4 KANGOEROE Vereld ijde Viskunde edstrijd





calculator not allowed



scrap paper is allowed



20th March the answers will be on the website

wizPROF havo 4 & 5 vwo 3, 4, 5 & 6







you may use 75 minutes

results and awards at school mid-May

15th April the explanations will be on the website

NEMO www.e-nemo.nl

www.zwiisen.nl

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Zwijsen



TEXAS INSTRUMENTS www.education.ti.com





www.rekenzeker.nl



Schoolsupport

www.schoolsupport.nl

Relatigeschenken & Promotieartikelen www.idpremiums.nl



Nz

UITGEVERIJ NIEUWEZIJDS www.nieuwezijds.nl

platform wiskunde nederland www.platvormwiskunde.nl









1.	11,11 – 1,111 =					
	A. 9,009	B. 9,0909	C. 9,99	D. 9,999	E. 10	
2.	A cuboid consists Which one is the	s of four pieces of fo white piece?	ur blocks each. Each	i piece has its own co	lour.	
	A.	в.		D.		Ţ
3.	When you divide Which number di	the numbers 144 a d you divide by?	nd 220 by the same p	positive number the re	emainder is 11 in I	both cases.
	A. 7	B. 11	C. 15	D. 19	E. 38	
4.	Anna sends Bart Each letter is rep Then every numb He received the s Which message	a message coded a resented by a numb per is replaced by th sequence 25, 39, 19 does Bart find?	as follows: per: A = 01, B = 02, C le outcome of 2 x nur 0, 38 and wants to de	= 03,, Z = 26. nber + 9. The sequen cipher the sequence.	ce of outcomes is	s sent to Bart.
	A. HEMD E. None: Anna m	B. HOED nade a mistake	C. HOOP	D. NOOD		
5.	The sum of the d What is the produ	igits of a seven-digi uct of the digits?	t number is 6.			
	A. 0	B. 1	C. 6	D. 7	E. 42	
6.	On each of the fo by 2 minutes, the At a certain mom What is the time	our walls of a room a second clock by 3 lent, watching all fou then?	a clock is hanging, bu minutes, the third by ur clocks, Ismael sees	t none of them shows 4 minutes and the fou s the times 6 to 3, 3 to	s the exact time. T urth by 5 minutes. o 3, 2 past 3 and	⁻ he first clock is off 3 past 3.
	A. 2:55	B. 2:56	C. 2:57	D. 2:58	E. 2:59	
7.	Square <i>ABCE</i> ha Triangle <i>CDE</i> and How many cm is	is sides of 4 cm. d square <i>ABCE</i> hav point <i>D</i> from the ba	e equal area. se line?		E	
	A. (4 + 2√3)	B. 8	C. 1	2		—— base line
	D. 10√2	E. T	hat depends on the p	osition of D.	<u> </u>	
8.	The arms of the r How many cm is	right angle of a right the perimeter of tria	-angled triangle are 6 angle <i>KLM</i> ?	and 8 cm long. <i>K</i> , <i>L</i>	and <i>M</i> are the mid	dpoints of the sides
	A. 10	B. 12	C. 15	D. 20	E. 24	
9.	<i>M</i> and <i>N</i> are the The areas of thre What is the area	midpoints of the eque the parts are in the pi of the part with the	ual sides of an isosce cture alongside. question mark?	les triangle.		M ? N 3 3 6
	A. 3	B. 4	C. 5	D. 6	E. 7	
10.	A quadrilateral ha The quadrilateral What is the perim	as sides of length 1 is divided into two i neter of the quadrila	and 4, the lengths of sosceles triangles by teral?	the other two sides a one of its diagonals.	re unknown. This diagonal has	s length 2.
	A. 9	B. 10	C. 11	D. 12	E. 13	

