UNIVERSITY EXAMINATIONS



UNIVERSITEITSEKSAMENS

UNISA university of south africa

BNU1501 (491930) October/November 2019

Department of Decision Sciences
Basic Numeracy

Duration 2 Hours 100 Marks

EXAMINERS

FIRST	DR MT MASETSHABA
SECOND	PROF PH POTGIETER
EXTERNAL	DR HZ WIGGINS

Programmable pocket calculator is permissible

Closed book examination

This examination question paper remains the property of the University of South Africa and may not be removed from the examination venue

This paper consists of 16 pages, which include a list of formulas on page 16 and eight sheets of paper for rough work, plus instructions for completing the mark-reading sheet

Answer *all* the questions

Complete the attendance register on the back page of this paper, tear it off and hand it to the invigilator.

Answer *all* the questions on the mark-reading sheet supplied Carefully follow the instructions for completing the mark-reading sheet Pay attention to the following

- Only one option (indicated as [1] [2], [3] or [4]) per question is correct Do not mark more than one option per question on the mark-reading sheet
- Where necessary, answers are rounded off
- Marks will not be deducted for incorrect answers
- The paper consists of 25 questions for a total of 100 marks
- Where necessary, answers are rounded and you should choose the option closest to the exact number

Write your name on the mark-reading sheet. This will enable us to link you to the mark-reading sheet should you enter your student number incorrectly.

Question 1

Round off 123,446 to one decimal digit **and** to an integer, respectively

[1] 123,5 and 123

[2] 123,4 and 123

[3] 123,4 and 124

[4] 123,5 and 124

Question 2

Suppose Xolile travels x kilometres in 2 hours at a certain average speed How many kilometres in terms of x will Xolile travel in 3 hours at the same average speed?

[1] $3x$

[2] $\frac{2x}{3}$

[3] $6x$

[4] $\frac{3x}{2}$

Question 3

Simplify the following expression as far as possible

$$\sqrt{16x^4}\sqrt{x^8}\,x^3$$

[1] $16x^9$

[2] $8x^9$

[3] $4x^9$

[4] $4\sqrt{x^{13}}$

Question 4

Simplify the following expression

$$\frac{1}{2}-\frac{7}{8}-\frac{3}{4}+\frac{2}{3}$$

[1] $-\frac{4}{3}$

[2] $-\frac{35}{32}$

[3] 0

[4] $\frac{1}{6}$

ROUGH WORK

Question 5

Solve for a in the following equation

$$7 + 4a = 3(2a - 1)$$

[1] $a = 5$

[2] $a = 4$

[3] $a = 2$

[4] $a = \frac{2}{5}$

Question 6

Solve for x in the following equation

$$\frac{5}{8}x + \frac{1}{2} = \frac{3}{4}x$$

[1] $x = \frac{1}{2}$

[2] $x = 4$

[3] $x = \frac{1}{4}$

[4] $x = 2$

Question 7

Solve for p in the following equation

$$2(2 + p) + 4 = 5 - 3(p - 1)$$

[1] $p = 0$

[2] $p = 5$

[3] $p = -1\ 5$

[4] $p = 10$

Question 8

Simplify the following expression to its simplest form

$$3x^2 - (x + 2) - 2(1 - x)x$$

[1] $5x^2 - 3x - 2$

[2] $x^2 - 3x - 2$

[3] $x^2 - 3x + 2$

[4] $5x^2 - x - 2$

ROUGH WORK

Question 9

Simplify the following to its simplest form

$$\frac{1}{10x^2y^3} - \frac{2}{15x^3y^2} + \frac{3}{6x^2y^2}$$

[1] $\frac{1}{xy}$

[2] $\frac{1}{450x^7y^7}$

[3] $\frac{3x - 4y + 15xy}{30x^3y^3}$

[4] $\frac{7}{15x^2y^2}$

Question 10

If $s = \sqrt{pq} - r$, make p the subject of the formula

[1] $p = \frac{(r+s)^2}{q}$

[2] $p = q(r+s)^2$

[3] $p = \frac{(s-r)^2}{q}$

[4] $p = \frac{s+r}{q}$

Question 11

The tuition and residence fees at a certain university amount to R30 000 for the year The residence fee is R6 000 more than twice the tuition fee Calculate the residence fee in rand terms (Hint Assume the tuition fee is x rand)

[1] 24 000

[2] 16 000

[3] 8 000

[4] 22 000

Question 12

Suppose a smartphone costs R1 999,99 (VAT inclusive) The VAT exclusive price is R1 750,54 What is the percentage of VAT charged (rounded to two decimal places)?

[1] 14%

[2] 14,25%

[3] 14,75%

[4] 15%

ROUGH WORK

Question 13

Dr Sabata offers a 22% discount off the original R1 500 consultation fees if you pay cash instead of using your medical aid savings portion If you pay cash, how much will you pay and how much will you save?

[1] pay R1 076,92 and save R423,08

[2] pay R1 478 and save R22

[3] pay R1 170 and save R330

[4] pay R1 830 and save R330

Question 14

Of the animals on a farm, 24 are goats There are twice as many cows as horses There are four more horses than half the number of goats How many animals are on the farm in total?

[1] 72

[2] 54

[3] 168

[4] 312

Question 15

Dan, Thabo and Ridwaan contribute R2 250, R1 800 and R1 350 respectively to start a business After the first month, the business makes a profit of R8 700 The profit is split in the same ratio as their initial contributions How much will Ridwaan receive?

[1] R1 350

[2] R1 800

[3] R2 175

[4] R2 900

Question 16

A straight line passing through points $(-3, 1)$ and $(1, 0)$ has a(n) _____ slope and an equation _____

[1] ascending, $y = 4 - 4x$

[2] descending, $y = 4 - 4x$

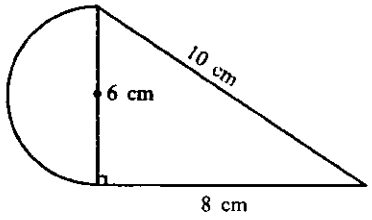
[3] ascending, $x + 4y = 1$

[4] descending, $x + 4y = 1$

ROUGH WORK

Question 17

Consider the diagram below The diameter of the semi-circle fits perfectly on the shortest side of the triangle Calculate the perimeter of this shaded figure (in cm)



[1] 24,00

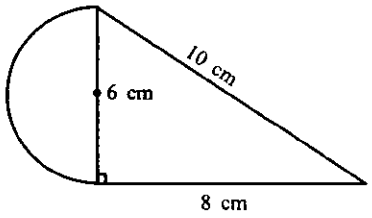
[2] 36,42

[3] 33,42

[4] 27,42

Question 18

Consider the diagram below The diameter of the semi-circle fits perfectly on the shortest side of the triangle Calculate the area of this shaded figure (in square centimetres)



[1] 38,14

[2] 44,14

[3] 52,27

[4] 54,14

Question 19

Determine the diameter (in metres) of a cylindrical water reservoir that holds a volume of 254 469 litres of water and is 9 metres high

[1] 9

[2] 3

[3] 4,5

[4] 6

ROUGH WORK

Question 20

Morongwa wants to cover her bedroom floor of dimensions 2 m × 3 m with carpet tiles She considers buying tiles of dimensions 50 cm × 60 cm Determine the minimum number of tiles sufficient to cover Morongwa's bedroom floor

[1] 30

[2] 20

[3] 18

[4] 6

Question 21

On 1 January 2012, Dikeledi banked R20 000 in an account earning a simple interest rate of 10% per year 1 Three years later, she banked a further R10 000 in a new account at 12% per annum simple interest rate Determine the total amount that Dikeledi will have at the end of the year 2019

[1] R48 800

[2] R52 000

[3] R57 600

[4] R53 280

Question 22

What is the difference in the interest amount (to the nearest rand) earned between a simple interest account and an annually compounded interest account if R100 000 is invested for 5 years at 10% per annum?

[1] 14 531

[2] 11 051

[3] 45 763

[4] 31 759

Question 23

Hlayiseka needs an amount of R100 000 in two years' time He wants to make quarterly payments into an account offering a 6% annual interest rate, compounded quarterly What should the minimum quarterly payment be?

[1] R12 135,92

[2] R13 358,40

[3] R11 858,40

[4] R13 365,92

ROUGH WORK

Question 24

A loan was granted to Motlanalo for a term of 20 years at a fixed interest rate of 12% per annum, compounded half-yearly The half-yearly payments were R15 950,77 If Motlanalo paid all her half-yearly amounts in full, determine what the outstanding balance (to the nearest rand) was at the end of 13 years

[1] 210 718

[2] 148 262

[3] 114 720

[4] 92 640

Question 25

A young woman takes out a mortgage loan on a R500 000 apartment and pays R10 871,21 monthly towards the loan She negotiates an interest rate of 11% per annum compounded monthly How long will it take her to pay off the loan?

[1] 46 months

[2] 20 years

[3] 60 years

[4] 5 years

TOTAL: 100

ROUGH WORK

FORMULAS

$$C = 2(l + w)$$
$$C = 4l$$
$$C = a + b + c$$
$$C = 2\pi r$$

$$A = l \times w$$
$$A = l^2$$
$$A = \tfrac{1}{2}bh$$
$$A = \pi r^2$$

$$V = l^3$$
$$V = l \times base \times h$$
$$V = \pi r^2 h$$

$$y - y_1 = m\,(x - x_1)$$

$$\frac{y - y_1}{x - x_1} = \frac{y_2 - y_1}{x_2 - x_1}$$

$$I = Prt$$

$$S = P\,(1 + rt)$$

$$S = P\,(1 + i)^n$$

$$P = R\left[\frac{(1 + i)^n - 1}{i(1 + i)^n}\right]$$

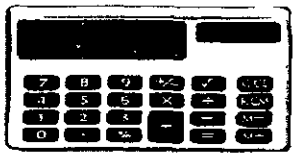
$$n = \frac{\log\left[\frac{R}{R - iP}\right]}{\log(1 + i)}$$

$$n = \frac{\log\left(1 + \frac{iS}{R}\right)}{\log(1 + i)}$$

$$S = R\left[\frac{(1 + i)^n - 1}{i}\right]$$

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Leli phepha liqukethe amakhasi ayi- 16 okuhlanganisa uhla lwamafomula ekhasini le- 16 kanye namakhasi ayisishiyagalombili ozowasebenzisela amalungiselelo omsebenzi ngaphambi kokuba ubhale izimpendulo eziphothuliwe (rough work), ngaphezu kwalokho, imiyalelo ngokugcwaliswa kwepheshana lokuqopha izimpendulo (mark-reading sheet)

Gcwalisa irejista ekhasini elingasemuva kwaleli phepha, uyidabule uyisuse kuleli phepha lemibuzo, bese uyinika umqaphi wokuhlolwa (invigilator).

