



LIMPOPO

PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF
EDUCATION

NATIONAL
SENIOR CERTIFICATE

GRADE 12/GRAAD 12

MATHEMATICS/WISKUNDE

MEMORANDUM P2/V2

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MARKS/PUNTE: 150

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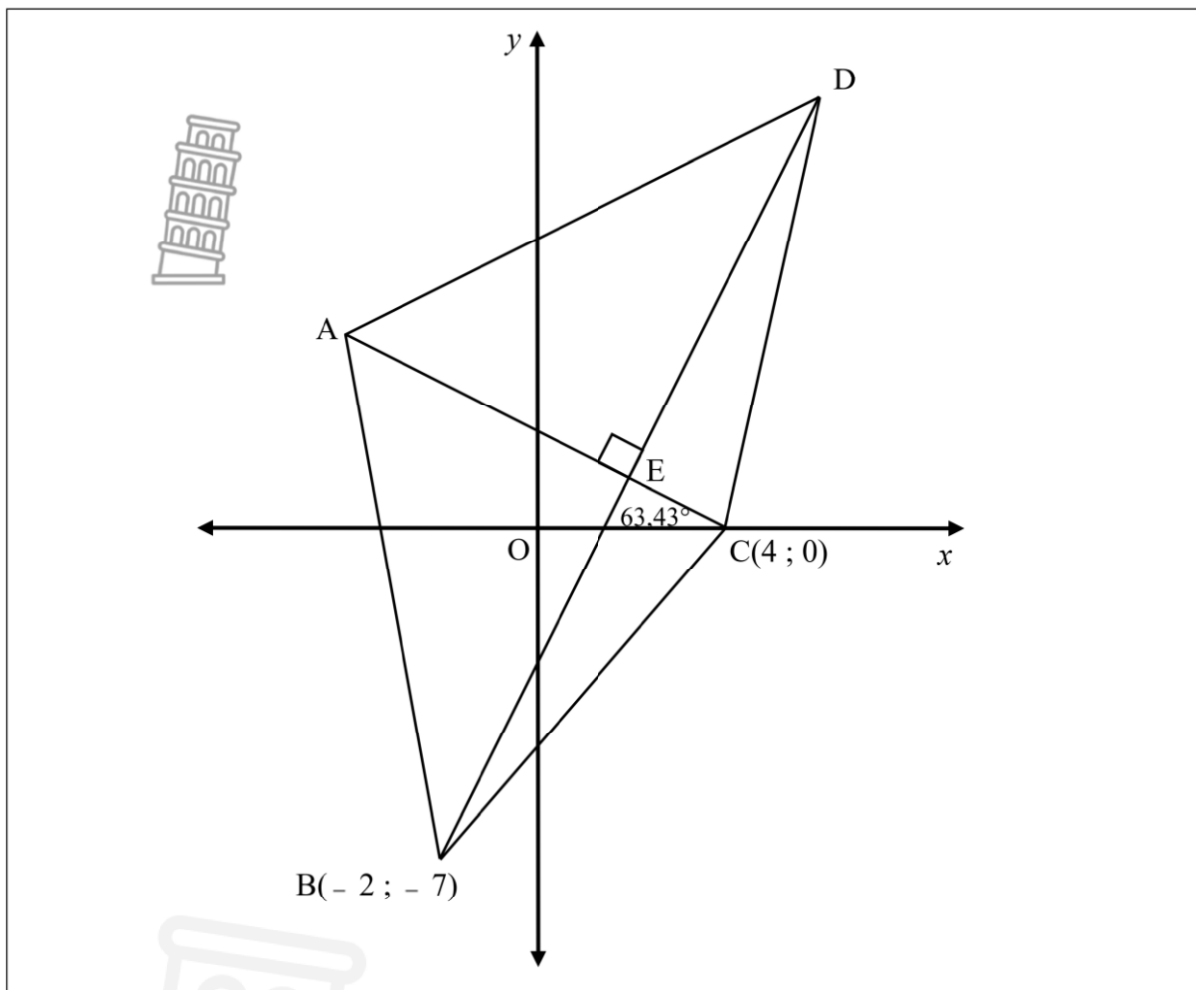
QUESTION/VRAAG 2

| | | |
|-------|---|--|
| 2.1.1 | $\frac{3+4+4+6+10+12+12+4+y}{9} = 7$ $\frac{55+y}{9} = 7$ $55+y = 63$ $y = 8$ | $\checkmark \frac{55+y}{9} = 7$ $\checkmark \text{value of/waarde } y$ (2) |
| 2.1.2 | Median = 6 | $\checkmark 6$ (1) |
| 2.2.1 | $\bar{x} = \frac{3+4+4+4+6+8+10+12+12+7-n+7+n}{11}$ $\bar{x} = \frac{77}{11}$ $\bar{x} = 7$ <p>OR/OF</p> $\bar{x} = \frac{63+7-n+7+n}{11}$ $\bar{x} = \frac{77}{11}$ $\bar{x} = 7$ | $\checkmark 77$ $\checkmark 7$ (2) $\checkmark 77$ $\checkmark 7$ (2) |
| 2.2.2 | $\bar{x} - \sigma_x = 3$ $7 - \sigma_x = 3$ $\sigma_x = 4$ <p>OR/OF</p> $\bar{x} + \sigma_x = 11$ $7 + \sigma_x = 11$ $\sigma_x = 4$ | $\checkmark \text{equation/vgl}$ $\checkmark \text{answer/antw}$ (2) $\checkmark \text{equation/vgl}$ $\checkmark \text{answer/antw}$ (2) |

[7]



