

Naam van leerder: /Name of learner: .....

|                            |                                    |
|----------------------------|------------------------------------|
| Hoërskool                  | November /November 2015            |
| Graad/Grade 8              | Tyd/Time: $1\frac{1}{2}$ uur/hours |
| WISKUNDE [Eerste vraestel] | Punte/Marks: 75                    |
| MATHEMATICS [First Paper]  |                                    |
| Eksaminator:               | Moderator:                         |

### INSTRUKSIES EN INLIGTING/INSTRUCTIONS AND INFORMATION

- Hierdie vraestel bestaan uit **VIJF** vrae. Alle vrae moet beantwoord word.  
*This paper consists of FIVE questions. Answer all the questions.*
- Beantwoord Vraag 4.2.2 op Diagramblad. Skryf jou naam in die spasie voorsien en hou dit saam met jou antwoordstel in.  
*Answer Question 4.2.2 on Diagram sheet. Write your name in the space and submit with your answer sheets.*
- Nommer presies soos op die vraestel. Laat 'n spasie na elke nommer.  
*Number the same as on the paper. Leave a space between each number.*
- Begin **ELKE** vraag op 'n **NUWE** bladsy en trek 'n lyn na elke vraag.  
*Start EACH question on a NEW page and draw a line at the end of each question.*
- GEEN** sakrekenaar mag gebruik word nie.  
*NO calculator may be used.*
- Toon **AL** die berekeninge duidelik aan.  
*Show ALL calculations clearly.*
- Dit is tot jou voordeel om netjies te werk. **STERKTE!**  
*It is in your own interest to work neatly. GOOD LUCK!*

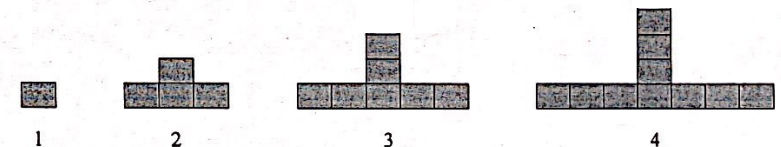
### VRAAG 1/ QUESTION 1

Bepaal:/Determine:

- die faktore van 30/the factors of 30 (2)
- die priemfaktore van 30/the prime factors of 30 (2)
- die vierkant van 30/the square of 30 (1)
- die vierkante wat kleiner as 30/the squares which are less than 30 (2)
- we lang stukke tou word van stukke tou wat 54 m, 72 m, en 90 m is afgesny.  
qual pieces of string are cut from pieces of string with length 54 m, 72 m and 90 m.
- oe lank is die langste stukke tou wat afgesny word as geen tou vermors word nie?  
Find the length of the longest piece of string which can be cut without wasting string? (1)
- Hoeveel stukke tou kan afgesny word?  
How many pieces of string can be cut? (2)

### VRAAG 2/ QUESTION 2

- Bepaal  $\sqrt{1296}$  deur middel van priemfaktore.  
Determine  $\sqrt{1296}$  by means of prime factors. (3)
- In 'n klas met 32 leerlinge is die verhouding tussen die seuns en dogters 5 : 3. Bepaal hoeveel seuns in die klas is.  
In a class of 32 the ratio of number of boys to the number of girls is 5 : 3. Determine how many boys are there in the class. (4)
- 1 Skryf 266 500 000 in wetenskaplike notasie.  
Write 266 500 000 in scientific notation. (2)
- 2 Skryf  $5,33 \times 10^7$  in gewone notasie.  
Write  $5,33 \times 10^7$  in ordinary notation. (1)
- Bestudeer die patroon hieronder en beantwoord die vrae wat daarop volg:  
Study the pattern below and answer the questions that follow:



- Hoeveel vierkante is daar in patroon 5?  
How many squares are in pattern 5? (1)
- Skryf neer 'n formule in die vorm  $y = \dots$ , waar  $y$  die aantal vierkante is en  $x$  die patroon nommer.  
Write down a formula in the form  $y = \dots$  where  $y$  is the number of squares and  $x$  the pattern number. (2)
- Gebruik die formule in 2.4.2 om die aantal vierkante te bepaal in die 100ste patroon.  
Use the formula in 2.4.2 to determine the number of squares in the 100th pattern. (2)