Yonke imibuzo iphendulele epheshaneni lokuqopha izimpendulo onikwe lona Landela ngokucophelela imiyalelo yokugcwaliswa kwepheshana lokuqopha izimpendulo Qaphela lokhu okulandelayo

- Kunempendulo eyodwa vo (ebekwe kwathiwa ngu [1], [2], [3] noma [4]) kulowo nalowo mbuzo okuyiyona eshaya emhlolweni Ungakhethi izimpendulo ezeqile kweyodwa kulowo nalowo mbuzo epheshaneni lokuqopha izimpendulo
- Lapho kuqikelekile, *izimpendulo zibekwe zasondezelwa enambeni eseduze ngokuphelele*
- Amamaki osuwatholile ngeke axetshulwe uma ubhala izimpendulo ezingezona
- Iphepha linemibuzo engama-25 ngamamaki ayi-100 esewonke
- Lapho kuqikelekile, izimpendulo zibekwe zasondezelwa enombolweni eseduze ephelele, ngakho kufanele ukhethe impendulo esondele kunazo zonke kule nombolo okuyiyo ncamashi

Bhala igama lakho epheshaneni lokuqopha izimpendulo. Lokhu kuzosisiza ukuba sikuxhumanise nepheshana lokuqopha izimpendulo uma kwenzekile wabhala inombolo yakho yomfundi ngokungekona.

Umbuzo 1

Sondezela u-123,446 ku-decımal dıgıt eyodwa kanye ne-ınteger ngokulandelana

[1] 123,5 kanye no-123

[2] 123,4 kanye no- 123

[3] 123,4 kanye no- 124

[4] 123,5 kanye no- 124

Umbuzo 2

Ake sıthı uXolıle uhamba amakhılomıtha angu-x emahorenı amabılı ngejubane elıthıle Mangakı amakhılomıtha, ngokuka-x, azohanjwa nguXolıle emahorenı amathathu ngalelo jubane elılınganısıwe?

[1] $3x$

[2] $\frac{2x}{3}$

[3] $6x$

[4] $\frac{3x}{2}$

Umbuzo 3

Yenza-lula lesıbalo ngangokungenzeka

$$\sqrt{16x^4}\sqrt{x^8}\,x^3$$

[1] $16x^9$

[2] $8x^9$

[3] $4x^9$

[4] $4\sqrt{x^{13}}$

Umbuzo 4

Yenza-lula lesı sıbalo

$$\frac{1}{2}-\frac{7}{8}-\frac{3}{4}+\frac{2}{3}$$

[1] $-\frac{4}{3}$

[2] $-\frac{35}{32}$

[3] 0

[4] $\frac{1}{6}$

AMALUNGISELELO OMSEBENZI

Umbuzo 5

Xazululela u-a kulesi sibalo esilandelayo

$$7 + 4a = 3(2a - 1)$$

[1] $a = 5$

[2] $a = 4$

[3] $a = 2$

[4] $a = \frac{2}{5}$

Umbuzo 6

Xazululela u-x kulesi sibalo esilandelayo

$$\frac{5}{8}x + \frac{1}{2} = \frac{3}{4}x$$

[1] $x = \frac{1}{2}$

[2] $x = 4$

[3] $x = \frac{1}{4}$

[4] $x = 2$

Umbuzo 7

Xazululela u-p kulesi sibalo esilandelayo

$$2(2 + p) + 4 = 5 - 3(p - 1)$$

[1] $p = 0$

[2] $p = 5$

[3] $p = -1\ 5$

[4] $p = 10$

Umbuzo 8

Yenza-lula lesi sibalo esishiwo ngezansi size sifike lapho sicace khona

$$3x^2 - (x + 2) - 2(1 - x)x$$

[1] $5x^2 - 3x - 2$

[2] $x^2 - 3x - 2$

[3] $x^2 - 3x + 2$

[4] $5x^2 - x - 2$

AMALUNGISELELO OMSEBENZI

Umbuzo 9

Yenza-lula lesi sibalo esishiwo ngezansi size sifike lapho sicace khona

$$\frac{1}{10x^2y^3} - \frac{2}{15x^3y^2} + \frac{3}{6x^2y^2}$$

[1] $\frac{1}{xy}$

[2] $\frac{1}{450x^7y^7}$

[3] $\frac{3x - 4y + 15xy}{30x^3y^3}$

[4] $\frac{7}{15x^2y^2}$

Umbuzo 10

Lapho $s = \sqrt{pq} - r$, yenza u-p abe yinhloko yefomula

[1] $p = \frac{(r+s)^2}{q}$

[2] $p = q\,(r+s)^2$

[3] $p = \frac{(s-r)^2}{q}$

[4] $p = \frac{s+r}{q}$

Umbuzo 11

Imali yokufunda kanye neyokukhokhela indawo yokuhlala enyuvesi thizeni ifika kuma-R30000 ngonyaka Imali yokukhokhela indawo yokuhlala ingama-R6 000 ngaphezu kwemali yokufunda iphindwe kabili Bala imali yokukhokhela indawo yokuhlala, ngamarandi (Sikisela Thatha ngokuthi imali yokufunda ingamarandi angu-x)

[1] 24 000

[2] 16 000

[3] 8 000

[4] 22 000

AMALUNGISELELO OMSEBENZI

Umbuzo 12

Ake sithi umakhalekhukhwini wesimanje (smartphone) ubiza i-R1 999,99 (kuhlanganisa nentela yentengo-VAT) Inani ngaphandle kwentela yentengo liba i-R1 750,54 Lithini iphesenti lentela yentengo efunakalayo (esondezelwe kuma-decimal places amabili)?

[1] 14%

[2] 14,25%

[3] 14,75%

[4] 15%

Umbuzo 13

UDokotela uSabata upha isaphulelo sama-22% emalini yokubona udokotela eyi-R1 500 uma ukhokha ukheshi kunokuba ukhokhe ngekhadi losizo lwezokwelapha Uma ukhokha ukheshi, yimalini ozoyikhokha futhi yimalini ozoyonga?

[1] khokha i-R1 076,92 bese wonga ama-R423,08

[2] khokha u-R1 478 bese wonga ama-R22

[3] khokha u-R1 170 bese wonga ama-R330

[4] khokha u-R1 830 bese wonga ama-R330

Umbuzo 14

Ezilwaneni ezisepulazini, ezingama-24 yizimbuzi Inani lezinkomo liphindwe kabili kunalelo lamahhashi Kunamahhashi amane ngaphezu kwenani eliyingxenye yezimbuzi Zingaki izilwane sezizonke epulazini?

[1] 72

[2] 54

[3] 168

[4] 312

Umbuzo 15

UDan, uThabo noRidwaan bafaka ama-R2 250, i-R1 800 ne-R1 350 ngokulandelana ukuhlanganisela ukuthi baqale ibhizinisi Emva kwenyanga yokuqala, ibhizinisi lenza inzuzo yezi-R8 700 Le nzuzo ihlukaniswa ngesilinganiso esifanayo njengemali abayitshale ekuqaleni Ngabe uRidwaan uzothola malini?

[1] R1 350

[2] R1 800

[3] R2 175

[4] R2 900

AMALUNGISELELO OMSEBENZI

Umbuzo 16

Umugqa oqondile udlula phakathi kwa $(-3, 1)$ no-$(1, 0)$ uno _____ (n) ummango kanye ne-ikhweyishini _____

[1] ngokwenyuka, $y = 4 - 4x$

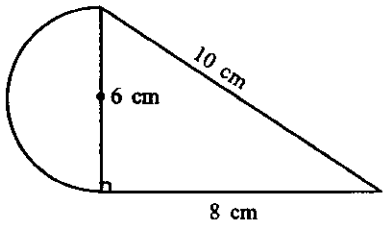
[2] ngokwehla, $y = 4 - 4x$

[3] ngokwenyuka, $x + 4y = 1$

[4] ngokwehla, $x + 4y = 1$

Umbuzo 17

Bheka lo mdwebo ongezansi Inkabamudwa (diameter) yoccezu lwesiyingi lwancla khaxa ohlangothini olufushane kunazo zonke zikanxantathu Bala umjikelezo (perimeter) walo mdwebo ohuqiwe (ngama-cm)



[1] 24,00

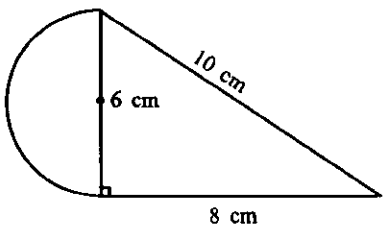
[2] 36,42

[3] 33,42

[4] 27,42

Umbuzo 18

Bheka lo mdwebo ongezansi Inkabamudwa (diameter) yocezu lwesiyingi lwanela khaxa ohlangothini olufushane kunazo zonke zikanxantathu Bala ubungako bendawo ehuqiwe (ngama-square centimetres)