QUESTION/VRAAG 3

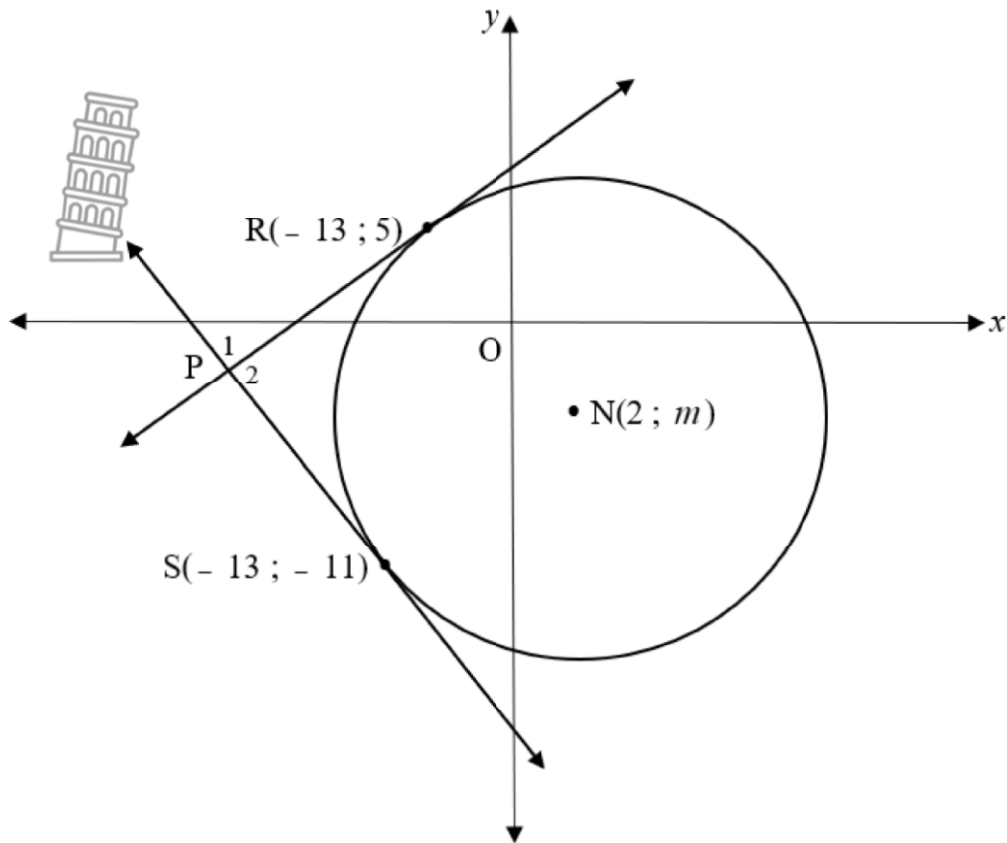


| | | |
|-----|---|--|
| 3.1 | $y - y_1 = m(x - x_1)$ $y - (-7) = 2(x - (-2))$ $y + 7 = 2(x + 2)$ $BD: y = 2x - 3$ <p>OF/OR</p> $y = mx + c$ $-7 = 2(-2) + c$ $-7 = -4 + c$ $c = -3$ $BD: y = 2x - 3$ | $m(AC) = -\frac{1}{2}$ $m(BD) = 2$ <p>✓ $m(AC) = -\frac{1}{2}$ ✓ $m(BD) = 2$ ✓ subt m and point B /verv m en punt B ✓ answer/antw (4)</p> $m(AC) = -\frac{1}{2}$ $m(BD) = 2$ <p>✓ $m(AC) = -\frac{1}{2}$ ✓ $m(BD) = 2$ ✓ subt m and point B /verv m en punt B ✓ answer/antw (4)</p> |
|-----|---|--|

| | | |
|-----|--|--|
| 3.2 | $-\frac{1}{2}x + 2 = 2x - 3$ $-x + 4 = 4x - 6$ $-5x = -10$ $x = 2$ <p>subst into BD: $y = 2(2) - 3$</p> $y = 1$ <p>E (2 ; 1)</p> | ✓ equating/vgl ✓ value of/waarde x ✓ value of/waarde y (3) |
| 3.3 | <p>A(-4 ; 4) through translation</p> <p>OR/OF</p> <p>Find a point P so that CE = EP P(0 ; 2) Then CP = PA A(-4 ; 4)</p> | ✓ value of/waarde x ✓ value of/waarde y (2) ✓ P(0 ; 2) ✓ A(-4 ; 4) (2) |
| 3.4 | $AC = \sqrt{(-4-4)^2 + (4-0)^2} = 4\sqrt{5}$ $BE = \sqrt{(-2-2)^2 + (-7-1)^2} = 4\sqrt{5}$ <p>Area of kite = 2 × area of $\triangle ABC$</p> $= 2 \times \left(\frac{1}{2} \times 4\sqrt{5} \times 4\sqrt{5} \right)$ $= 80$ <p>Enlarged by scale factor 2: $80 \times 4 = 320$ sq unit</p> <p>OR/OF</p> $AC = \sqrt{(-4-4)^2 + (4-0)^2} = 4\sqrt{5}$ $\therefore PR = 8\sqrt{5}$ $BE = \sqrt{(-2-2)^2 + (-7-1)^2} = 4\sqrt{5}$ $\therefore QS = 8\sqrt{5}$ <p>Area of kite = 2 × area of $\triangle PQR$</p> $= 2 \times \left(\frac{1}{2} \times 8\sqrt{5} \times 8\sqrt{5} \right)$ $= 320$ | ✓ length/lengte AC ✓ length/lengte BE ✓ method/metode ✓ 80 ✓ answer/antw (5) ✓ length/lengte AC ✓ length/lengte PR ✓ length/lengte QS ✓ method/metode ✓ answer/antw (5) |