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11.	If Luke stands on a table and Danny stands on the floor then Luke rises 80 cm above Danny. If Danny stands on the same table and Luke stands on the floor then Danny rises one metre above Luke. What is the height of the table in cm?						
	A. 20	B. 80	C. 90	D. 100	E. 120		
12.	Julia and Emma are playing a game. If Emma wins, Julia has to pay her 2 euros. If Julia wins, Emma has to pay her 3 euros. After playing thirty games, both girls have the same amount of money they started with. How many times did Julia win?						
	A. 6	B. 12	C. 18	D. 24	E. 30		
13.	A four-digit number has a 3 on the position of the hundreds. The sum of the other digits is 3 as well. How many such numbers are there?						
	A. 2	B. 3.	C. 4	D. 5	E. 6		
14.	Three girls are doing a running contest. Four spectators make a prediction each. The first one : "Lisa or Sophie will win." The second one: "If Sophie comes second, then Rachida wins." The third one: "If Sophie comes third, then Lisa will not win." The fourth one: "Sophie or Rachida will come second." After the run all predictions prove to be true. In which order did the girls finish?						
	A. Lisa, Soph D. Sophie, Lis	nie, Rachida sa, Rachida	B. Lisa, Rachio E. Sophie, Rac	da, Sophie chida, Lisa	C. Rachida, Sophie, Lisa		
15.	The number 2 ⁵⁹ • 3 ⁴ • 5 ⁵³ ends in a number of zeros. What is the last digit preceding these zeros?						
	A. 1	B. 2	C. 4	D. 6	E. 9		
16.	We have a list of consecutive natural numbers. The list starts with 1. So 1, 2, 3, etcetera. In total the list has 231 digits. What is the last number on the list?						
	A. 111	B. 113	C. 115	D. 116	E. 117		
17.	A jeweller has He wants to n Therefore he What is the le	s 12 pieces of necklac nake one big necklace has to open some of t east possible number of	e of two links. e out of them. he links (and close the of links he has to open?	em again later).			
	A. 8	B. 9	C. 10	D. 11	E. 12		
18.	In a rectangle an "equilateral triangle" of tangent circles is drawn. The long side of the rectangle is 6 cm. How many cm is the distance between the grey circles?						
	A. 1	B. √2	C. $2\sqrt{3} - 2$	D. π/2	E. 2		
19.	Alongside you see two right-angled triangles and a semicircle. The larger right-angled triangle has sides of 5, 12 and 13. What is the radius of this circle?						
	A. $\frac{7}{3}$	B. $\frac{10}{3}$	C. 4	D. $\frac{13}{3}$	E. $\frac{17}{3}$ 12		
20.	The figure alc a triangle of a How many cn	ongside consists of a s area 8 cm² and a grey n² is the area of the gr	equare of side 4 cm, a s parallelogram. ey parallelogram?	square of side 5 cm,			
	A. 15	B. 16	C. 18	D. 20	E. 21		