[1] 38,14

[2] 44,14

[3] 52,27

[4] 54,14

AMALUNGISELELO OMSEBENZI

Umbuzo 19

Nquma ınkabamudwa (ngamamıtha) yethange lamanzı elısasılında elıthwala umthamo oyızı-254 469 wamalıtha amanzı futhı lıyı-9 wamamıtha ubude ukuya phezulu

[1] 9

[2] 3

[3] 4,5

[4] 6

Umbuzo 20

UMorongwa ufuna ukuthı ıphansı legumbı lakhe lokulala elıbungako obungu-2 m × 3 m alemboze ngamathayılı awukhaphethı Ucabanga ukuthenga amathayılı obungako bungu-50 cm × 60 cm Nquma ınanı elıncane elıngemboza okungenanı ıphansı legumbı lokulala lıkaMorongwa

[1] 30

[2] 20

[3] 18

[4] 6

Umbuzo 21

Ngomhlaka 1 kuMasıngana ngonyaka we-2012, uDıkeledı wafaka ama-R20 000 ebhange lokulondoloza ımalı (account) olunıkcza ınanı lenzalo engama-10% ngonyaka Emva kweminyaka emıthathu, wafaka omunye futhı u-R10 000 kolunye ulondolozomalı ngenanı lenzalo engama-12% ngonyaka Nquma ukuthı uDıkeledı uzobe esenamalını ısıyonke ngokuphela konyaka wezı-2019

[1] R48 800

[2] R52 000

[3] R57 600

[4] R53 280

Umbuzo 22

Uzoba yını umehluko emalını yenzalo (sondezela erandını elıseduze) ezuzwayo phakathı kwe-sımple ınterest account kanye ne-compounded ınterest account yamınyaka yonke uma kutshalwa ama-R100 000 ngemınyaka emıhlanu nge-10% ngonyaka?

[1] 14 531

[2] 11 051

[3] 45 763

[4] 31 759

AMALUNGISELELO OMSEBENZI

Umbuzo 23

UHlayiseka udinga imali engama-R100 000 esikhathini esiyiminyaka emibili Ufuna ukukhokha ngezikhawu ezingamakota kulondolozomali olunikeza imani lenzalo eliyi-6% ngonyaka, ehlanganiswe ngezikhawu zamakota (compounded quarterly) Kufanele akhokhe okungenani okungakanani ngekota?

[1] R12 135,92

[2] R13 358,40

[3] R11 858,40

[4] R13 365,92

Umbuzo 24

Imalimboleko yanikwa uMotlanalo ukuthi ibuyiselwe ngeminyaka engama-20 ngenani lenzalo elimile (fixed interest rate) li-12% ngonyaka, ehlanganiswe ngezikhawu eziyingxenye yonyaka Inkokhelo yengxenye yonyaka ibe yi-R15 950,77 Uma uMotlanalo ekhokhela ngokuphelele zonke izimali okufanele zikhokhwe ngezingxenye zonyaka, nquma ukuthi imali ezobe isasele ukuthi ayikhokhe (sondezela eraindini eliseduze) imalini ekupheleni kweminyaka eyi-13

[1] 210 718

[2] 148 262

[3] 114 720

[4] 92 640

Umbuzo 25

Owesimame osemusha uthatha imalimboleko yendlu yama-500 000 bese ekhokha i-R10 871,21 nyanga zonke ekhokhela le malimboleko Ngokuxoxisana, uthola imani lenzalo eliyi-11% ngonyaka ehlanganiswa nyanga zonke (compounded monthly) Kuzomthatha isikhathi esingakanani ukuthi akhokhele aqede imalimboleko?

[1] 46 months

[2] 20 years

[3] 60 years

[4] 5 years

AMAMAKI APHELELE: 100

AMALUNGISELELO OMSEBENZI

AMAFOMULA

$$C = 2(l + w)$$
$$C = 4l$$
$$C = a + b + c$$
$$C = 2\pi r$$

$$A = l \times w$$
$$A = l^2$$
$$A = \tfrac{1}{2}bh$$
$$A = \pi r^2$$

$$V = l^3$$
$$V = l \times base \times h$$
$$V = \pi r^2 h$$

$$y - y_1 = m\,(x - x_1)$$

$$\frac{y - y_1}{x - x_1} = \frac{y_2 - y_1}{x_2 - x_1}$$

$$I = Prt$$

$$S = P\,(1 + rt)$$

$$S = P\,(1 + i)^n$$

$$P = R\left[\frac{(1 + i)^n - 1}{i(1 + i)^n}\right]$$

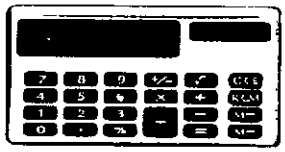
$$n = \frac{\log\left[\frac{R}{R - iP}\right]}{\log(1 + i)}$$

$$n = \frac{\log\left(1 + \frac{iS}{R}\right)}{\log(1 + i)}$$

$$S = R\left[\frac{(1 + i)^n - 1}{i}\right]$$

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UNIVERSITY EXAMINATIONS



UNIVERSITEITSEKSAMENS

UNISA university of south africa

BNU1501 (491930) October/November 2019

Department of Decision Sciences
Basic Numeracy

Duration 2 Hours 100 Marks

EXAMINERS

FIRST	DR MT MASETSHABA
SECOND	PROF PH POTGIETER
EXTERNAL	DR HZ WIGGINS

Programmable pocket calculator is permissible

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Bammbiri ili li na masiatari a 16, li katela na mutevhe wa dzifomula kha siatari la vhufumirathi (16) na masiatari a malo a u itela mvetamveto, na ndaela ya u dadza bammbiri la u nwalela khalo (mark-reading sheet)

Kha vha fhindule mbudziso dzothe

Kha vha dadze redzhisitara ya u divhonadza mafheloni a bammbiri la mulingo, vha kherule vha nekedze munwalisi wa mulingo

Kha vha fhindule mbudziso dzothe kha bammbiri la u nwalela khalo (mark-reading sheet) le vha newa Vha tevhedze ndaela ya u dadza bammbiri la u nwalela khalo (mark-reading sheet) Vha dzhiele nzhele zwi tevhelaho

- Phindulo nthihi fhedzi (yo sumbedzwaho sa [1], [2], [3] or [4]) kha mbudziso nthihi ndi yone ya vhukuma Vha so ngo swifhadza phindulo dzi fhiraho mbili kha garata ya u nwalela khayo (mark-reading sheet)
- He zwa tea, phindulo dzo iswa kha tsha tsini
- Maraga a dzi nga tusiwi kha phindulo i si yone
- Bammbiri ili li na mbudziso dza 25 dzi itaho maraga dza 100
- He zwa tea, phindulo dzi a iswa kha tsha tsini zwino vhone vha nange phindulo i re tsini na phindulo ya vhukuma

Kha vha nwale dzina lavho kha bammbiri la u nwalela khalo (mark-reading sheet). Izwi zwi do ita uri ri kone u vha livhanya bammbiri la u nwalela khano (mark-reading sheet) arali zwa nga itea vha vha vho khakha nomboro ya mutshudeni vha tshi nwala

Mbudziso 1

Kha vha ıse tsha tsını tsha 123,446 kha desımala nthıhı u ya kha ınthega "ınterger"

[1] 123,5 na 123

[2] 123,4 na 123

[3] 123,4 na 124

[4] 123,5 na 124

Mbudziso 2

Kha rı dzhıe urı Xolıle u tshımbıla khı̓omıthara dza X nga awara mbılı nga luvhılo lunwe-vho nga u angaredza Ndı khı̓omıthara nngana ro zwı lıvhısa na khılomıthara dza X dzıne Xolıle a d̓o dzı tshımbıla nga awara tharu nga luvhılo lune a lu tshımbıla sa musı a tshı tshımbıla awara mbılı?

[1] $3x$

[2] $\frac{2x}{3}$

[3] $6x$

[4] $\frac{3x}{2}$

Mbudziso 3

Kha vha leludze (sımplıfy) mbalo ı tevhelaho u ya nga hune vha kona ngaho

$$\sqrt{16x^4}\sqrt{x^8}\,x^3$$

[1] $16x^9$

[2] $8x^9$

[3] $4x^9$

[4] $4\sqrt{x^{13}}$

Mbudziso 4

Kha vha leludze (sımplıfy) mbalo ıyı

$$\frac{1}{2}-\frac{7}{8}-\frac{3}{4}+\frac{2}{3}$$

[1] $-\frac{4}{3}$

[2] $-\frac{35}{32}$

[3] 0

[4] $\frac{1}{6}$

MUSHUMO WA MVETAMVETO

Mbudziso 5

Kha vha tandululele a kha ikhwesheni i tevhelaho (Solve for a in the following equation)

$$7 + 4a = 3(2a - 1)$$

[1] $a = 5$

[2] $a = 4$

[3] $a = 2$

[4] $a = \frac{2}{5}$

Mbudziso 6

Kha vha tandulule x kha ikhwesheni i tevhelaho (Solve for x in the following equation)

$$\frac{5}{8}x + \frac{1}{2} = \frac{3}{4}x$$

[1] $x = \frac{1}{2}$

[2] $x = 4$

[3] $x = \frac{1}{4}$

[4] $x = 2$

Mbudziso 7

Kha vha tandulule p kha ikhwesheni i tevhelaho (Solve for p in the following equation)

$$2(2 + p) + 4 = 5 - 3(p - 1)$$

[1] $p = 0$

[2] $p = 5$

[3] $p = -1\ 5$

[4] $p = 10$

Mbudziso 8

Kha vha leludze mbalo iyi i ye kha tshivhumbeo tshayo tsha fhasisa (Simplify the following expression to its simplest form)

$$3x^2 - (x + 2) - 2(1 - x)x$$

[1] $5x^2 - 3x - 2$

[2] $x^2 - 3x - 2$

[3] $x^2 - 3x + 2$

[4] $5x^2 - x - 2$

MUSHUMO WA MVETAMVETO

Mbudziso 9

Kha vha leludze mbalo iyi i ye kha tshivhumbeo tshayo tsha fhasisa (Simplify the following expression to its simplest form)

$$\frac{1}{10x^2y^3} - \frac{2}{15x^3y^2} + \frac{3}{6x^2y^2}$$

[1] $\frac{1}{xy}$

[2] $\frac{1}{450x^7y^7}$

[3] $\frac{3x - 4y + 15xy}{30x^3y^3}$

[4] $\frac{7}{15x^2y^2}$

Mbudziso 10

Arali $s = \sqrt{pq} - r$, kha ite p mune wa fomula (If $s = \sqrt{pq} - r$, make p the subject of the formula)

