

WISKUNDIGE GELETTERDHEID: VRAESTEL I

NASIENRIGLYNE

Tyd: 3 uur

150 punte

Hierdie nasienriglyne is opgestel vir gebruik deur eksaminators en hulp-eksaminators van wie verwag word om almal 'n standaardiseringsvergadering by te woon om te verseker dat die riglyne konsekwent vertolk en toegepas word by die nasien van kandidate se skrifte.

Die IEB sal geen bespreking of korrespondensie oor enige nasienriglyne voer nie. Ons erken dat daar verskillende standpunte oor sommige aangeleenthede van beklemtoning of detail in die riglyne kan wees. Ons erken ook dat daar sonder die voordeel van die bywoning van 'n standaardiseringsvergadering verskillende vertolkings van die toepassing van die nasienriglyne kan wees.

Sleutel: ✓^a akkuraatheid
✓^m metode
✓^{ma} metodeakkuraatheid
✓^{ca} deurlopende akkuraatheid
✓^{cam} deurlopende akkuraatheid metode
✓^r afronding

VRAAG 1

$$1.1 \quad R6\,000\,000 - R500\,000 \checkmark^a \text{ (waardes)} \checkmark^m = R5\,500\,000 \checkmark^a \quad (3)$$

$$1.2 \quad 6\,000\,000 \times 1,14 \checkmark^{ma} = R6\,840\,000 \checkmark^a$$

OF

$$6\,000\,000 \times 14\% \checkmark^{ma} = R840\,000$$

$$6\,000\,000 + 840\,000 = R6\,840\,000 \checkmark^a \quad (2)$$

$$1.3 \quad 2015: 6\,000\,000$$

$$2016: 6\,000\,000 \times 1,046 \checkmark^m \text{ (vir die gebruik van saamgestelde rente)} = R6\,276\,00 \checkmark^a$$

$$2017: 6\,276\,000 \times 1,046 = R6\,564\,696 \checkmark^{ca}$$

$$2018: 6\,564\,696 \times 1,046 = R6\,866\,672,02 \checkmark^{ca} \quad (4)$$

Aanvaar R6 866 672,01 (geen ronding punt toegeken)

Aanvaar NIE 3 desimale plekke aangesien dit geld is

$$1.4 \quad 771 \checkmark^a \times 136\,400 \times 12 \checkmark^{ma} = R1\,261\,972\,800 \checkmark^{ca} \quad (3)$$

$$\text{If } 136\,400 \times 12 = R1\,636\,800 \text{ (vir een winkel)} \checkmark^m$$

$$1.5 \quad 1.5.1 \quad 4\% \checkmark^a \checkmark^a \quad (2)$$

$$1.5.2 \quad 4\% \times 8\,000\,000 \checkmark^{cam} = R320\,000 \checkmark^{ca} \quad (2)$$

$$1.6 \quad 1.6.1 \quad \text{Pete McIntosh} \checkmark^a \checkmark^a \quad (2)$$

$$1.6.2 \quad \text{Voertuie} \checkmark^a \text{ en Nutsondernemings} \checkmark^a \quad (2)$$

$$1.6.3 \quad 78\,400 - 36\,000 \checkmark^{ma} = \$42\,400 \checkmark^a \text{ (eenheid boete)} \quad (2)$$

$$1.6.4 \quad \frac{42\,400}{78\,400 \checkmark^a} \times 100 \checkmark^m = 54,08\% \checkmark^{ca} \text{ (moet met 100 vermenigvuldig)} \quad (3)$$