QUESTION/VRAAG 4

4.1



4.1.1
(a)

$$(-13-2)^2 + (5-m)^2 = 17^2$$

$$225 + 25 - 10m + m^2 = 289$$

$$m^2 - 10m - 39 = 0$$

$$(m-13)(m+3) = 0$$

$$m = 13 \quad \text{or} \quad m = -3$$

NA

OR/OF

$$(-13-2)^2 + (-11-m)^2 = 17^2$$

$$225 + (-11-m)^2 = 289$$

$$(-11-m)^2 = 64$$

$$-11-m = \pm 8$$

$$m = -19 \quad \text{or} \quad m = -3$$

NA

✓ subst R and N/verv
R en N

✓ simplify/vereenv

✓ std form/std vorm

✓ value/value m

(4)

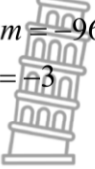

✓ subst S and N/verv
S en N

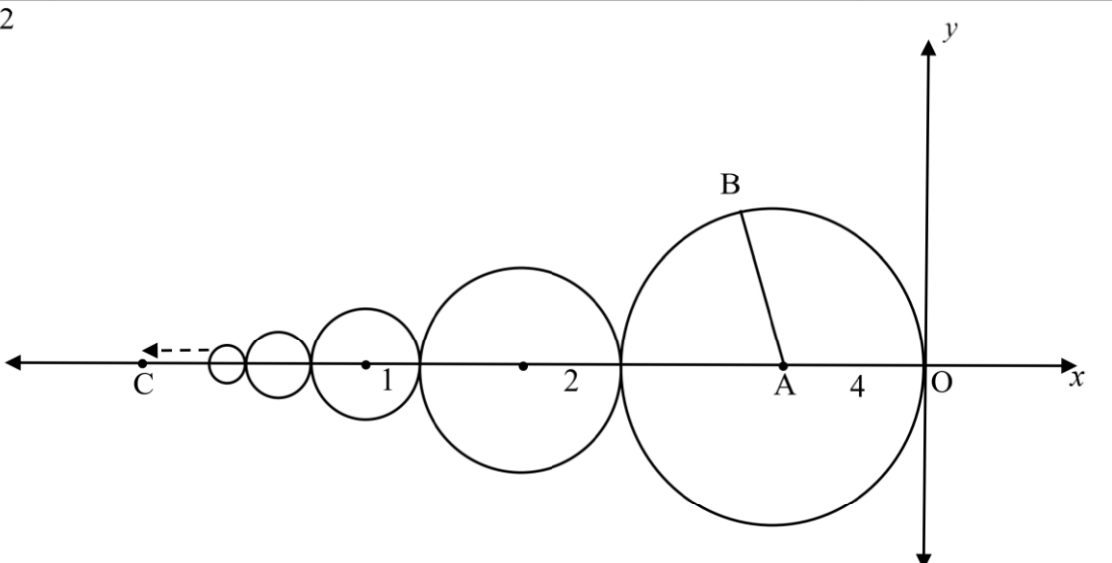
✓ simplify/vereenv

✓ std form/std vorm

✓ value/waarde m

(4)

| | | |
|--------------|--|--|
| | <p>OR/OF</p> $(-13-2)^2 + (-11-m)^2 = (-13-2)^2 + (5-m)^2$ $225 + m^2 + 22m + 121 = 225 + m^2 - 10m + 25$ $32m = -96$ $m = -3$  <p>OR/OF</p> <p>RS \parallel y-axis $\therefore x = -13$ same x-values Draw line NK \perp RS \therefore NK bisect RS at $(-13 ; -3)$ line from centre of circle \perp to chord $\therefore N(2 ; -3)$</p> | <p>✓✓equating ✓simplify/vereenv ✓value/waarde m</p> <p>(4)</p> |
| 4.1.1 (b) | $(x-2)^2 + (y+3)^2 = 289$ | <p>✓answer/antw</p> <p>(1)</p> |
| 4.1.2 (a) | $m(\text{NR}) = \frac{-3-5}{2-(-13)}$ $m(\text{NR}) = \frac{-8}{15}$ | <p>✓subst in gradient formula/verv in gradiënt formule ✓gradient of NR</p> <p>(2)</p> |
| 4.1.2 (b) | $m(\text{NS}) = \frac{-3-(-11)}{2-(-13)}$ $m(\text{NS}) = \frac{8}{15}$ | <p>✓gradient of NS/ gradiënt van NS</p> <p>(1)</p> |
| 4.1.3 | <p>NR \perp PR NS \perp PS</p> $\therefore m(\text{PR}) = \frac{15}{8} \qquad \therefore m(\text{PS}) = -\frac{15}{8}$ $\tan \alpha = \frac{15}{8} \qquad \tan \beta = -\frac{15}{8}$ $\alpha = 61,93^\circ \qquad \beta = 180^\circ - 61,93^\circ$ $\qquad \qquad \qquad \beta = 118,07^\circ$ $\hat{P}_1 = 118,07^\circ - 61,93^\circ = 56,14^\circ$ $\therefore \hat{P}_2 = 180^\circ - 56,14^\circ = 123,86^\circ$ | <p>✓tan α def ✓value/waarde α</p> <p>✓tan β def ✓value/waarde β</p> <p>✓method/metode ✓answer/antw</p>  <p>(6)</p> |