[1] $p = \frac{(r+s)^2}{q}$

[2] $p = q(r+s)^2$

[3] $p = \frac{(s-r)^2}{q}$

[4] $p = \frac{s+r}{q}$

Mbudziso 11

Mashelemi a mutendelo na a vhudzulo kha imwe univesithi nga nwaha ndi R30 000 Tshelede ya vhudzulo ndi R6 000 luvhili u fhira a mutendelo Kha vha wane mashelemi a vhudzulo, u ya nga rannda (U vha thusa Kha vha dzhie mashelemi a mutendelo hu rannda dza X)

[1] 24 000

[2] 16 000

[3] 8 000

[4] 22 000

Mbudziso 12

Kha vha dzhie lutingokhwalwa lu tshi khou ita R1 9999,99 (lwo katela na muthelo wa VAT) Lu so ngo katela na muthelo wa VAT ndi R1 750 54 Tsha dana tsha muthelo wa VAT ndi vhugai (vho isa kha tsha tsini tsha vhuvhili tsha decimala) (rounded to two decimal places)

[1] 14%

[2] 14,25%

[3] 14,75%

[4] 15%

MUSHUMO WA MVETAMVETO

Mbudziso 13

Dokotela Sabata vha khou ṋekedza luafhulelwo lwa 22% kha mutenngo wa u thoma wa R1 500 ya u ṱolwa arali vha tshi khou badela nga tshelede madzuloni a u shumisa tshipida tsha u vhulunga tsha garaṱa ya dzilafho ḽavho Arali vha badela nga tshelede, vha ḓo badela vhugai nahone vha ḓo vha vho vhulunga vhugai?

[1] Kha vha badele R1 076,92 vha vhulunge R423,08

[2] Kha vha badele R1 478 vha vhulunge R22

[3] Kha vha badele R1 170 vha vhulunge R330

[4] Kha vha badele R1 830 vha vhulunge R330

Mbudziso 14

Kha zwifuwo zwire bulasini, zwa 24 ndi mbudzi Zwo anda kavhili u fana na kholomo na dzibere Hu na bere nṋa hafu ya tshivhalo tsha mbudzi Hu na zwifuwo zwingana bulasini zwo ṱangana?

[1] 72

[2] 54

[3] 168

[4] 312

Mbudziso 15

Dan, Thabo na Ridwaan vha bvisa R2 250, R1 800 na R1 350 nga u tevhekana havho u thoma bindu Nga murahu ha nwedzi wa u thoma, bindu ḽi ita mbuelo ya R8 700 Mbuelo i khethekanywa nga reshio (Ratio) sa zwe vha bvisisa zwone vha tshi thoma Ridwaan u wana vhugai?

[1] R1 350

[2] R1 800

[3] R2 175

[4] R2 900

Mbudziso 16

Mutalo wo tou tswu u fhira kha vhukati ha phoindi (−3, 1) na (1, 0) u na (n) _____ (n) u gonya (slope) na ekhwesheni (equation) _____

[1] u gonyela nnha (ascending), $y = 4 - 4x$

[2] U tsela fhasi (descending), $y = 4 - 4x$

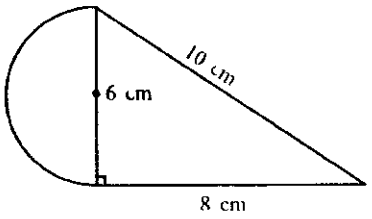
[3] U gonyela nnha (ascending), $x + 4y = 1$

[4] U gonyela nnha (descending), $x + 4y = 1$

MUSHUMO WA MVETAMVETO

Mbudziso 17

Kha vha dzhiele nzhele tshifanyiso/ tshiolwa tshi re afho fhasi Dayamitha ya hafu ya gulungwa li dzhena la tou kwa kha tshipida tshipfufhisa tsha thungo ya thiraengele Kha vha tandulule pherimitha (perimtha) ya tshipida tsho itwaho murunzi tsha figara iyo (nga senthimithara)



[1] 24,00

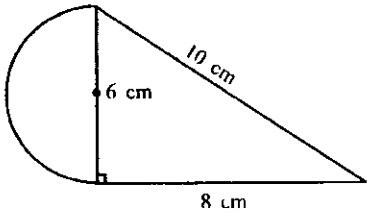
[2] 36,42

[3] 33,42

[4] 27,42

Mbudziso 18

Kha vha dzhiele nzhele tshifanyiso/tshiolwa tshi re afho fhasi Dayamitha ya hafu ya gulungwa li dzhena la tou kwa kha tshipida tshipfufhisa tsha thungo ya thiraengele Kha vha tandulule pherimitha (perimtha) ya tshipida tsho itwaho murunzi tsha figara iyo (nga tshigweara tsha dzisenthimitha (in square centimetres)



[1] 38,14

[2] 44,14

[3] 52,27

[4] 54,14

Mbudziso 19

Kha vha bvisele khagala dayamitha (nga dzimithara) ya madi o vhulungwaho (cylindrical water reservoir) ine ya fara vhunzhi ha madi a lithara dza 254 469 dza madi line li na vhulapfu ha mithara dza 9

[1] 9

[2] 3

[3] 4,5

[4] 6

MUSHUMO WA MVETAMVETO

Mbudziso 20

Morongwa u ṱoḓa u thivhedza fhasi ha kamara yawe ya u eḓela hune ha vhuphara ha 2m × 3m nga dzithaela dza u adza U humbula u renga thaela dza vhuphara ha 50cm × 60cm A bvisele khagala tshivhalo tsha fhasisa tsha dzithaela tsho eḓanaho u thivhedza fhasi kha kamara ya Morongwa ya u eḓela

[1] 30

[2] 20

[3] 18

[4] 6

Mbudziso 21

Nga 1 Phando 2012, Dikeledi o vhulunga R20 000 kha akhaunthu ine nga nwaha a wana nzwalelo dza 10% Nga murahu ha minwaha miraru, a vhulunga hafhu R10 000 kha akhaunthu ntswa ine nga nwaha ya mu nea nzwalelo dza 12% A bvisele khagala ṱhanganyelo guṱe ya mashelemi ane Dikeledi a ḓo vha o ita mafhelomi a nwaha wa 2019

[1] R48 800

[2] R52 000

[3] R57 600

[4] R53 280

Mbudziso 22

Phambano ndi vhugai ya mashelemi o itwaho nga nzwalelo (kha tsa tsini tsha rannda) o wanalaho vhukati ha akhaunthu yo leluwaho na akhaunthu ya nzwalelo idzi vha ho nga murahu ha nwaha arali ho vhulungwa R100 000 lwa minwaha miṱanu nga nzwalelo dza 10% nga nwahan

[1] 14 531

[2] 11 051

[3] 45 763

[4] 31 759

Mbudziso 23

Hlayiseka u khou ṱoḓa mashelemi a linganaho R100 000 nga tshifhinga tsha minwaha mivhili U khou ṱoḓa u ita mbadelo nga kotare kha akhaunthu ine ya mu itela nzwalelo dza 6% nga nwaha, dzo engedzedzwa (compounded quarterly) Badelo ya fhasisa ya kotara i tea u vha vhugai?

[1] R12 135,92

[2] R13 358,40

[3] R11 858,40

[4] R13 365,92

MUSHUMO WA MVETAMVETO

Mbudziso 24

Motlanalo o ṅewa khadzimiso ya mashelemi lwa tshifhinga tsha minwaha ya 20 hu si na u gonya ha nzwalelo nga nwaha, kana u engedzwa nga hafu kha nwaha (compounded quarterly) Badelo ya hafu kha nwaha yo vha i R15 950 77 Arali Motlanalo a badela mashelemi awe onhe a hafu kha nwaha, kha vha bvisele khagala uri mashelemi ane a ḓo vha o salela u fhedzisa nga minwaha kha minwaha ya 13 uri a ḓo vha vhugai (a vhe a kha tsha tsini tsha rannda)

[1] 210 718

[2] 148 262

[3] 114 720

[4] 92 640

Mbudziso 25

Mufumakadzi a tsha ḓi vha muswa u dzhia khadzimiso ya mashelemi a u renga fhethu ha u dzula a R500 000 a tshi khou badela R10 871,21 nga nwedzi u lifha murahu khadzimiso iyo U ambedzana na bannga uri a ṅewe nzwalelo dza 11% nga nwaha dzo engedzedzwa nga nwedzi (11% per annum compounded monthly) Zwi ḓo mu dzhiela tshifhinga tshingafhani uri a badele khadzimiso yawe ya mashelemi?