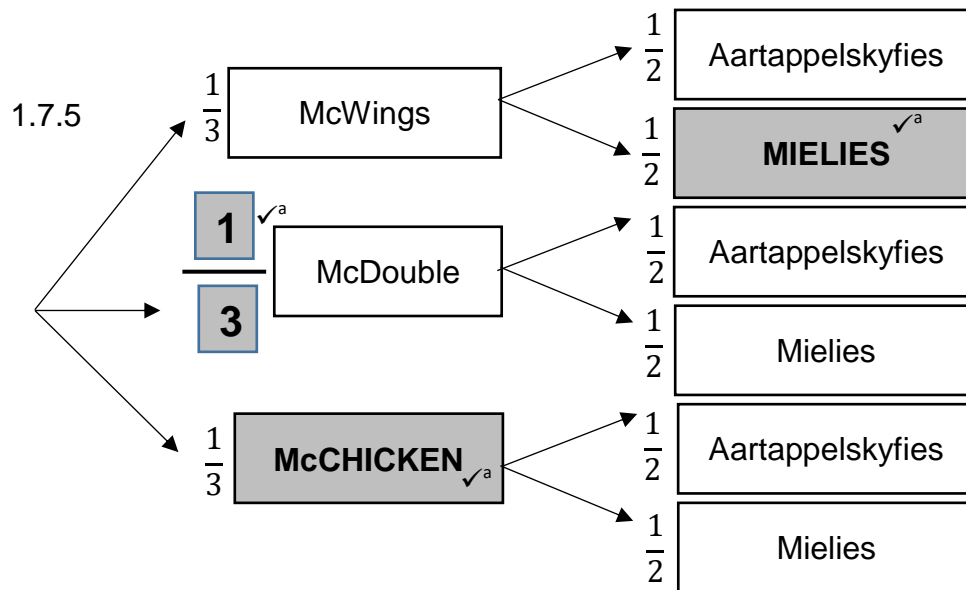
$$1.7 \quad 1.7.1 \quad (\$2 \times 2) \checkmark^m + \$1,50 + \$1,00 \checkmark^m \text{ (byvoeging van 3 waardes)} = \$6,50 \checkmark^a \text{ (geld ronding boete)} \quad (3)$$

$$1.7.2 \quad 6,50 \div 0,080944 \checkmark^{ma} = R80,30 \checkmark^{ca} \quad (2)$$

$$1.7.3 \quad (a) \quad 6,50 \times 12,354\,192 \checkmark^{ma} = R80,30 \checkmark^{ca} \quad (2)$$

$$(b) \quad \text{Nee} \checkmark^a \checkmark^a \quad (2)$$

$$1.7.4 \quad \frac{1}{3} \checkmark^a \checkmark^a \quad (2)$$



(3)

$$1.7.6 \quad \frac{1}{3} \times \frac{1}{2} \sqrt{ma} = \frac{1}{6} \sqrt{a}$$

(2)

1.8 1.8.1 $R111,50 \div 1,15 = R96,96 \sqrt{m} \sqrt{a}$

OF $R111,50 - 13,70 = R97,80 \sqrt{m} \sqrt{a}$

(2)

1.8.2 $16 : 57 : 56 \sqrt{a} + 13 \text{ min} = 17 \sqrt{a} : 10 \sqrt{a} : 56$

(3)

1.9 1.9.1 $R1,82 \times 12\,425 \text{ kWh} \sqrt{m} = R22\,613,50 \sqrt{a}$

$$R22\,613,50 \times 115\% = R26\,005,53 \sqrt{a}$$

$$\begin{aligned} & R26\,005,53 + (R34,64 \times 115\%) \\ &= R26\,005,53 + R39,84 \sqrt{a} \\ &= R26\,045,37 \sqrt{ca} \end{aligned}$$

Aanvaar ,37 or ,36: GEEN ronding punt hier

OF

$$R1,82 \times 115\% = R2,093 \sqrt{a}$$

$$R2,093 \times 12\,425 \text{ kWh} \sqrt{m} = R26\,005,53 \sqrt{ca}$$

$$\begin{aligned} & R26\,005,53 + (R34,64 \times 115\%) \\ &= R26\,005,53 + R39,84 \sqrt{a} \\ &= R26\,045,37 \sqrt{ca} \end{aligned}$$

