GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

GAUTENG DEPARTMENT OF EDUCATION
GAUTENGSE DEPARTEMENT VAN ONDERWYS

PROVINCIAL EXAMINATION
PROVINSIALE EKSAMEN

NOVEMBER 2020

GRADE/*GRAAD* 10

MATHEMATICS (PAPER 2)
WISKUNDE (VRAESTEL 2)

MARKING GUIDELINES/*NASIENRIGLYNE*

MARKS/*PUNTE*: 50

7 pages/*bladsye*

NOTE:

- If a candidate answers a question TWICE, only mark the FIRST attempt.
- If a candidate has crossed out an attempt at a question and has not redone the question, mark the crossed out version.
- Consistent accuracy applies in ALL aspects of the marking memorandum. Stop marking at the second calculation error.
- Assuming answers/values in order to solve a problem is NOT acceptable.

***OPMERKING**:*

- *As 'n kandidaat 'n vraag tweemaal beantwoord, merk slegs die EERSTE poging.*
- *As 'n kandidaat 'n poging tot 'n vraag deurkruis het, en het die vraag nie oorgedoen nie, merk die deurgehaalde weergawe.*
- *Konsekwente akkuraatheid is van toepassing op ALLE aspekte van die nasienmemorandum. Hou op nasien by die tweede berekeningsfout.*
- *Veronderstelling van antwoorde/waardes om 'n probleem op te los, is NIE aanvaarbaar NIE.*

QUESTION/*VRAAG* 1

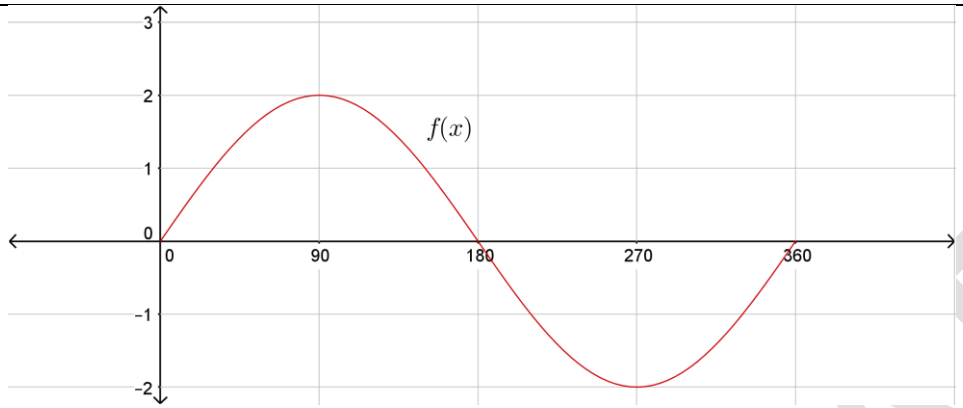
1.1	$R(x;0), Q(x;5)$ and/*en* $P(3;5)$ $\sqrt{(x-3)^2+(5-5)^2}=5$ $x^2-6x+9=25$ $x^2-6x-16=0$ $(x-8)(x+2)=0$ $x=8 \ or \ x=-2$ $\therefore R(8;0)$ **OR/OF** $\sqrt{\left(3-(-1)\right)^2+\left(5-(-4)\right)^2}=\sqrt{\left(x-(-1)\right)^2+(0-8)^2}$ $16-81=(x+1)^2+16$ $(x+1)^2=81$ $x+1=\pm 9$ $x=8 \ or \ x=-9$ $\therefore R(8;0)$	✓ substitution into the correct formula/*vervanging in korrekte formule* ✓standard form/ *standaardvorm* ✓factors/*faktore* ✓ correct $x-$ value *korrekte x-waarde* (4) **OR/OF** ✓ substitution into the correct formula/*vervanging in korrekte formule* ✓simplification/ *vereenvoudiging* ✓$x+1=\pm 9$ ✓ correct *x*-value/ *korrekte x-waarde* (4)
1.2	$A\left(\frac{x_1+x_2}{2};\frac{y_1+y_2}{2}\right)$ $R\left(\frac{3+8}{2};\frac{5+0}{2}\right)$ $R(5{,}5\ ;2{,}5)$	✓ substitute correct values in correct formula/ *vervang korrekte waardes in korrekte formule* ✓$R(5{,}5\ ;2{,}5)$ (2)
1.3	$m_{SQ}=\frac{y_1-y_2}{x_1-x_2}$ $m_{SQ}=\frac{5-(-4)}{8-(-1)}$ $m_{SQ}=1$	✓ gradient formula/ *gradiëntformule* ✓ substitute correct values/ *vervang korrekte waardes* ✓ answer/*antwoord* (3)