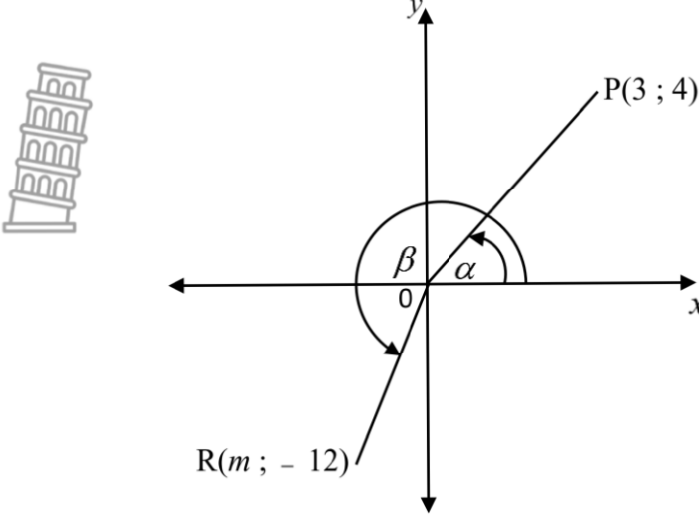

| | | |
|-------|---|---|
| | OF/OR Inclination of NS = $28,07^\circ$ Inclination of NR = $151,93^\circ$ $\hat{RNS} = 28,07^\circ + 28,07^\circ$ $\hat{RNS} = 56,14^\circ$ NRPS is cyclic quadrilateral Opp \angle 's suppl $\therefore \hat{P}_2 = 123,86^\circ$ | $\checkmark 28,07^\circ$ $\checkmark 151,93^\circ$ $\checkmark \hat{RNS} = 2 \times 28,07^\circ$ $\checkmark 56,14^\circ$ \checkmark Opp \angle 's cyclic quad/teenoorst \angle 'e kvh \checkmark answer/antw (6) |
| 4.1.4 | Reflection about x – axis: $(2 ; -3) \rightarrow (2 ; 3)$ Shift 2 units up: $(2 ; 3) \rightarrow (2 ; 5)$ Circle M: $(x-2)^2 + (y-5)^2 = 289$ | $\checkmark \checkmark$ equation/vgl (2) |
| 4.2 |  | |
| 4.2.1 | Diameter = $8 + 4 + 2 + 1 \dots =$ $S_\infty = \frac{a}{1-r}$ $S_\infty = \frac{8}{1-\frac{1}{2}}$ $S_\infty = 16$ $\therefore OC = 16$ | \checkmark sum of diameters/ som middellyne \checkmark subst in sum formula/verv in som formule (2) |
| 4.2.2 | 90° , radius \perp tangent | \checkmark answer/antw \checkmark reason/rede (2) |

| | | |
|-------|---|--|
| 4.2.3 | $AC = 16 - 4 = 12$ $AB = 4$ $BC^2 = AC^2 - AB^2$ (Pyth) $BC^2 = 12^2 - 4^2$ $BC^2 = 128$ $BC = 8\sqrt{2}$ $\therefore \tan C = \frac{4}{8\sqrt{2}} = \frac{\sqrt{2}}{4}$ | ✓ AC ✓ AB ✓ BC ✓ tan ratio (4) |
| 4.2.4 | $y - y_1 = m(x - x_1)$ $y - 0 = \frac{\sqrt{2}}{4}(x - (-16))$ $y = \frac{\sqrt{2}}{4}x + 4\sqrt{2}$ OR/OF $y = \frac{\sqrt{2}}{4}x + c$ $0 = \frac{\sqrt{2}}{4}(-16) + c$ $c = 4\sqrt{2}$ $\therefore y = \frac{\sqrt{2}}{4}x + 4\sqrt{2}$ | ✓ subst/verv m ✓ subst point/verv punt ✓ equation/vgl (3) ✓ subst/verv m ✓ subst point/verv punt ✓ equation/vgl (3) |

[27]




QUESTION/VRAAG 5

| | | |
|-------|---|---|
| 5.1 |  | |
| 5.1.1 | $\tan \alpha = \frac{4}{3}$ | ✓ answer/antw (1) |
| 5.1.2 | $\sin(90^\circ + \alpha)$ $= \cos \alpha$ $= \frac{3}{5}$ | ✓ reduction/reduksie ✓ $r = 5$ ✓ answer/antw (3) |
| 5.1.3 | $12 + 13 \sin \beta = 0$ $\sin \beta = -\frac{12}{13}$ $m^2 = 13^2 - (-12^2) \quad (\text{Pyth})$ $m^2 = 25$ $m = \pm 5$ $\therefore m = -5$ | ✓ std form/std vorm ✓ subst into Pyth ✓ simpl/vereenv ✓ answer/antw (4) |
| 5.1.4 | $\cos(\alpha + \beta)$ $= \cos \alpha \cos \beta - \sin \alpha \sin \beta$ $= \left(\frac{3}{5}\right)\left(\frac{-5}{13}\right) - \left(\frac{4}{5}\right)\left(\frac{-12}{13}\right)$ $= -\frac{3}{13} + \frac{48}{65}$ $= \frac{33}{65}$ | ✓ expansion/uitbrei ✓ subst/vervang  ✓ answer/antw (3) |

