almal teen 'n konstante spoed.

Andrew wen Britney met 20 meter.
Britney wen Carol met 20 meter.

Met hoeveel meter wen Andrew vir Carol?