OF

$$\begin{aligned} & 34,64 + (1,82 \times 12\,425) \sqrt{ma} \\ &= 34,36 + 22\,613,50 \sqrt{a} \\ &= R22\,648,14 \sqrt{ca} \end{aligned}$$

$$\begin{aligned} & 22\,648,14 \times 1,15 \sqrt{a} \\ &= R26\,045,36 \sqrt{ca} \end{aligned}$$

OF

$$34,64 \sqrt{a} + (1,82 \times 12\,425 \sqrt{m}) = R22\,648,14 \sqrt{a}$$

$$22\,648,14 \times 1,15 \sqrt{a} = R26\,046,36 \sqrt{ca}$$

(5)

$$\begin{aligned}
 1.9.2 \quad & R26\,045,37 + R174,23\checkmark^m \\
 & = R26\,219,60\checkmark^{ca} \\
 & = R26\,220\checkmark^r
 \end{aligned}$$

$$\begin{aligned}
 \text{OF} \quad & R26\,005,53 + R174,23\checkmark^m \\
 & = 26\,179,76 \\
 & = R26\,182\checkmark^r
 \end{aligned}$$

(3)
[54]

VRAAG 2

2.1 2.1.1 $152,5 \text{ cm} \checkmark^a + 15,25 \text{ cm} + 15,25 \text{ cm} \checkmark^{ma} \text{ (vir albei oorsteke)}$
 $= 183 \text{ cm} \checkmark^{ca}$ (3)

2.1.2 $152,5 \text{ cm} \times 274 \text{ cm} \checkmark^{ma}$
 $= 41\,785 \text{ cm}^2 \checkmark^a$
 $= 4,18 \text{ m}^2 \checkmark^{ca} \text{ (herleiding)}$

OF

$1,525 \text{ m} \times 2,74 \text{ m} \checkmark^{ma} \checkmark^a \text{ (herleidings)}$
 $= 4,18 \text{ m}^2 \checkmark^{ca}$ (3)

2.2 2.2.1 in : mm
 $10,24 : 260 \checkmark^a$
 $10,24 : 26 \text{ (cm)} \checkmark^m \text{ herleiding}$
 $\therefore 26 \div 10,24 \checkmark^m$
 $= 2,54 \text{ cm} \checkmark^{ca}$ (4)

2.2.2 $100 : 160 \checkmark^a$
 $5 : 8 \checkmark^{ca}$ (2)

2.3 2.3.1 $10:08 + 1 \text{ h } 58 \text{ min} \checkmark^{m(\text{optel})}$
 $10:00 + 1 \text{ h}$
 $11:00$
 $8 \text{ min} + 58 \text{ min}$
 $= 66 \text{ min}$
 $= 1 \text{ h } 6 \text{ min}$
 $\therefore 12:06$
 $\checkmark^a \checkmark^a$ (3)

2.3.2 (a) $272 \checkmark^a \times 1,5 \checkmark^m \text{ vermenigvuldiging}$
 $= 408 \text{ kalorieë} \checkmark^{ca}$ (3)

(b) $3\,500 \div 500 \checkmark^{ma} = 7 \text{ uur} \checkmark^a$ (2)

2.4 2.4.1 $C = 2 \times 3,142 \times 31 \checkmark^m \text{ (vervanging)}$
 $= 194,804 \checkmark^a$
 $\therefore 194,80 - 10$
 $= 184,804 \text{ mm} \checkmark^{ca}$

OF

$\pi \times 62 \text{ mm} \checkmark^m \text{ (vervanging)}$
 $= 194,778 \text{ mm} \checkmark^a$
 $\therefore 194,778 - 10$
 $= 184,778 \text{ mm} \checkmark^{ca} = 184,78$ (3)

2.4.2 $85\% \times 582\,680 \checkmark^m$
 $= 495\,278 \text{ mm}^3 \checkmark^a$ (2)

2.4.3 $495\,278 \text{ mm}^3 \div 1\,000 = 495,278 \text{ cm}^3 \checkmark^{ca} \div 1\,000$
 $= 0,5 \text{ l} \checkmark^{ca}$ (2)

[27]

VRAAG 3

3.1 $22 \checkmark^a \times R4\,000 = R88\,000 \checkmark^a$ (2)