| | | |
|-------|---|--|
| 5.2.1 | $\sqrt{4^{\sin 150^\circ} \cdot 2^{3 \tan 225^\circ}}$ $= \sqrt{(2^2)^{\sin 30^\circ} \cdot 2^{3 \tan 45^\circ}}$ $= \sqrt{2^{2 \cdot \frac{1}{2}} \cdot 2^{3(1)}}$ $= \sqrt{2 \cdot 2^3}$ $= \sqrt{2 \cdot 2^3}$ $= \sqrt{16}$ $= 4$ | <p>✓ $\sin 30^\circ$ ✓ $\tan 45^\circ$ ✓ special values/ <i>spesiale waardes</i> ✓ simpl/vereenv ✓ answer/antw</p> <p>(5)</p> |
| 5.2.2 | $\frac{\tan(180^\circ + x) \cos x}{\sin(180^\circ + x) \cos x - \cos(540^\circ + x) \cos(90^\circ + x)}$ $= \frac{(\tan x)(\cos x)}{(-\sin x)(\cos x) - (-\cos x)(-\sin x)}$ $= \frac{\frac{\sin x}{\cos x} \cdot \cos x}{-\sin x \cos x - \cos x \sin x}$ $= \frac{\sin x}{-2 \sin x \cos x}$ $= -\frac{1}{2 \cos x}$ | <p>✓ $\tan x$ ✓ $-\sin x$ ✓ $-\cos x$ ✓ $-\sin x$ ✓ $\frac{\sin x}{\cos x}$ ✓ answer/antw</p> <p>(6)</p> |
| 5.3 | $\frac{1 - \cos 2x - \sin x}{\sin 2x - \cos x}$ $= \frac{1 - (1 - 2 \sin^2 x) - \sin x}{2 \sin x \cos x - \cos x}$ $= \frac{1 - 1 + 2 \sin^2 x - \sin x}{2 \sin x \cos x - \cos x}$ $= \frac{2 \sin^2 x - \sin x}{2 \sin x \cos x - \cos x}$ $= \frac{\sin x(2 \sin x - 1)}{\cos x(2 \sin x - 1)}$ $= \frac{\sin x}{\cos x}$ $= \tan x$ | <p>✓ $\cos 2x$ expansion/ <i>uitbrei</i> ✓ $\sin 2x$ expansion/ <i>uitbrei</i> ✓ simpl/vereenv ✓ factors/faktore</p> <p>(4)</p> |



| | | |
|-----|--|--|
| 5.4 | $\sin P \sin Q - \cos P \cos Q = \frac{1}{2}$ $\therefore \cos P \cos Q - \sin P \sin Q = -\frac{1}{2}$  $\cos(P+Q) = -\frac{1}{2}$ $P+Q = 180^\circ - 60^\circ$ $P+Q = 120^\circ \dots\dots\dots 1$ $\sin(P-Q) = \frac{1}{2}$ $P-Q = 30^\circ \dots\dots\dots 2$ $\therefore 2P = 150^\circ$ $P = 75^\circ$ $Q = 45^\circ$ | <p>✓ rearrange terms/ herrangskik terme</p> <p>✓ cos identity/ identiteit</p> <p>✓ 2nd quadrant/ kwadrant</p> <p>✓ equation/vgl</p> <p>✓ 1st quadrant/ kwadrant</p> <p>✓ 75°</p> <p>✓ 45°</p> <p>(7)</p> |
|-----|--|--|

[33]