- 2.5 Bestudeer die volgende uitdrukking en beantwoord die vrae wat volg:  
Consider the following expression and answer the questions that follow.

$$-2x - 4x^3 + 3x^2 + 10 + x^4$$

- 2.5.1 Hoeveel terme is daar in die uitdrukking?  
How many terms does the expression have? (1)
- 2.5.2 Bepaal die waarde van die uitdrukking indien  $x = -2$   
Determine the value of the expression if  $x = -2$  (3)
- 2.5.3 Wat is die waarde van die konstante term?  
What is the value of the constant term? (1)
- 2.5.4 Skryf die koëffisiënt van  $x^3$  neer.  
Write down the coefficient of  $x^3$ . (1)
- 2.5.5 Wat is die eksponent van  $x$  in die eerste term?  
What is the exponent of  $x$  in the first term? (1)
- 2.5.6 Skryf die uitdrukking in dalende magte van  $x$  neer.  
Write the expression in descending powers of  $x$ . (1)
- 2.5.7 Wat is die graad van die uitdrukking?  
What is the degree of the expression? (1)
- [24]

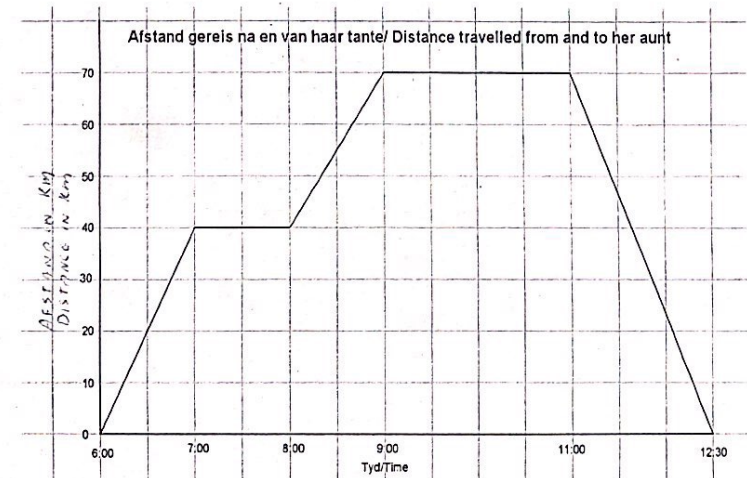
### VRAAG 3/ QUESTION 3

- 3.1 Vereenvoudig/Simplify:

- 3.1.1  $2p \times 3p^2 \times 4p^3$  (2)
- 3.1.2  $2a + 3b + 4a - 5b$  (2)
- 3.1.3  $(-2ab^2c^3)^3$  (2)
- 3.1.4  $-3a^2(a^2 - a - 1)$  (3)
- 3.1.5  $\sqrt{36x^8}$  (2)
- 3.2 Los op vir  $x$ /Solve for  $x$ :
- 3.2.1  $2x - 1 = 8x - 7$  (3)
- 3.2.2  $(3x - 7) - 2(x + 1) = 5$  (3)
- 3.2.3  $\frac{x-2}{3} + 1 = 4$  (3)
- 3.3 'n Vader is drie keer so oud as sy seun. Oor tien jaar sal hy twee keer so oud as sy seun wees. Hoe oud is die Pa nou?  
A father is three times as old as his son. In ten years' time he will be twice as old as his son. How old is the father now? (4)
- [24]

### VRAAG 4/ QUESTION 4

- 4.1 Natasha het haar tante besoek wat 70 km van haar huis woon. Die grafiek toon die afstand wat Natasha van haar huis weg is tydens die besoek.  
Natasha visited her aunt who stays 70km from their house. The graph below show how she travelled.