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	In each of the be the same a What number	boxes a number from and the sums of the co should be in the box	1 through 9 is being plumns must be the sa with the question mar	written. The sums of ame as well. k2	the rows must	2 4	2		
	what number		mar are quesuon mar	IX :		3	3		
	A. 1	B. 4	C. 6	D. 8	E. 9	6	1 ?		
22.	Five lamps are all switched off. Every time Ismael turns the switch of a lamp, Lisa turns the switch of one of the other lamps. Ten times Ismael turns a switch. What can be said about the lamps?								
	A. The lamps C. The lamps E. None of the	cannot be all <i>on</i> at th cannot be all <i>off</i> at th ese four possibilities is	e same time. e same time. s correct.	B. All lamps D. All lamps	must be <i>on</i> . must be <i>off</i> .				
23.	<i>A</i> , <i>B</i> , <i>C</i> , <i>D</i> , <i>E</i> , <i>F</i> , <i>G</i> and <i>H</i> are, in order, the vertices of an regular octagon. Choose one of the vertices <i>D</i> , <i>E</i> , <i>F</i> and <i>G</i> at random and draw the line segment that connects this point to <i>A</i> . Next again choose at random one of the same four vertices and connect this to <i>B</i> . What is the probability that you divided the octagon into exactly three areas?								
	A. $\frac{1}{8}$	B. ¹ / ₄	C. $\frac{3}{8}$	D. $\frac{1}{2}$	E. $\frac{5}{8}$				
24.	For certain pos Which number	sitive integers <i>m</i> and r is <i>k</i> ?	$k ext{ is } 2012 = m^m (m^k - 1)^{m}$	k).					
	A. 2	B. 3	C. 4	D. 9	E. 11				
25.	In a table of 15 rows the numbers 1 through 120 are written as in the picture. Add the numbers per column (top down). Which column, counting from the left, has the largest sum?								
	A. 1 ^e	B. 5 ^e	C. 7 ^e			┶╾╍┙╸╺ ╅╦╦╅╺╺╺	 		
	D. 10 ^e	E. 13 ^e		106	107 108 109 110	111	120		
26.	A rectangular p along line <i>MN</i> How many cm A. 35 D. 47	piece of paper <i>ABCD</i> such that point <i>C</i> will ² is the area of pentag B. 37 E. 57	of 4 by 16 cm is bein be on point <i>A</i> . gon <i>ABNMD</i> ? C. 42	g folded		· · · · · · · · · · · · · · · · · · ·	, D		
26. 27.	A rectangular r along line <i>MN</i> How many cm A. 35 D. 47 For every threa What is the out	piece of paper <i>ABCD</i> such that point <i>C</i> will ² is the area of pentag B. 37 E. 57 e-digit number you ca itcome?	of 4 by 16 cm is bein be on point <i>A</i> . gon <i>ABNMD</i> ? C. 42	g folded	M N add up all product	s.	D		
26. 27.	A rectangular r along line <i>MN</i> How many cm A. 35 D. 47 For every three What is the out A. 45	piece of paper <i>ABCD</i> such that point <i>C</i> will ² is the area of pentag B. 37 E. 57 e-digit number you ca ttcome? B. 45 ²	of 4 by 16 cm is bein be on point <i>A.</i> gon <i>ABNMD</i> ? C. 42 alculate the product of C. 45 ³	g folded	N add up all product E. 3 ⁴⁵	s.	c		
26. 27. 28.	A rectangular r along line <i>MN</i> How many cm A. 35 D. 47 For every three What is the ou A. 45 Train G passe Trains G and H Which stateme	piece of paper <i>ABCD</i> such that point <i>C</i> will ² is the area of pentag B. 37 E. 57 e-digit number you ca itcome? B. 45 ² s a signal box in 8 se H will pass each other ent is true?	of 4 by 16 cm is bein be on point <i>A</i> . gon <i>ABNMD</i> ? C. 42 Inculate the product of C. 45 ³ conds. Train H passe in 9 seconds.	g folded	Add up all product E. 3 ⁴⁵ 2 seconds in the o	s.	ection.		
26. 27. 28.	A rectangular r along line <i>MN</i> How many cm A. 35 D. 47 For every three What is the out A. 45 Train G passe Trains G and H Which statemed A. Train G is the C. Train G is the E. You cannot	piece of paper <i>ABCD</i> such that point <i>C</i> will ² is the area of pentag B. 37 E. 57 e-digit number you ca itcome? B. 45 ² s a signal box in 8 se H will pass each other ent is true? wice as long as train H. tell the ratio of the le	of 4 by 16 cm is bein be on point <i>A</i> . gon <i>ABNMD</i> ? C. 42 Ilculate the product of C. 45 ³ conds. Train H passe in 9 seconds. H. B. Train G is 1 D. Train G is 1 ngths of trains G and	g folded A B B B B B B B B	<i>N</i> add up all product: E. 3 ⁴⁵ 2 seconds in the or as long as train H 1.	s.	ection.		
26. 27. 28. 29.	A rectangular r along line <i>MN</i> How many cm A. 35 D. 47 For every three What is the out A. 45 Train G passes Trains G and H Which statemed A. Train G is the C. Train G is the out For example: 2 We call a natu	piece of paper <i>ABCD</i> such that point <i>C</i> will ² is the area of pentag B. 37 E. 57 e-digit number you ca itcome? B. 45 ² s a signal box in 8 se H will pass each other ent is true? wice as long as train 1 as long as train H. tell the ratio of the lea tral number a funny no 29 is funny, because i funny three-digit num itcome?	of 4 by 16 cm is bein be on point <i>A</i> . gon <i>ABNMD</i> ? C. 42 Includate the product of C. 45 ³ conds. Train H passe r in 9 seconds. H. B. Train G is 1 D. Train G is 1 ngths of trains G and umber if it is the small t is the smallest numl ibers.	g folded A = B B B B B B B B	<i>N</i> add up all product E. 3 ⁴⁵ 2 seconds in the op as long as train H 1. at have the same of its digits is 11.	sum of the	ection.		
26. 27. 28. 29.	A rectangular r along line <i>MN</i> How many cm A. 35 D. 47 For every three What is the out A. 45 Train G passes Trains G and F Which stateme A. Train G is a E. You cannot We call a natu For example: 2 We add up all What is the out A. 4991	piece of paper <i>ABCD</i> such that point <i>C</i> will ² is the area of pentage B. 37 E. 57 e-digit number you can ttcome? B. 45 ² s a signal box in 8 set H will pass each other ent is true? wice as long as train 14. tell the ratio of the left is funny, because if funny three-digit num ttcome? B. 5091	of 4 by 16 cm is bein be on point <i>A</i> . gon <i>ABNIMD</i> ? C. 42 Includate the product of C. 45 ³ conds. Train H passe in 9 seconds. H. B. Train G is 0 D. Train G is 1 ngths of trains G and umber if it is the small t is the smallest numl bers. C. 5191	g folded A = B B B B B B B B	And up all product E. 3 ⁴⁵ R seconds in the operation as long as train H 1. at have the same of its digits is 11. E. 5391	sum of the	ection.		
26. 27. 28. 29. 30.	A rectangular r along line <i>MN</i> How many cm A. 35 D. 47 For every three What is the out A. 45 Train G passes Trains G and H Which stateme A. Train G is th C. Train G is a E. You cannot We call a natu For example: 2 We add up all What is the out A. 4991 Alongside you With each mov As soon as the The aim is to g In how many v	piece of paper <i>ABCD</i> such that point <i>C</i> will ² is the area of pentage B. 37 E. 57 e-digit number you can itcome? B. 45 ² s a signal box in 8 se H will pass each other ent is true? wice as long as train H. tell the ratio of the left is long as train H. tell the ratio of the left train number a funny me 29 is funny, because if funny three-digit num itcome? B. 5091 I see a game board. The pawn arrives at F (Figet the pawn from S to ways is that possible?	of 4 by 16 cm is bein be on point <i>A</i> . gon <i>ABNMD</i> ? C. 42 deculate the product of C. 45 ³ Conds. Train H passe in 9 seconds. H. B. Train G is 1 D. Train G is 1 ngths of trains G and umber if it is the small t is the smallest number. C. 5191 The game starts with p 1 along one line segm inish), the game is ov of F in exactly 13 mov	g folded A B B B B B B B B	A model of the same of its digits is 11.	s.	ection.		

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