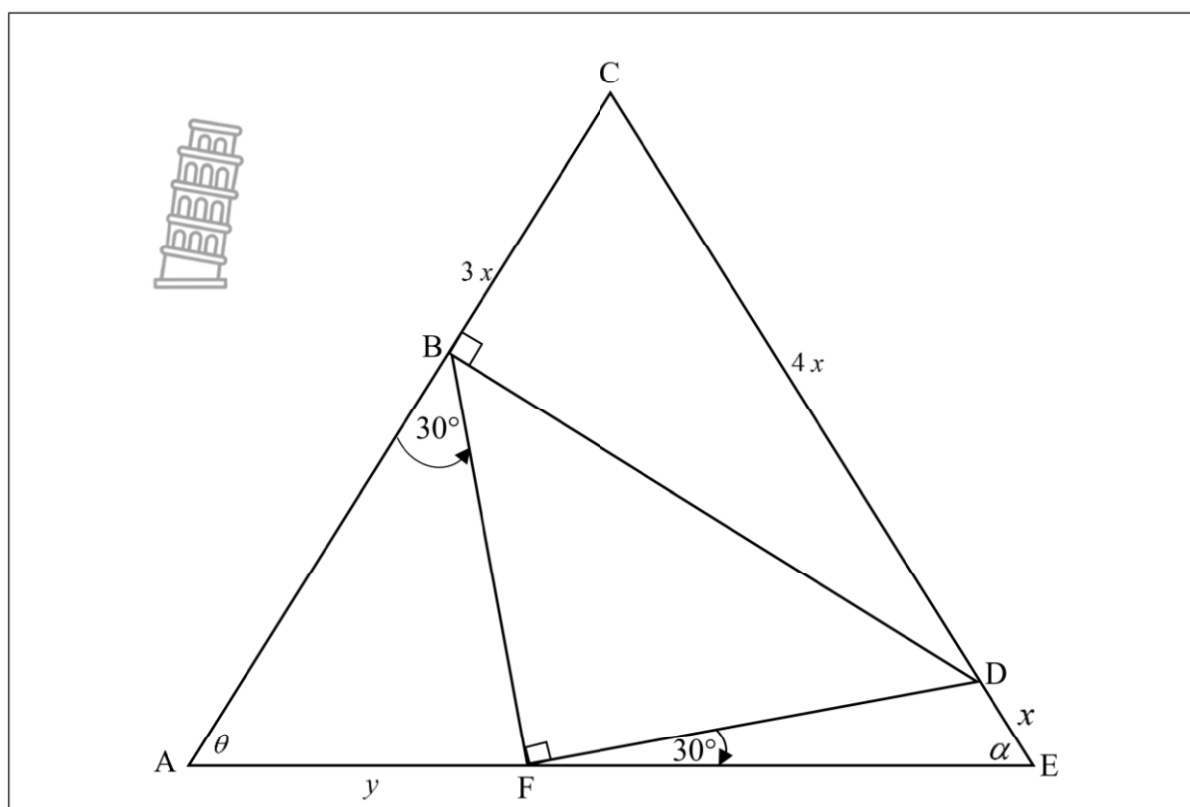
QUESTION/VRAAG 6

| | | |
|-------|--|--|
| 6.1 | $a = 2$ and $b = 1$ | <p>✓ value/waarde a</p> <p>✓ value/waarde b</p> <p>(2)</p> |
| 6.2.1 | $2 \sin x - \cos x = 0$ $2 \sin x = \cos x$ $\frac{\sin x}{\cos x} = \frac{1}{2}$ $\tan x = \frac{1}{2}$ $x = 26,57^\circ$ | <p>✓ $\tan x = \frac{1}{2}$</p> <p>✓ answer/antw</p> <p>(2)</p> |
| 6.2.2 | $x \in [0^\circ ; 180^\circ]$ | <p>✓ interval</p> <p>✓ notation/notasie</p> <p>(2)</p> |
| 6.2.3 | $y = 2^{2f(x)-1}$ $y \in \left[-\frac{1}{2} ; 7\right]$ | <p>✓ ✓ answer/antw</p> <p>(2)</p> |

[8]



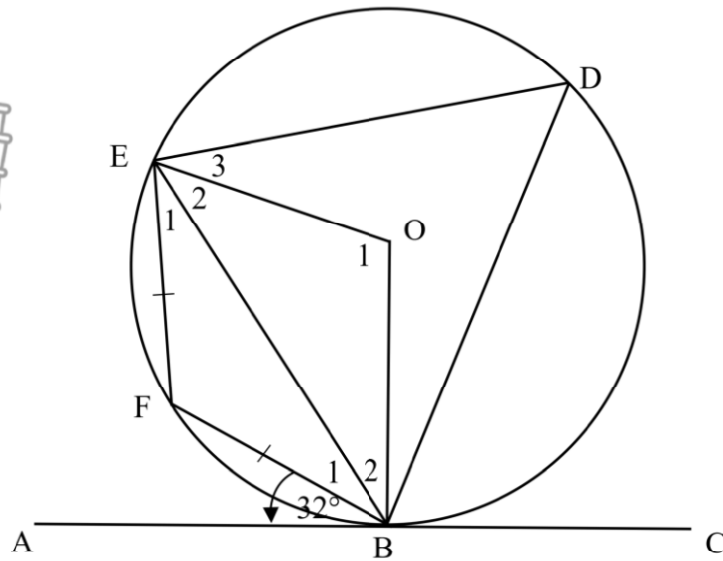
QUESTION/VRAAG 7




| | | |
|-----|--|---|
| 7.1 | <p>In $\triangle ABF$: $\frac{BF}{\sin A} = \frac{AF}{\sin B}$</p> <p>$\frac{BF}{\sin \theta} = \frac{y}{\sin 30^\circ}$</p> <p>$BF = \frac{y \sin \theta}{\frac{1}{2}}$</p> <p>$BF = 2y \sin \theta$</p> | <p>✓ correct subst in sine rule/korrekte verv in sinreel</p> <p>✓ subst special value/ verv spasiale waarde</p> <p>✓ answer/antw</p> <p>(3)</p> |
| 7.2 | <p>In $\triangle EDF$: $\frac{DF}{\sin E} = \frac{DE}{\sin F}$</p> <p>$\frac{DF}{\sin \alpha} = \frac{x}{\sin 30^\circ}$</p> <p>$DF = \frac{x \sin \alpha}{\frac{1}{2}}$</p> <p>$DF = 2x \sin \alpha$</p> | <p>✓ correct subst in sine rule/korrekte verv in sinreel</p> <p>✓ answer/antw</p> <p>(2)</p> |
| 7.3 | <p>$BD^2 = BF^2 + FD^2$ (Pyth)</p> <p>$BD^2 = (2y \sin \theta)^2 + (2x \sin \alpha)^2$</p> <p>$BD^2 = 4y^2 \sin^2 \theta + 4x^2 \sin^2 \alpha$</p> | <p>✓ subst/verv in Pyth</p> <p>(1)</p> |

(3)