[1] Minwedzi ya 46

[2] Minwaha ya 20

[3] Minwaha ya 60

[4] Minwaha ya 5

Minwaha ya 100

MUSHUMO WA MVETAMVETO

DZIFOMULA (FORMULAS)

$$C = 2(l + w)$$
$$C = 4l$$
$$C = a + b + c$$
$$C = 2\pi r$$

$$A = l \times w$$
$$A = l^2$$
$$A = \tfrac{1}{2}bh$$
$$A = \pi r^2$$

$$V = l^3$$
$$V = l \times base \times h$$
$$V = \pi r^2 h$$

$$y - y_1 = m\,(x - x_1)$$

$$\frac{y - y_1}{x - x_1} = \frac{y_2 - y_1}{x_2 - x_1}$$

$$I = Prt$$

$$S = P\,(1 + rt)$$

$$S = P\,(1 + i)^n$$

$$P = R\left[\frac{(1 + i)^n - 1}{i(1 + i)^n}\right]$$

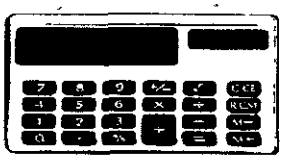
$$n = \frac{\log\left[\frac{R}{R - iP}\right]}{\log(1 + i)}$$

$$n = \frac{\log\left(1 + \frac{iS}{R}\right)}{\log(1 + i)}$$

$$S = R\left[\frac{(1 + i)^n - 1}{i}\right]$$

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Pamphiri ye e na le matlakala a 16, ao a akaretšago lenaneo la difomula mo letlakaleng la bo 16 le matlakala (sheets) a seswai mo o ka ngwalelago go ona pele o efa dikarabo, le ditaelo tšeo o swanetšego go di latela ge o tlatša makriding šiti (mark-reading sheet)

Araba dipotšišo kamoka

Gcwalisa irejista ekhasini elingasemuva kwaleli phepha, uyidabule uyisuse kuleli phepha lemibuzo, bese uyinika umqaphi wokuhlolwa (invigilator)

Mo letlakaleng la mafelelo la pampiri ye ingwadiše go bontšha gore o be o le gona, gomme gagola letlakala leo la boingwadišo o le fe mohlokomedi wa ditlhahlobo Araba dipotšišo kamoka godimo ga makriding šiti wo o o filwego Ka tlhokomelo latela ditaelo tša go tlatša makriding šiti Hlokomela tšeo di latelago

- Dira kgetho e tee fela potšišong ye nngwe le ye nngwe (bontšha ka [1], [2], [3] goba [4]) O se ke wa swaya dikgetho tša go feta e tee mo potšišong e tee godimo ga makriding šiti
- Mo go hlokegago dipotšišo tša gago a di batametšwe (roun-off)
- Meputso e ka se gogwe go dipotšišo tšeo difošagetšego
- Pampiri ye e na le dipotšišo tše 25 tšeo di dirwago ke palomoka ya meputso e 100
- Mo go kgonegago dipotšišo di a batametšwa gomme o swanetše go kgetha karabo yeo e batametšego nomoro ya maleba

Mo godimo ga makriding šiti ngwala leina la gago. Se se tla re thuša gore re tsebe gore makriding šiti ke wa mang ge o ka dira phošo ge o ngwala nomoro ya gago ya moithuti.

Potšišo ya 1

Batametša 123,446 go palotee ya tesımale e tee le go ınthcka (ınteger) ka tatelano

[1] 123,5 le 123

[2] 123,4 le 123

[3] 123,4 le 124

[4] 123,5 le 124

Potšišo ya 2

Tšea gore Xolıle o sepela dıkhılomıtara tše x ka ırı tše pedı ka palogare ya lebelo leo le ıtšego Ge go lebeletšwe x na Xolıle a ka sepela khılomıtara tše kae ka dırı tše 3 ka palogare ya lebelo la go swana le la dırı tše pedı?

[1] $3x$

[2] $\frac{2x}{3}$

[3] $6x$

[4] $\frac{3x}{2}$

Potšišo ya 3

Nolofatša eksphrešene yeo e latelago ka mo go kgonegago

$$\sqrt{16x^4}\sqrt{x^8}\,x^3$$

[1] $16x^9$

[2] $8x^9$

[3] $4x^9$

[4] $4\sqrt{x^{13}}$

Potšišo ya 4

Nolofatša eksphrešene ye

$$\frac{1}{2} - \frac{7}{8} \div \frac{3}{4} + \frac{2}{3}$$

[1] $-\frac{4}{3}$

[2] $-\frac{35}{32}$

[3] 0

[4] $\frac{1}{6}$

ŠOMELA MO

Potšišo ya 5

Rarolla a mo tekantšhong ye e latelago

$$7 + 4a = 3(2a - 1)$$

[1] $a = 5$

[2] $a = 4$

[3] $a = 2$

[4] $a = \frac{2}{5}$

Potšišo ya 6

Rarolla x tekantšhong yeo e latelago

$$\frac{5}{8}x + \frac{1}{2} = \frac{3}{4}x$$

[1] $x = \frac{1}{2}$

[2] $x = 4$

[3] $x = \frac{1}{4}$

[4] $x = 2$

Potšišo ya 7

Rarolla p tekantšhong yeo e latelgago

$$2(2 + p) + 4 = 5 - 3(p - 1)$$

[1] $p = 0$

[2] $p = 5$

[3] $p = -1\,5$

[4] $p = 10$

Potšišo ya 8

Nolofatša eksphrešene yeo e latelago popegong ya yona e bonolo

$$3x^2 - (x + 2) - 2(1 - x)x$$

[1] $5x^2 - 3x - 2$

[2] $x^2 - 3x - 2$

[3] $x^2 - 3x + 2$

[4] $5x^2 - x - 2$

ŠOMELA MO

Potšišo ya 9

Nolofatša se se latelago go popego ya sona ye bonolo

$$\frac{1}{10x^2y^3} - \frac{2}{15x^3y^2} + \frac{3}{6x^2y^2}$$

[1] $\frac{1}{xy}$

[2] $\frac{1}{450x^7y^7}$

[3] $\frac{3x - 4y + 15xy}{30x^3y^3}$

[4] $\frac{7}{15x^2y^2}$

Potšišo ya 10

Ge $s = \sqrt{pq} - r$, dıra p saptšekte ya fomula

[1] $p = \frac{(r+s)^2}{q}$

[2] $p = q(r+s)^2$

[3] $p = \frac{(s-r)^2}{q}$

[4] $p = \frac{s+r}{q}$

Potšišo ya 11

Tšhelete ya dıthuto le ya madulo yunıbesıthıng ye e ıtšeng ke R30 000 ka ngwaga Tšhelete ya madulo ke R6 000 yeo e fetago ya dıthuto gabedı Balela tšhelete ya madulo ka dıranta Keletšonyana Tšea gore tšhelete ya dıthuto ke dıranta tše x)

[1] 24 000

[2] 16 000

[3] 8 000

[4] 22 000

Potšišo ya 12

Tšea gore theko ya smatfoune ke R1 999,99 (go akaretšwa VAT) Ge go sa balwe VAT theko ke R1 750,54 Na peresente ya VAT yeo e okedıtšwego ke bokae (e batamedıtšwe ka dıtesımale tše pedı)?

[1] 14%

[2] 14,25%

[3] 14,75%

[4] 15%

ŠOMELA MO

Potšišo ya 13

Ngk Sabata o aba phokoletšo ya 22% go tšhelete ya go lefiwa ge go bonwa ngaka yeo e le go R1 500 ge o lefa ka go ntšha ka potleng o sa šomiše karolo ye nngwe ya polokelo ya medikhale eyıtı (medical aid) wa gago Ge o lefa ka go ntšha ka potleng, na o tlo lefa bokae ebile o tlo boloka bokae?

[1] lefa R1 076,92 gomme boloka R423,08

[2] lefa R1 478 gomme boloka R22

[3] lefa R1 170 gomme boloka R330

[4] lefa R1 830 gomme boloka R330

Potšišo ya 14

Go dıphoofolo tšeo dı lego polaseng, tše 24 ke dıpudı Go na le palopedı ya bontšı bja dıkgomo le dıpere Go na le dıpere tše dıne gape go feta palogare ya nomoro ya dıpudı Ke dıphoofolo tše kae tšeo dı le go gona mo polaseng?

[1] 72

[2] 54

[3] 168

[4] 312

Potšišo ya 15

Ka tatelano Dan, Thabo le Rıdwaan ba ntšhıtše R2 250, R1 800 le R1 350 go thoma kgwebo Ka morago ga kgwedı ya mathomo, kgwebo e dırile letseno la R8 700 Letseno le arotšwe ka kabo ya go ya le ka moo ba ntšhıtšego tšhelete ka gona mathomong Na Rıdwaan o tlo hwetša bokae?

[1] R1 350

[2] R1 800

[3] R2 175

[4] R2 900

Potšišo ya 16

Llaene ya thwıı yeo e fetago phomteng tša $(-3, 1)$ le $(1, 0)$ e na le(n) _____ (n) seloupo le tekantšho _____

[1] asentıng, $y = 4 - 4x$

[2] tısentıng, $y = 4 - 4x$

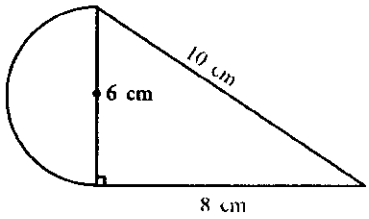
[3] asentıng, $x + 4y = 1$

[4] tısentıng, $x + 4y = 1$

ŠOMELA MO

Potšišo ya 17

Hlokomedišiša seswantšho seo se lego ka tlase Seswantšho sa seka-nkgokolo (semı-circle) se tsena gabotse go seripa se sennyane sa khutlotharo Balela pharamutha ya fikara yeo e tsekıtleditšwego (ka cm)



[1] 24,00

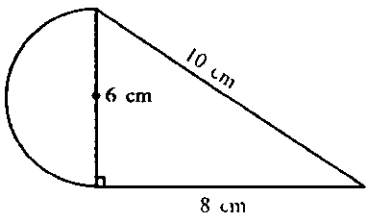
[2] 36,42

[3] 33,42

[4] 27,42

Potšišo ya 18

Hlokomedišiša seswantšho seo se lego ka mo tlase Tackeramo ya seka-nkgokolo (semı-circle) e tsena gabotse go seripa se sennyane sa khutlotharo Balela bogolo bja fikara yeo e tsıkıtleditšwego (ka "square cm")