- 4.1.1 Hoe laat het Natasha haar huis verlaat?  
What time did Natasha leave her home? (1)
- 4.1.2 Hoe laat het Natasha by haar tante se huis aangekom?  
What time did she arrive at her aunt's house? (1)
- 4.1.3 Hoeveel tyd het Natasha by haar tante deurgebring?  
For how long did she stay at her aunt's house? (1)
- 4.1.4 Hoe laat het Natasha weer tuis gekom?  
What time did she get back home eventually? (1)

4.2 Gegee :/Given:  $y = -2x + 3$ .

|     |    |   |   |   |   |
|-----|----|---|---|---|---|
| $x$ | -1 | 0 | 1 | 2 | 3 |
| $y$ |    |   |   |   |   |

4.2.1 Kopieër en voltooi die tabel  
*Copy and complete the table*

(5)

4.2.2 Op BYLAE A steek die punte van die tabel op die Cartesiese vlak af. Teken die grafiek.  
*On ADDENDUM A plot the points on the Cartesian plane. Draw the graph.*

(3)

4.3 Kaarte genommer van 1 tot 12 word in 'n hoed geplaas. Die hoed word geskud en een kaart word dan getrek en teruggeplaas.  
*Cards numbered from 1 to 12 are placed in a hat and shaken. Cards are then drawn and replaced.*

4.3.1 Wat is die waarskynlikheid dat die nommer 'n ewe getal is?  
*What is the probability that the number is an even number?*

(3)

4.3.2 Wat is die waarskynlikheid dat die nommer 'n priemgetal is?  
*What is the probability that the number is a prime number?*

(2)

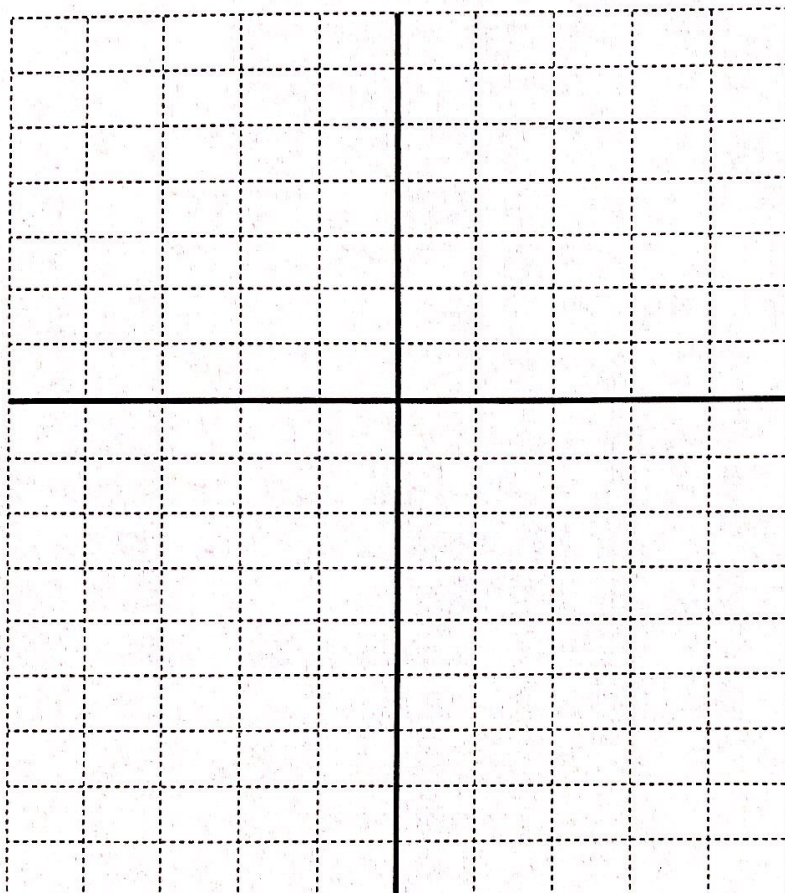
[17]

**TOTAAL/TOTAL: 75**

BYLAAG A:

NAAM VAN LEERDER: \_\_\_\_\_

GRAAD 8 (   )



# MEMORANDUM

HOERSKOOI

GRAAD 8

WISKUNDE I

ERSAMINATOR:

November 2015

Tyd: 1½ uur

Punte: 75

MODERATOR:

## VRAAS 1

1.1) 1; 2; 3; 5; 6; 10; 15; 30

✓✓ antw

1.2) 5

✓✓ antw

1.3)

✓ antw

1.4) 4; 9; 16; 25

✓✓ antw [-1 per fout]

1.5.1) 18 m

✓ antw

1.5.2) 3 + 4 + 5 = 12 stukke

✓✓ CA antw (1.5.1)

## VRAAS 2

[10]

2.1) 2 1296

2 648

2 324

2 162

3 81

✓ deling deur priemgetalle

27

9

3

✓  $2^4 \times 3^4$

=  $2^2 \times 3^2$

= 36

✓ priemfaktore.