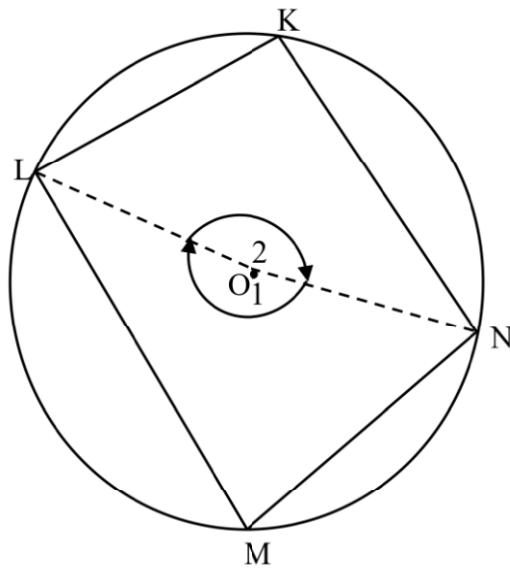
QUESTION/VRAAG 8



| | | | | |
|-----|---|--|--|-----|
| 8.1 | $\hat{A}\hat{B}F = \hat{E}_1 = 32^\circ$ | tan-chord theorem | ✓S ✓R | (2) |
| 8.2 | $\hat{E}_1 = \hat{B}_1 = 32^\circ$ $\hat{F} = 116^\circ$ | \angle 's opp equal sides sum \angle 's of Δ | ✓S/R ✓S/R | (2) |
| 8.3 | $\hat{D} + \hat{F} = 180^\circ$ $\hat{D} = 64^\circ$ | opp \angle 's of cyclic quad | ✓S ✓R | (2) |
| 8.4 | $\hat{O}_1 = 2 \times \hat{D}$ $\hat{O}_1 = 128^\circ$ | midpt $\angle = 2 \times$ circumf \angle | ✓S ✓R | (2) |
| 8.5 | $\hat{E}_2 + \hat{O}_1 + \hat{B}_2 = 180^\circ$ $\hat{E}_2 = \hat{B}_2$ $2\hat{E}_2 + 128^\circ = 180^\circ$ $2\hat{E}_2 = 52^\circ$ $\hat{E}_2 = 26^\circ$ OR/OF $\hat{A}\hat{B}F + \hat{B}_1 + \hat{B}_2 = 90^\circ$ $32^\circ + 32^\circ + \hat{B}_2 = 90^\circ$ $\hat{B}_2 = 26^\circ$ $\hat{B}_2 = \hat{E}_2 = 26^\circ$ | sum \angle 's of Δ \angle 's opp equal sides rad \perp tangent \angle 's opp equal sides | ✓S/R ✓S/R  ✓S/R | (2) |

QUESTION/VRAAG 9

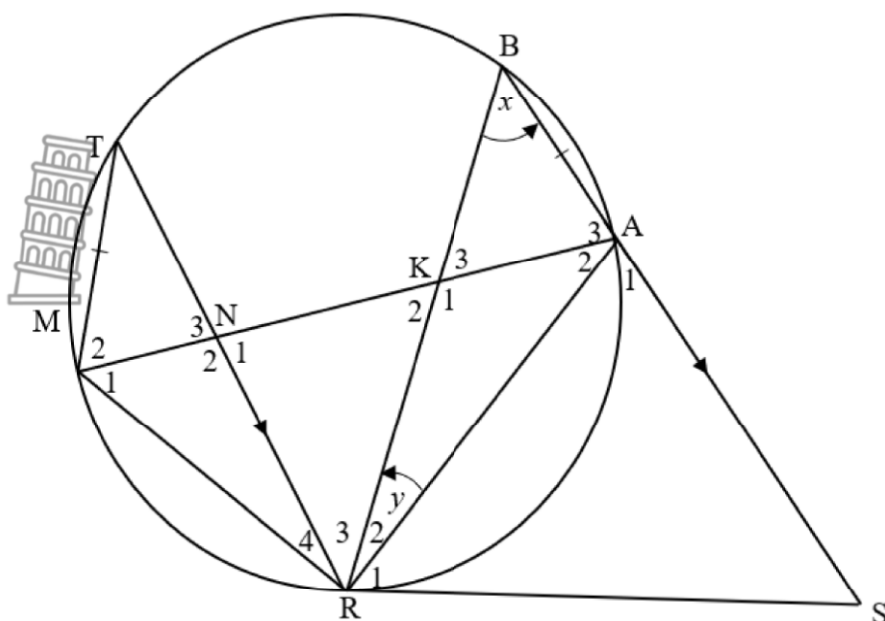
9.1



| | | |
|--|---|--|
| | <p>Construction: Join LO and ON</p> <p>$\hat{O}_1 = 2 \times \hat{K}$ \angle at centre = $2 \times \angle$ at circumf</p> <p>$\hat{O}_2 = 2 \times \hat{M}$ \angle at centre = $2 \times \angle$ at circumf</p> <p>$\hat{O}_1 + \hat{O}_2 = 360^\circ$ revolution</p> <p>$2\hat{M} + 2\hat{K} = 360^\circ$ equating</p> <p>$\hat{M} + \hat{K} = 180^\circ$</p> | <p>✓ constr/konstr</p> <p>✓ S ✓ R</p> <p>✓ S/R</p> <p>✓ R</p> <p>(5)</p> |
|--|---|--|