[1] 38,14

[2] 44,14

[3] 52,27

[4] 54,14

Potšišo ya 19

Hlatha taemıtha (ka dımıthara) ya polokelo ya meetse ya sılıntırıkhale (cylındrıcal) yeo e swarago bolumo ya dılıthara tše 254 469 tša meetse gommc kc dımıthara tše 9 go ya godımo

[1] 9

[2] 3

[3] 4,5

[4] 6

ŠOMELA MO

Potšišo ya 20

Morongwa o nyaka go pıpa lebato la phapoši ya gagwe ya borobalelo ya bogolo bja 2 m x 3 m ka dıthaele tša khaphete O akanya go reka dıthaele tša bogolo bja 50 cm x 60 cm Hlatha nomoro ya dıthaele tšeo dı ka lekanelago go pıpa lebato la phapoši ya borobalelo ya Morongwa

[1] 30

[2] 20

[3] 18

[4] 6

Potšišo ya 21

Ka dı 1 Pherekgong 2012, Dıkeledı o bolokıle R20 000 ka gare ga akhaonte a ıkweletša tswalo ya 10% ka ngwaga wa pele Mengwageng ye meraro ya go latela, o bolokıle gape R10 000 ka akhaonteng ye mpsha ka tswalo ya 12% ka ngwaga Hlatha palomoka ya tšhelete yeo Dıkeledı a tlo go ba le yona mafelelong a ngwaga wa 2019

[1] R48 800

[2] R52 000

[3] R57 600

[4] R53 280

Potšišo ya 22

Na phapono ya tšhelete ya tswalo (e batamedıtšwe ranteng ya kgauswı) yeo e hwedıtšwego gare ga akhaonte ya "sımple ınterest" le akhaonte ya "annually compounded ınterest" ke bokae ge e le gore R100 000 e beeledıtšwe mengwageng ye 5 ka 10% mo ngwageng?

[1] 14 531

[2] 11 051

[3] 45 763

[4] 31 759

Potšišo ya 23

Hlayıseka o nyaka R100 000 mo lebakeng la mengwaga e mebedı O nyaka go dıra tefo ya kotara akhaonteng yeo e abago tswalo ya 6% ka ngwaga, yeo e khomphaonthılwego (compounded) ka kotare Na palotlase ya tefo ka kotara e swanetše gore e be bokae?

[1] R12 135,92

[2] R13 358,40

[3] R11 858,40

[4] R13 365,92

ŠOMELA MO

Potšišo ya 24

Motlanalo o filwe sekoloto sa tekano ya mengwaga e 20 ka tswalo ya reiti yeo e sa fetogego ya 12% ka ngwaga, e khomphaontilwe mo seripangwageng (half-yearly) Tefo ya seripangwaga (half-yearly) e be e le R15 950,77 Ge e le gore Motlanalo o lefile ditefo tša seripangwaga kamoka, hlatha gore tšhelete yeo e tla bego e mo šaletše gore a e lefe e be e le bokae mafelelong a mengwaga ye 13 (batametša go ranta ya kgauswi)

[1] 210 718

[2] 148 262

[3] 114 720

[4] 92 640

Potšišo ya 25

Kgarebe e tšea sekoloto sa motekeitši aphatementeng (apartment) ya R500 000 gomme o lefa R10 871, 21 ka kgwedi go sekoloto O rerišana ka reiti ya tswalo ya 11% ka ngwaga yeo e khomphaontilwego ka kgwedi Na go tla mo tšea nako e kae gore a fetše go lefa sekoloto sa gagwe?

[1] Dikgwedi tše 46

[2] Mengwaga ye 20

[3] Mengwaga ye 60

[4] Mengwaga ye 5

PALOMOKA: 100

ŠOMELA MO

DIFOMULA

$$C = 2(l + w)$$
$$C = 4l$$
$$C = a + b + c$$
$$C = 2\pi r$$

$$A = l \times w$$
$$A = l^2$$
$$A = \tfrac{1}{2}bh$$
$$A = \pi r^2$$

$$V = l^3$$
$$V = l \times base \times h$$
$$V = \pi r^2 h$$

$$y - y_1 = m(x - x_1)$$

$$\frac{y - y_1}{x - x_1} = \frac{y_2 - y_1}{x_2 - x_1}$$

$$I = Prt$$

$$S = P(1 + rt)$$

$$S = P(1 + i)^n$$

$$P = R\left[\frac{(1+i)^n - 1}{i(1+i)^n}\right]$$

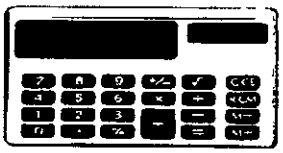
$$n = \frac{\log\left[\frac{R}{R - iP}\right]}{\log(1+i)}$$

$$n = \frac{\log\left(1 + \frac{iS}{R}\right)}{\log(1+i)}$$

$$S = R\left[\frac{(1+i)^n - 1}{i}\right]$$

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UNIVERSITY EXAMINATIONS



UNIVERSITEITSEKSAMENS

UNISA university of south africa

BNU1501 (491930) October/November 2019

Department of Decision Sciences
Basic Numeracy

Duration 2 Hours 100 Marks

EXAMINERS

FIRST	DR MT MASETSHABA
SECOND	PROF PH POTGIETER
EXTERNAL	DR HZ WIGGINS

Programmable pocket calculator is permissible

Closed book examination.

This examination question paper remains the property of the University of South Africa and may not be removed from the examination venue

This paper consists of 16 pages, which include a list of formulas on page 16 and eight sheets of paper for rough work, plus instructions for completing the mark-reading sheet

Answer *all* the questions

Complete the attendance register on the back page of this paper, tear it off and hand it to the invigilator

Answer *all* the questions on the mark-reading sheet supplied Carefully follow the instructions for completing the mark-reading sheet Pay attention to the following

- Only one option (indicated as [1], [2], [3] or [4]) per question is correct Do not mark more than one option per question on the mark-reading sheet
- Where necessary, answers are rounded off
- Marks will not be deducted for incorrect answers
- The paper consists of 25 questions for a total of 100 marks
- Where necessary, answers are rounded and you should choose the option closest to the exact number

Write your name on the mark-reading sheet. This will enable us to link you to the mark-reading sheet should you enter your student number incorrectly

Umbuzo 1

Tjhideza ı-123,446 kudıjıdı yınye yedesımalı nenanını, ngokulandelana

[1] 123,5 no- 123

[2] 123,4 no- 123

[3] 123,4 no- 124

[4] 123,5 no- 124

Umbuzo 2

Asıthathe kwangathı uXolıle ukhambe amakhılomıtha ama- x ema-ırını ama-2 ngebelo le-avareji ethileko Ngokuya ngokwaka-x, makhılomıtha amangakı azokukhanjwa nguXolıle ema-ırını amathathu ngebelo le-avareji efanako?

[1] $3x$

[2] $\frac{2x}{3}$

[3] $6x$

[4] $\frac{3x}{2}$

Umbuzo 3

Cozulula ı-expressıon elandelako ngendlela ongakghona ukufika kıyo

$$\sqrt{16x^4}\sqrt{x^8}\,x^3$$

[1] $16x^9$

[2] $8x^9$

[3] $4x^9$

[4] $4\sqrt{x^{13}}$

Umbuzo 4

Cozulula ı-expressıon elandelako

$$\frac{1}{2} - \frac{7}{8} \div \frac{3}{4} + \frac{2}{3}$$

[1] $-\frac{4}{3}$

[2] $-\frac{35}{32}$

[3] 0

[4] $\frac{1}{6}$

UMSEBENZI OTLHATLHABEJIWEKO

Umbuzo 5

Rarulula u-a ngesibalo esilingana nesinye esilandelako

$$7 + 4a = 3(2a - 1)$$

[1] $a = 5$

[2] $a = 4$

[3] $a = 2$

[4] $a = \frac{2}{5}$

Umbuzo 6

Rarulula u-x ngesibalo esilingana nesinye esilandelako

$$\frac{5}{8}x + \frac{1}{2} = \frac{3}{4}x$$

[1] $x = \frac{1}{2}$

[2] $x = 4$

[3] $x = \frac{1}{4}$

[4] $x = 2$

Umbuzo 7

Rarulula u-p ngesibalo esilingana nesinye

$$2(2 + p) + 4 = 5 - 3(p - 1)$$

[1] $p = 0$

[2] $p = 5$

[3] $p = -1\ 5$

[4] $p = 10$

Umbuzo 8

Cozulula i-expression elandelako ngendlela elula yayo

$$3x^2 - (x + 2) - 2(1 - x)x$$

[1] $5x^2 - 3x - 2$

[2] $x^2 - 3x - 2$

[3] $x^2 - 3x + 2$

[4] $5x^2 - x - 2$

UMSEBENZI OTLHATLHABEJIWEKO

Umbuzo 9

Cozulula okulandelako ngendlela ezokuba lula

$$\frac{1}{10x^2y^3} - \frac{2}{15x^3y^2} + \frac{3}{6x^2y^2}$$

[1] $\frac{1}{xy}$

[2] $\frac{1}{450x^7y^7}$

[3] $\frac{3x - 4y + 15xy}{30x^3y^3}$

[4] $\frac{7}{15x^2y^2}$

Umbuzo 10

Nangabe $s = \sqrt{pq} - r$, yenza u-p ifomula yesifundo

[1] $p = \frac{(r+s)^2}{q}$

[2] $p = q(r+s)^2$

[3] $p = \frac{(s-r)^2}{q}$

[4] $p = \frac{s+r}{q}$

Umbuzo 11

Imali yokufunda neyokubhadelela indawo yokuhlala eyunivesithi ethileko ifika ema-R30 000 ngomnyaka Imali yokubhadelela ukuhlala ma-R6 000, okutjho kobana Ibiza ngokubuyelelwe kabili kunemali yokufunda Balisisa imali ebhadelela ukuhlala, ngamaranda (Iseluleko Thatha kwangathi imali yokubhadelela ukufunda x amaranda

[1] 24 000

[2] 16 000

[3] 8 000

[4] 22 000

Umbuzo 12

Asithathe kwangathi indleko ze-smartphone ma-R1 999,99 (i-VAT seyifakiwe) Intengo etjhiya ngaphandle i-VAT ma-R1 750,54 Linganganı iphesende le-VAT elitjhathiweko (tjhideza eendaweni ezimbili zamadesimali)?