(3) ✓ antw

2.2)  $\frac{5}{8} \times \frac{32}{1} = 20$  seuns

✓ 5

✓ 8

✓ 32

(4) ✓ antw

2.4.1) 4 13

(1) ✓ antw

2.4.2)  $y = 3x - 2$

(2) ✓  $3 \times x$

✓ -2

2.4.3)  $y = 3(100) - 2$

✓ subst 100

= 298

(2) ✓ antw

2.5.1) 5 terme

(1) ✓ antw

2.5.2)  $-2(-2) - 4(-2)^3 + 3(-2)^2 + 10 + (-2)^4$

✓ subst van -2

$-2(-2) - 4(-8) + 3(4) + 10 + (16)$

✓ magte

$4 + 32 + 12 + 10 + 16$

74

(3) ✓ antw

2.5.3) 10

(1) ✓ antw

2.5.4) -4

(1) ✓ antw

2.5.5) 1

(1) ✓ antw

2.5.6)  $x^4 - 4x^3 + 3x^2 - 2x + 10$

(1) ✓ antw

2.5.7) 4 de graad

(1) ✓ antw

## VRAAS 3

[24]

3.1.1)  $24p^6$

(2) ✓  $24$  ✓  $p^6$

3.1.2)  $6a - 2b$

(2) ✓  $6a$  ✓  $-2b$

3.1.3)  $-8a^3b^6c^9$

(2) ✓  $-8$  ✓  $a^3b^6c^9$

3.1.4)  $-3a^4 + 3a^3 + 3a^2$

(3) ✓  $-3a^4$  ✓  $3a^3$  ✓  $3a^2$

3.1.5)  $6x^4$

(2) ✓  $6$  ✓  $x^4$

3.2.1)  $2x - 8x = -7 + 1$

✓ inverse

$-6x = -6$

✓ vereenvoudig

$x = 1$

(3) ✓ antw

3.2.2)  $3x - 7 - 2x - 2 = 5$

✓ verm. van ( )

$3x - 2x = 5 + 7 + 2$

✓ inverse

$= 14$

(3) ✓ antw

$4 - 1$

✓ inverse

$= 3 \times 3$

✓ verm

$= 11$

(3) ✓ antw

3.3)  $scm = x + 10$   
 $pa = 3x + 10$   
 $2(x + 10) = 3x + 10$   
 $2x + 20 = 3x + 10$   
 $x = 10$   
 $pa = 3(10) = 30$

#### VRAAG 4

4.1.1) 6:00

4.1.2) 9:00

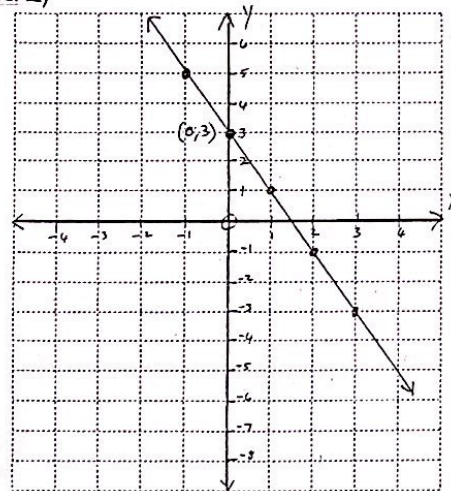
4.1.3) 2 uur

4.1.4) 12:30

4.2.1)

|   |    |   |   |    |    |
|---|----|---|---|----|----|
| x | -1 | 0 | 1 | 2  | 3  |
| y | 5  | 3 | 1 | -1 | -3 |

4.2.2)



4.3.1)  $\frac{6}{12} = \frac{1}{2}$

4.3.2)  $\frac{5}{12}$

✓ vergelyking

✓ verm van 2.

✓  $scm = 10$

(4) ✓  $pa = 30$

[24]

(1) ✓ antw

(1) ✓ antw

(1) ✓ antw

(1) ✓ antw

✓ 5 ✓ 3 ✓ 1

✓ -1 ✓ -3

(5)

✓ (0;3)

✓ reguitlyn

✓ nommers op asseksel.

(3)

✓ 6 ✓ 12

(3) ✓ vereenvoudig