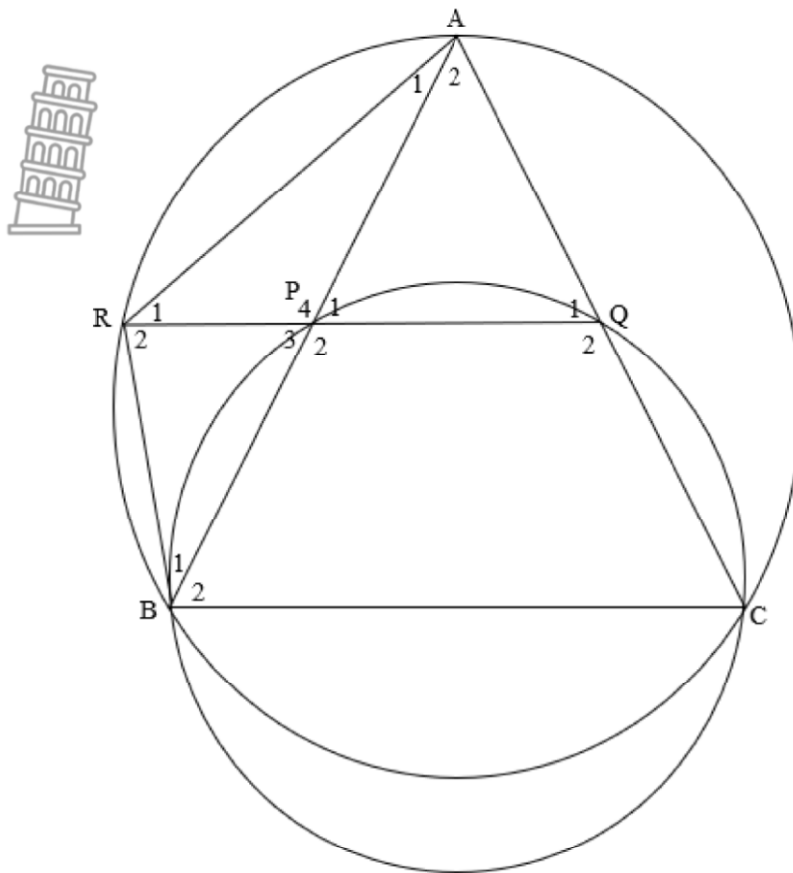


9.2




| | | |
|----------|---|--|
| 9.2.1 | $\hat{B} = \hat{M}_1 = x$ \angle 's in the same segment $\hat{B} = \hat{R}_3 = x$ alt \angle 's, TR \parallel BS $\hat{B} = \hat{R}_1 = x$ tan-chord theorem | $\checkmark S \checkmark R$ $\checkmark S \checkmark R$ $\checkmark S \checkmark R$ |
| 9.2.2 | Equal chords equal circumf \angle 's | $\checkmark R$ (1) |
| 9.2.3(a) | $\hat{A}_1 = x + y$ ext \angle of Δ | $\checkmark S/R$ (1) |
| 9.2.3(b) | $\hat{N}_1 = x + y$ ext \angle of Δ | $\checkmark S/R$ (1) |
| 9.2.4 | In ΔSAR and ΔKNR (i) $\hat{R}_1 = \hat{R}_3$ both = x (ii) $\hat{A}_1 = \hat{N}_1$ both = $x + y$ (iii) $\hat{K}_2 = \hat{S}$ sum \angle 's of Δ $\therefore \Delta SAR \equiv \Delta KNR$ $\angle \angle \angle$ OR/OF In ΔSAR and ΔKNR (i) $\hat{R}_1 = \hat{R}_3$ both = x (ii) $\hat{A}_1 = \hat{N}_1$ both = $x + y$ $\therefore \Delta SAR \equiv \Delta KNR$ $\angle \angle \angle$ | $\checkmark S$ $\checkmark S$ $\checkmark S$ $\checkmark S$ $\checkmark S$ $\checkmark R$ |
| 9.2.5 | $\hat{K}_2 = \hat{S}$ $\Delta SAR \equiv \Delta KNR$ SAKR is a cyclic quad ext \angle of quadrilateral OR converse ext \angle of cyclic quad | $\checkmark S$ $\checkmark R$ |

QUESTION/VRAAG 10



| | | |
|------|--|--|
| 10.1 | $\hat{P}_1 = C$ ext \angle of cyclic quad $\hat{C} = 180^\circ - (\hat{R}_1 + \hat{R}_2)$ opp \angle 's of cyclic quad $\therefore \hat{P}_1 = 180^\circ - (\hat{R}_1 + \hat{R}_2)$ $\hat{R}_1 + \hat{R}_2 = 180^\circ - (\hat{A}_1 + \hat{B}_1)$ sum \angle 's of Δ $\therefore \hat{P}_1 = 180^\circ - [180^\circ - (\hat{A}_1 + \hat{B}_1)]$ $\therefore \hat{P}_1 = 180^\circ - 180 + (\hat{A}_1 + \hat{B}_1)$ $\therefore \hat{P}_1 = \hat{A}_1 + \hat{B}_1$ | $\checkmark S \checkmark R$ $\checkmark S \checkmark R$ \checkmark method/ <i>metode</i> |
|------|--|--|



(5)

| | | |
|------|---|--|
| | <p>OR/OF</p> $\hat{A}RB = 180^\circ - (\hat{A}_1 + \hat{B}_1)$ $\hat{A}RB = 180^\circ - \hat{C}$ $\therefore 180^\circ - (\hat{A}_1 + \hat{B}_1) = 180^\circ - \hat{C}$ $\hat{C} = \hat{A}_1 + \hat{B}_1$ $\hat{C} = \hat{P}_1$ $\therefore \hat{P}_1 = \hat{A}_1 + \hat{B}_1$ | <p>✓S ✓R</p> <p>✓S ✓R</p> <p>✓method/metode</p> <p>(5)</p> |
| 10.2 | <p>In $\triangle ARP$ and $\triangle ABR$</p> <p>(i) $\hat{A} = \hat{A}$ common \angle</p> <p>(ii) $\hat{P}_1 = \hat{A}_1 + \hat{B}_1$ proven</p> $180^\circ - \hat{P}_1 = 180^\circ - (\hat{A}_1 + \hat{B}_1)$ $\therefore \hat{P}_4 = \hat{R}_1 + \hat{R}_2$ <p>(iii) $\hat{R}_1 = \hat{B}_1$ sum \angle's of \triangle</p> $\therefore \triangle ARP \parallel \triangle ABR \quad \angle \angle \angle$ $\frac{AR}{AB} = \frac{AP}{AR} \quad \parallel \triangle$ $AR^2 = AB \cdot AP$ <p>OR/OF</p> <p>In $\triangle ARP$ and $\triangle ABR$</p> <p>(i) $\hat{A} = \hat{A}$ common \angle</p> <p>(ii) $\hat{P}_1 = \hat{A}_1 + \hat{B}_1$ proven</p> $180^\circ - \hat{P}_1 = 180^\circ - (\hat{A}_1 + \hat{B}_1)$ $\therefore \hat{P}_4 = \hat{R}_1 + \hat{R}_2$ $\therefore \triangle ARP \parallel \triangle ABR \quad \angle \angle \angle$ $\frac{AR}{AB} = \frac{AP}{AR} \quad \parallel \triangle$ $AR^2 = AB \cdot AP$ | <p>✓ identify/ identifiseer \triangle's</p> <p>✓S</p> <p>✓method/metode</p> <p>✓R</p> <p>✓S</p> <p>(5)</p> <p>✓Identify/ identifiseer \triangle's</p> <p>✓S</p> <p>✓method/metode</p> <p>✓R</p> <p>✓S</p> <p>(5)</p> |

[10]