[1] 14%

[2] 14,25%

[3] 14,75%

[4] 15%

UMSEBENZI OTLHATLHABEJIWEKO

Umbuzo 13

UDorh Sabata unıkela ngama-22% ısaphulelo sesamba sokuthoma esıma-R1 500 sokubhadelela ukunyangwa nangabe ubhadela ngekhetjhı, ungasebenzısı ımgcenye yokonga nge-medıcal aıd Nawubhadela ngekhetjhı, uzokubhadela malını begodu uzokonga malını?

[1] ubhadela ı- R1 076,92 bese wonga ı-R423,08

[2] ubhadela ı-R1 478 bese wonga ama-R22

[3] ubhadela ı- R1 170 bese wonga ı-R330

[4] ubhadela ı-R1 830 bese wonga ama-R330

Umbuzo 14

Eenlwanenı ezıkhona eplasını, kuneembuzı ezıma-24 Inanı leembuzı lıbuyelelwe kabılı kuneleenkomo neleempera Kuneempera ezınye ezıne kunenanı elıyıhafu yeembuzı Igabe zıngakı ınnlwana ezıseplasını sezızoke?

[1] 72

[2] 54

[3] 168

[4] 312

Umbuzo 15

UDan, uThabo noRıdwaan bakhıphe ama-R2 250, ama-R1 800 nama-R1 350 ngokulandelana ukuthoma ırhwebo Ngemva kwenyanga yokuthoma , ırhwebo lenze ınzuzo ema-R8 700 Inzuzo ızokuhlukanıswa ngokulıngana ngeretjhıyo ukuyangendlela abanıkele ngayo ekuthomenı URıdwaan uzokufumana malını?

[1] R1 350

[2] R1 800

[3] R2 175

[4] R2 900

Umbuzo 16

Umuda onqophıleko odlula emacaphazını $(-3, 1)$ no-$(1, 0)$ une (n) kuslowubhu nesıbalo esılılıngana nesınyeslope and an equatıon

[1] khuphukako, $y = 4 - 4x$

[2] ehlako, $y = 4 - 4x$

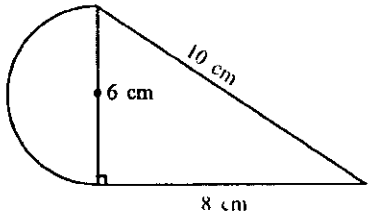
[3] khuphukako, $x + 4y = 1$

[4] ehlako, $x + 4y = 1$

UMSEBENZI OTLHATLHABEJIWEKO

Umbuzo 17

Tjheja ıdayagramu elandelako Idayametha yendulungusıquntu ılıngana kuhle ehlangothını elıfitjhanı lıkancantathu Balısısa ıpherımıtha yengcenye ekhalarıweko (ngama-cm)



[1] 24,00

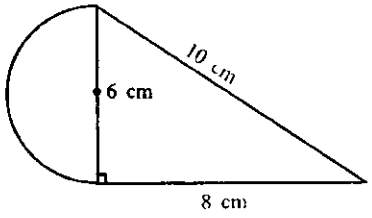
[2] 36,42

[3] 33,42

[4] 27,42

Umbuzo 18

Tjheja ıdayagramu elandelako Idayametha yendulungusıquntu ılıngana kuhle ehlangothını elıfitjhanı lıkancantantu Balısısa ındawo yengcenye ekhalarıweko (ngama-square centhımıtha)



[1] 38,14

[2] 44,14

[3] 52,27

[4] 54,14

Umbuzo 19

Thola ıdayametha (ngamamıtha) ye-cylındrıcal water reservoır emumatha umthamo wamalıtha ama- 254 469 wamanzı begodu ubude bayo bumamıtha alı-9 ukuphakama

[1] 9

[2] 3

[3] 4,5

[4] 6

UMSEBENZI OTLHATLHABEJIWEKO

Umbuzo 20

UMorongwa ufuna ukufaka ıfluru yangekamarenı lakhe, ubungako bayo bumaı-2 m × 3 m ngamathayılısı wekhaphethe Ucabanga ukuthenga amathayılısı wobungako bama-50 cm × 60 cm Thola ubuncanı benomboro yamathayılısı azokulıngana ıfluru ngekamarenı lakaMorongoa

[1] 30

[2] 20

[3] 18

[4] 6

Umbuzo 21

Mhla lı-1 kuJanabarı nomnyaka wee-2012, uDıkeledı wabeka ımalı engangama-R20 000 ku-akhawundı lapha azokufumana khona ubungako bemalınzalo obuma-10% ngomnyaka woku-1 Ngemva kwemınyaka emıthathu, wabeka godu ımalı ema-R10 000 e-akhawundını etja enobungako bemalınzalo obuma-12% ngomnyaka Thola ınanı loke lemalı uDıkeledı azokuba nayo ekuphelenı komnyaka wee-2019

[1] R48 800

[2] R52 000

[3] R57 600

[4] R53 280

Umbuzo 22

Yını umehluko kunanı lenzuzo (tjhıdeza kuranda elıseduze) efunyanwako hlangana kwe-akhawundı efunyana ınzuzo ngemalı edıbhozıthwako nenzuzo efunyanwa sekuhlanganıswe ımalı yomnyaka nangabe ama-R100 000 ısıswa (ınvested) ımınyaka emı-5 ngama-10

[1] 14 531

[2] 11 051

[3] 45 763

[4] 31 759

Umbuzo 23

UHlayıseka utlhoga ımalı ema-R100 000 esıkhathını esımınyaka emıbılı Ufuna ukwenza ımbadelo yakhe ngekotara e-akhawundını ezomlnıkela ısıbalo eslıngana nesınye esıma- 6% ngonyaka, ehlanganıswe yoke ngekotara Ngabe ubuncanı bembadelo ngekota buzokuba yımalını?

[1] R12 135,92

[2] R13 358,40

[3] R11 858,40

[4] R13 365 92

UMSEBENZI OTLHATLHABEJIWEKO

Umbuzo 24

UMotlanalo ubolekwe imali iminyaka ema-20 ngesibalo esilingana nesinye esingatjhugulukiko sama-12% ngomnyaka, ehlanganiswe phakathi komnyaka Iimbadelo zaphakathi komnyaka bezima- R15 950,77 Nangabe uMotlanalo ubhadele imali yaphakathi konyaka yoke, thola (tjhideza erandeni eliseduze) kobana nakuphela iminyaka eli-13 uzabe asalelwe sikolodo esinganganı ekufanele asibhadele

[1] 210 718

[2] 148 262

[3] 114 720

[4] 92 640

Umbuzo 25

Udade uthethe isikolodo sendlu esibiza ama-R500 000 bese ubhadela ama-R10 871 21 ngenyanga Ubawa kobana amakonyana wama-11% ngomnyaka qobe yinyanga Kuzomthatha isikhathi esinganganı ukubhadela isikolodo sakhe?

[1] 46 months

[2] 20 years

[3] 60 years

[4] 5 years

TOTAL: 100

UMSEBENZI OTLHATLHABEJIWEKO

FORMULAS

$$C = 2(l + w)$$
$$C = 4l$$
$$C = a + b + c$$
$$C = 2\pi r$$

$$A = l \times w$$
$$A = l^2$$
$$A = \tfrac{1}{2}bh$$
$$A = \pi r^2$$

$$V = l^3$$
$$V = l \times base \times h$$
$$V = \pi r^2 h$$

$$y - y_1 = m\,(x - x_1)$$

$$\frac{y - y_1}{x - x_1} = \frac{y_2 - y_1}{x_2 - x_1}$$

$$I = Prt$$

$$S = P\,(1 + rt)$$

$$S = P\,(1 + i)^n$$

$$P = R\left[\frac{(1 + i)^n - 1}{i(1 + i)^n}\right]$$

$$n = \frac{\log\left[\frac{R}{R - iP}\right]}{\log(1 + i)}$$

$$n = \frac{\log\left(1 + \frac{iS}{R}\right)}{\log(1 + i)}$$

$$S = R\left[\frac{(1 + i)^n - 1}{i}\right]$$

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EXAMINATION MARK READING SHEET **EKSAMEN-MERKLEESBLAD**

PART 1 (GENERAL/ALGEMEEN) DEEL 1

1 STUDY UNIT e.g. PSY100-X / STUDIE-EENHEID bv PSY100-X

2 PAPER NUMBER / VRAESTELNOMMER

3 INITIALS AND SURNAME / VOORLETTERS EN VAN

4 DATE OF EXAMINATION / DATUM VAN EKSAMEN

5 EXAMINATION CENTRE (E.G. PRETORIA) / EKSAMENSENTRUM (BV. PRETORIA)

6 STUDENT NUMBER / STUDENTENOMMER

7 c0 c0 c0 c0 c0 c0 c0 c0 c0 c0
c1 c1 c1 c1 c1 c1 c1 c1 c1 c1
c2 c2 c2 c2 c2 c2 c2 c2 c2 c2
c3 c3 c3 c3 c3 c3 c3 c3 c3 c3
c4 c4 c4 c4 c4 c4 c4 c4 c4 c4
c5 c5 c5 c5 c5 c5 c5 c5 c5 c5
c6 c6 c6 c6 c6 c6 c6 c6 c6 c6
c7 c7 c7 c7 c7 c7 c7 c7 c7 c7
c8 c8 c8 c8 c8 c8 c8 c8 c8 c8
c9 c9 c9 c9 c9 c9 c9 c9 c9 c9