3.2 3.2.1 $2,6 + 2,1\text{ cm} = 4,7\text{ cm} \checkmark^a \checkmark^a$

OF

$$23 + 21$$

$$= 4,7\text{ mm}$$

$$= 4,7\text{ cm} \checkmark^a \checkmark^a \text{ (aanvaar mm ook) (bestek aanvaar: 4,4 tot 4,9 cm)}$$
 (2)

3.2.2 $567\text{ km}^{(\times 100 \checkmark^m \times 1000 \checkmark^m)} = 56\,700\,000\text{ cm} \checkmark^a \text{ herlei}$ (3)

3.2.3 $4,4 : 56\,700\,000 \checkmark^a \text{ verhouding}$

$$1 : 12\,886\,363,64 \checkmark^m \div 4,4$$

$$1 : 13\,000\,000 \checkmark^{car}$$

(3)

3.2.4 $S = 1\,682 \div 19\text{ h } 28\text{ min} \checkmark^m$

$$= 1\,682 \div 19,47 \checkmark^a \text{ herlei}$$

$$= 86,4\text{ km/h} \checkmark^{ca}$$

OF

$$S = 1\,682 \div 19\text{ h } 28\text{ min} \checkmark^m$$

$$= 1\,682 \div 19,5 \checkmark^a \text{ herlei}$$

$$= 86,3\text{ km/h} \checkmark^{ca}$$

(3)

3.3 3.3.1 Stellenbosch \checkmark^a ; Hermanus \checkmark^a (2)

3.3.2 Pendeldiens $\checkmark^a \checkmark^a$ (2)

3.3.3 $2 \checkmark^a \checkmark^a$ (2)

3.3.4 Wes $\checkmark^a \checkmark^a$ (2)

[21]

VRAAG 4

- 4.1 96:100✓^a
1 selfoonintekening : 1,04 mense✓^a

OF

100:96

1 persoon : 0,96 (intekenings) ✓^a (moenie 1 : 1 aanvaar nie) (2)

- 4.2 23 : 100
1,3 mil : ?

$$\therefore 1,3 \text{ mil} \div 23 \checkmark^a \times 100 \checkmark^m$$

$$= 5\,652\,173,913$$

$$= 5\,652\,173 \checkmark^a \text{ ongelukke}$$

OF

23% van $x = 1,3$ miljoen✓^m

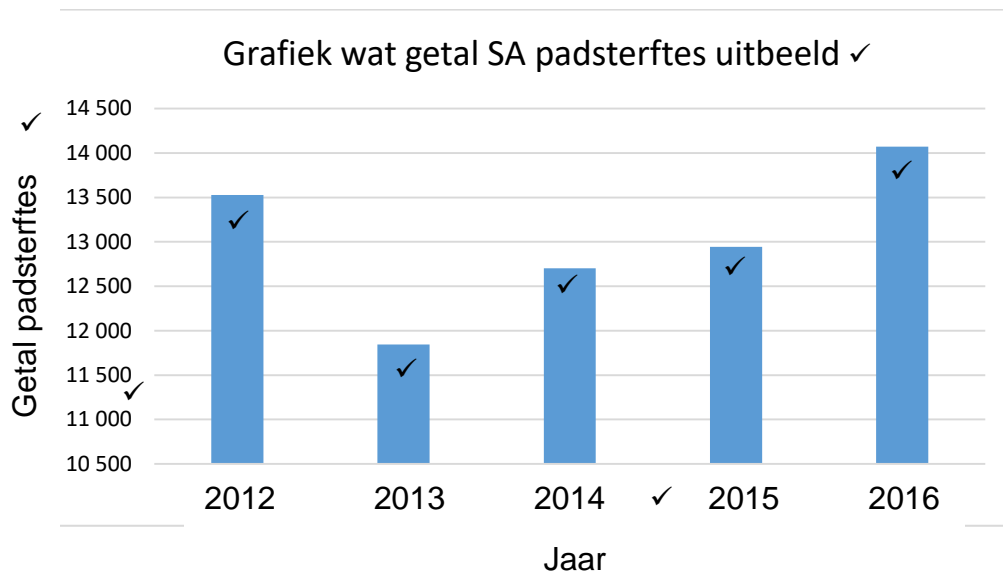
$$x = \frac{1\,300\,000}{23\%} \checkmark^a$$

$$x = 5\,652\,173 \checkmark^a \text{ ongelukke}$$

(3)