1.4	$PR = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2}$ $PR = \sqrt{(8-3)^2 + (0-5)^2}$ $PR = \sqrt{50}$ $PR = 5\sqrt{2}$ units/*eenhede*	✓ substitute correct values in correct formula/ *vervang korrekte waardes in korrekte formule* ✓answer/*antwoord* (2)
1.5	$PR = 5\sqrt{2}$ $SQ = \sqrt{(-1-8)^2 + (-4-5)^2}$ $SQ = 9\sqrt{2}$ Area of the kite/*Oppervlak van vlieër* $PQRS = \frac{1}{2}PR.SQ$ Area of the kite/*Oppervlak van vlieër* $PQRS = \frac{1}{2}(5\sqrt{2})(9\sqrt{2})$ Area of the kite/*Oppervlak van vlieër* $PQRS = 45$ units^2/*eenhede*^{2}	✓ $SQ = 9\sqrt{2}$ ✓substituting into the correct formula/*vervanging in korrekte formule* ✓answer/*antwoord* (3)
1.6	$m_{SQ} = 1$ $m_{PR} = \frac{0-5}{8-3}$ $m_{PR} = -1$ $\therefore m_{SQ} \times m_{PR}$ $= 1 \times -1$ $= -1$ $\therefore PR \perp SQ$	✓ substitution/*vervanging* ✓gradient of/*gradiënt van* PR ✓$m_{SQ} \times m_{PR} = 1 \times -1$ (3)
1.7	$PS = \sqrt{(-1-3)^2 + (-4-5)^2}$ $PS = \sqrt{97}$ $SR = \sqrt{(-1-8)^2 + (-4-0)^2}$ $SR = \sqrt{97}$ $PR = 5\sqrt{2}$ $\therefore \Delta$ PSR is an isosceles since two sides are equal $\therefore \Delta$ *PSR is gelykbenig want twee sye is gelyk*	✓PS ✓SR ✓PR ✓conclusion/*afleiding* (4)
		[21]

QUESTION/*VRAAG* 2

2.1	$\frac{1}{\cos 75°}$ $= 3{,}86$	✓$\frac{1}{\cos 75°}$ ✓answer/*antwoord* (2)
2.2	$\frac{sin90° - cos60°}{tan45°}$ $= \frac{1-\frac{1}{2}}{1}$ $= \frac{1}{2}$	✓ all correct values/*alle korrekte waardes* ✓answer/*antwoord* (2)
2.3.1	$5sin\,\theta + 3 = 0.$ $\sin\theta = -\frac{3}{5}$ y = –3 r = 5 $x^2 = 5^2 - (-3)^2$ $x = \sqrt{25-9}$ $x = \pm 4$ $\therefore x = -4$ $30tan\,\theta$ $= 30.\frac{(-3)}{(-4)}$ $= \frac{45}{2}$	✓ correct form/*korrekte vorm* ✓ *y* value and *r* value/ *y waarde en r waarde* ✓ correct subst. into Pythagoras/ *korrekte vervanging in Pythagoras* ✓ *x* = –4 ✓ replace $tan\,\theta$/ *vervang* $tan\,\theta$ ✓answer/*antwoord* (6)
2.3.2	$= 180° + \tan^{-1}\left(\frac{3}{4}\right)$ $= 216{,}87°$	✓216,87° (1)
		[11]

QUESTION/*VRAAG* 3

3.1.1		✓shape/*vorm* ✓*x*-and *y*- intercepts/ *x- en y-afsnitte* (2)
3.1.2	(i) 360°	✓answer/*antwoord* (1)
	(ii) $h(x) = -2 \sin x$	✓answer/*antwoord* (1)
3.2.1	$4tan\ x + 1 = 3$ $\tan x = \frac{2}{4}$ $x = \tan^{-1}\left(\frac{1}{2}\right)$ $x = 26{,}6$	✓simplification/ *vereenvoudiging* ✓answer/*antwoord* ✓correct rounding/ *korrekte afronding* (3)
3.2.2	$\frac{cosec\ x}{3} = 2$ $\text{cosec}\, x = 6$ $\sin x = \frac{1}{6}$ $x = \sin^{-1}\left(\frac{1}{6}\right)$ $x = 9{,}6$	✓simplification/ *vereenvoudiging* ✓$\sin x = \frac{1}{6}$ ✓answer/*antwoord* (3)

3.3.1	$\tan 30° = \frac{DE}{10}$ $DE = 10 \tan 30°$ $DE = \frac{10\sqrt{3}}{3} m$	✓correct ratio/*korrekte verhouding* ✓answer in surd form/ *antwoord in wortelvorm* (2)
3.3.2	$\cos \theta = \frac{5}{7}$ $\theta = \cos^{-1} \frac{5}{7}$ $\theta = 44{,}42°$	✓correct ratio/*korrekte verhouding* ✓answer/*antwoord* ✓correct rounding/ *korrekte afronding* (3)
3.3.3	$AC^2 = AB^2 - BC^2$ AC = $\sqrt{7^2 - 5^2}$ AC = $2\sqrt{6m}$ or/*of* 4,90 m	✓Pythagoras theorem/ *Pythagoras stelling* ✓substitution/*vervanging* ✓answer/*antwoord* (3)
		[18]
		TOTAL/*TOTAAL:* 50