8 UNIQUE PAPER NO / UNIEKE VRAESTEL NR

9 c0 c0 c0 c0 c0 c0
c1 c1 c1 c1 c1 c1
c2 c2 c2 c2 c2 c2
c3 c3 c3 c3 c3 c3
c4 c4 c4 c4 c4 c4
c5 c5 c5 c5 c5 c5
c6 c6 c6 c6 c6 c6
c7 c7 c7 c7 c7 c7
c8 c8 c8 c8 c8 c8
c9 c9 c9 c9 c9 c9

For use by examination invigilator
Vir gebruik deur eksamenopsiener

IMPORTANT

1 USE ONLY AN HB PENCIL TO COMPLETE THIS SHEET
2. MARK LIKE THIS
3. CHECK THAT YOUR INITIALS AND SURNAME HAS BEEN FILLED IN CORRECTLY
4 ENTER YOUR STUDENT NUMBER FROM LEFT TO RIGHT
5 CHECK THAT YOUR STUDENT NUMBER HAS BEEN FILLED IN CORRECTLY
6 CHECK THAT THE UNIQUE NUMBER HAS BEEN FILLED IN CORRECTLY
7 CHECK THAT ONLY ONE ANSWER PER QUESTION HAS BEEN MARKED
8 DO NOT FOLD

BELANGRIK

1 GEBRUIK SLEGS N HB POTLOOD OM HIERDIE BLAD TE VOLTOOI
2. MERK AS VOLG
3. KONTROLEER DAT U VOORLETTERS EN VAN REG INGEVUL IS
4 VUL U STUDENTENOMMER VAN LINKS NA REGS IN
5. KONTROLEER DAT U DIE KORREKTE STUDENTENOMMER VERSTREK HET
6. KONTROLEER DAT DIE UNIEKE NOMMER REG INGEVUL IS
7 MAAK SEKER DAT NET EEN ALTERNATIEF PER VRAAG GEMERK IS
8. MOENIE VOU NIE

PART 2 (ANSWERS/ANTWOORDE) DEEL 2

10

1	c1 c2 c3 c4 c5	36	c1 c2 c3 c4 c5	71	c1 c2 c3 c4 c5	106	c1 c2 c3 c4 c5
2	c1 c2 c3 c4 c5	37	c1 c2 c3 c4 c5	72	c1 c2 c3 c4 c5	107	c1 c2 c3 c4 c5
3	c1 c2 c3 c4 c5	38	c1 c2 c3 c4 c5	73	c1 c2 c3 c4 c5	108	c1 c2 c3 c4 c5
4	c1 c2 c3 c4 c5	39	c1 c2 c3 c4 c5	74	c1 c2 c3 c4 c5	109	c1 c2 c3 c4 c5
5	c1 c2 c3 c4 c5	40	c1 c2 c3 c4 c5	75	c1 c2 c3 c4 c5	110	c1 c2 c3 c4 c5
6	c1 c2 c3 c4 c5	41	c1 c2 c3 c4 c5	76	c1 c2 c3 c4 c5	111	c1 c2 c3 c4 c5
7	c1 c2 c3 c4 c5	42	c1 c2 c3 c4 c5	77	c1 c2 c3 c4 c5	112	c1 c2 c3 c4 c5
8	c1 c2 c3 c4 c5	43	c1 c2 c3 c4 c5	78	c1 c2 c3 c4 c5	113	c1 c2 c3 c4 c5
9	c1 c2 c3 c4 c5	44	c1 c2 c3 c4 c5	79	c1 c2 c3 c4 c5	114	c1 c2 c3 c4 c5
10	c1 c2 c3 c4 c5	45	c1 c2 c3 c4 c5	80	c1 c2 c3 c4 c5	115	c1 c2 c3 c4 c5
11	c1 c2 c3 c4 c5	46	c1 c2 c3 c4 c5	81	c1 c2 c3 c4 c5	116	c1 c2 c3 c4 c5
12	c1 c2 c3 c4 c5	47	c1 c2 c3 c4 c5	82	c1 c2 c3 c4 c5	117	c1 c2 c3 c4 c5
13	c1 c2 c3 c4 c5	48	c1 c2 c3 c4 c5	83	c1 c2 c3 c4 c5	118	c1 c2 c3 c4 c5
14	c1 c2 c3 c4 c5	49	c1 c2 c3 c4 c5	84	c1 c2 c3 c4 c5	119	c1 c2 c3 c4 c5
15	c1 c2 c3 c4 c5	50	c1 c2 c3 c4 c5	85	c1 c2 c3 c4 c5	120	c1 c2 c3 c4 c5
16	c1 c2 c3 c4 c5	51	c1 c2 c3 c4 c5	86	c1 c2 c3 c4 c5	121	c1 c2 c3 c4 c5
17	c1 c2 c3 c4 c5	52	c1 c2 c3 c4 c5	87	c1 c2 c3 c4 c5	122	c1 c2 c3 c4 c5
18	c1 c2 c3 c4 c5	53	c1 c2 c3 c4 c5	88	c1 c2 c3 c4 c5	123	c1 c2 c3 c4 c5
19	c1 c2 c3 c4 c5	54	c1 c2 c3 c4 c5	89	c1 c2 c3 c4 c5	124	c1 c2 c3 c4 c5
20	c1 c2 c3 c4 c5	55	c1 c2 c3 c4 c5	90	c1 c2 c3 c4 c5	125	c1 c2 c3 c4 c5
21	c1 c2 c3 c4 c5	56	c1 c2 c3 c4 c5	91	c1 c2 c3 c4 c5	126	c1 c2 c3 c4 c5
22	c1 c2 c3 c4 c5	57	c1 c2 c3 c4 c5	92	c1 c2 c3 c4 c5	127	c1 c2 c3 c4 c5
23	c1 c2 c3 c4 c5	58	c1 c2 c3 c4 c5	93	c1 c2 c3 c4 c5	128	c1 c2 c3 c4 c5
24	c1 c2 c3 c4 c5	59	c1 c2 c3 c4 c5	94	c1 c2 c3 c4 c5	129	c1 c2 c3 c4 c5
25	c1 c2 c3 c4 c5	60	c1 c2 c3 c4 c5	95	c1 c2 c3 c4 c5	130	c1 c2 c3 c4 c5
26	c1 c2 c3 c4 c5	61	c1 c2 c3 c4 c5	96	c1 c2 c3 c4 c5	131	c1 c2 c3 c4 c5
27	c1 c2 c3 c4 c5	62	c1 c2 c3 c4 c5	97	c1 c2 c3 c4 c5	132	c1 c2 c3 c4 c5
28	c1 c2 c3 c4 c5	63	c1 c2 c3 c4 c5	98	c1 c2 c3 c4 c5	133	c1 c2 c3 c4 c5
29	c1 c2 c3 c4 c5	64	c1 c2 c3 c4 c5	99	c1 c2 c3 c4 c5	134	c1 c2 c3 c4 c5
30	c1 c2 c3 c4 c5	65	c1 c2 c3 c4 c5	100	c1 c2 c3 c4 c5	135	c1 c2 c3 c4 c5
31	c1 c2 c3 c4 c5	66	c1 c2 c3 c4 c5	101	c1 c2 c3 c4 c5	136	c1 c2 c3 c4 c5
32	c1 c2 c3 c4 c5	67	c1 c2 c3 c4 c5	102	c1 c2 c3 c4 c5	137	c1 c2 c3 c4 c5
33	c1 c2 c3 c4 c5	68	c1 c2 c3 c4 c5	103	c1 c2 c3 c4 c5	138	c1 c2 c3 c4 c5
34	c1 c2 c3 c4 c5	69	c1 c2 c3 c4 c5	104	c1 c2 c3 c4 c5	139	c1 c2 c3 c4 c5
35	c1 c2 c3 c4 c5	70	c1 c2 c3 c4 c5	105	c1 c2 c3 c4 c5	140	c1 c2 c3 c4 c5

Specimen only

MARK READING SHEET INSTRUCTIONS

Your mark reading sheet is marked by computer and should therefore be filled in thoroughly and correctly

USE ONLY AN HB PENCIL TO COMPLETE YOUR MARK READING SHEET

PLEASE DO NOT FOLD OR DAMAGE YOUR MARK READING SHEET

Consult the illustration of a mark reading sheet on the reverse of this page and follow the instructions step by step when working on your sheet

Instruction numbers ❶ to ❿ refer to spaces on your mark reading sheet which you should fill in as follows

❶ Write your paper code in these eight squares, for instance

P	S	Y	1	0	0	-	X

❷ The paper number pertains only to first-level courses consisting of two papers

WRITE | 0 | 1 | for the first paper and | 0 | 2 | for the second If only one paper, then leave blank

❸ Fill in your initials and surname

❹ Fill in the date of the examination

❺ Fill in the name of the examination centre

❻ WRITE the digits of your student number HORIZONTALLY (from left to right) Begin by filling in the first digit of your student number in the first square on the left, then fill in the other digits, each one in a separate square

❼ In each vertical column mark the digit that corresponds to the digit in your student number as follows [-]

❽ WRITE your unique paper number HORIZONTALLY
NB Your unique paper number appears at the top of your examination paper and consists only of digits (e g 403326)

❾ In each vertical column mark the digit that corresponds to the digit number in your unique paper number as follows [-]

❿ Question numbers 1 to 140 indicate corresponding question numbers in your examination paper The five spaces with digits 1 to 5 next to each question number indicate an alternative answer to each question The spaces of which the number correspond to the answer you have chosen for each question and should be marked as follows [-]

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