- 4.3 4.3.1 'n Bestuurder wat op 'n selfoon praat ✓^a✓^a (2)
- 4.3.2 Die bestuurder stuur boodskappe, speel 'n videospelletjie of gebruik 'n ander soort elektroniese handtoestel ✓^a✓^a (2)
- 4.3.3 Knaklyngrafiek (Moenie sektorkaart as vergelykingsgrafiek aanvaar nie) ✓^a✓^a (2)

4.4



- ✓ Grafiekopskrif
- ✓ Opskrif op horisontale as en vertikale as
- ✓ Geskikte inkrement op die vertikale as
- ✓ Staafgrafiek (nie histogram nie)
- ✓✓✓✓✓ Akkuraatheid van stawe

(9)
[20]

VRAAG 5

5.1 $8 + 3 \checkmark^m = 11$ eeue \checkmark^a (2)

5.2 $2020 \checkmark^a \checkmark^a$ (2)

5.3 5.3.1 $\bar{x} = \frac{2044000}{12} \checkmark^a \text{ (som van alle datapunte)} \checkmark^m \text{ (deel)} = \$170\,333,33 \checkmark^{ca}$ (3)

5.3.2 $\$753\,000 - \$15\,000 \checkmark^m = \$738\,000 \checkmark^a$ (2)

5.3.3 Mediaan = $\frac{66000 + 61000}{2} \checkmark^a \text{ (optel)} \checkmark^{ma} \text{ (deel deur 2)} = \$63\,500 \checkmark^{ca}$ (3)

5.3.4 $\$15\,000 \checkmark^a \checkmark^a$ (2)

5.4 5.4.1 $2 \times 500\,000 = R1\,000\,000$
 $6 \times 250\,000 = R1\,500\,000 \checkmark^a \text{ (waardes)}$
 $2 \times 100\,000 = R \underline{200\,000} \checkmark^m \text{ (optelling)} +$
 $R2\,700\,000 \checkmark^a$ (3)

5.4.2 $500\,000 : 250\,000 : 100\,000 \checkmark^a \text{ (volgorde)}$
 $50 : 25 : 10$
 $10 : 5 : 2 \checkmark^a$

Indien getal van medaljeverdienste gebruik word

$2 : 6 : 2$
 $1\,000\,000 : 1\,500\,000 : 200\,000 \checkmark^a \text{ (volgorde)}$
 $10 : 15 : 2 \checkmark^a$ (2)

5.5 5.5.1 $80 : 20$
 $\therefore \frac{20}{100} \times 500\,000 \checkmark^m$
 $= R100\,000 \checkmark^a$ (2)

5.5.2 $500\,000 - 100\,000$
 $\therefore 400\,000 \text{ elk}$
 $\therefore 400\,000 \checkmark^a \times 2 \checkmark^m$
 $= R800\,000 \checkmark^{ca}$

OF

$80\% \checkmark^a \times R1\,000\,000 \checkmark^m$
 $= R800\,000 \checkmark^{ca}$

As R1 000 000 nie afgetrek word nie

$2 \times 500\,000 \checkmark^m$
 $= R1\,000\,000$ (3)

5.5.3 Verdien R400 000
 $61\,296 + 31\% \times (400\,000 - 293\,600) \checkmark^a \text{ (kategorie)}$
 $= 61\,296 + 0,31 \times 106\,400 \checkmark^a$
 $= 61\,296 + 32\,984 \checkmark^{ca}$
 $= R94\,280 \checkmark^{ca}$

(4)
[28]

Totaal: 150 punte