

Memorandum Gf 11 Toets 18 Augustus 2015

1
 $\tan 2\alpha = -2,7$
 $\tan 2\alpha = -\frac{2,7}{3}$

$\text{verw } \angle = 28,369^\circ$
 $2\alpha = 180 - 28,369 + 180$
 $\alpha = 75,82^\circ + 180$
 $\alpha = 75,82^\circ, 255,82^\circ$
 $165,82^\circ, 345,82^\circ$

2
 $\cos(2\theta - 10^\circ) = \sin(\theta + 40^\circ)$
 $\cos(2\theta - 10^\circ) = \cos(50^\circ - \theta)$
 $2\theta - 10^\circ - \theta + 360^\circ = 2\theta - 10^\circ - 360^\circ - (50^\circ - \theta) + 360^\circ$
 $3\theta = 60^\circ + 360^\circ$
 $\theta = 20^\circ + 120^\circ$
 $\theta = 320^\circ + 360^\circ, n \in \mathbb{Z}$

3
 $\sin(90^\circ - 2\theta + 10^\circ) = \sin(\theta + 40^\circ)$
 $\sin(110^\circ - 2\theta) = \sin(\theta + 40^\circ)$
 $100^\circ - 2\theta = \theta + 40^\circ + 360^\circ$
 $-3\theta = -60^\circ + 360^\circ$
 $\theta = -20^\circ - 120^\circ$
 $\theta = 10^\circ - 2\theta = 180^\circ - \theta - 40^\circ + 360^\circ$
 $-3\theta = -60^\circ + 360^\circ$
 $\theta = -20^\circ - 120^\circ$
 $\theta = 40^\circ - 360^\circ, n \in \mathbb{Z}$

4
 $3 \cos^2 \alpha + 10 \sin \alpha + 5 = 0$
 $3(1 - \sin^2 \alpha) + 10 \sin \alpha + 5 = 0$
 $3 - 3 \sin^2 \alpha + 10 \sin \alpha + 5 = 0$
 $-3 \sin^2 \alpha + 10 \sin \alpha + 8 = 0$
 $3 \sin^2 \alpha - 10 \sin \alpha - 8 = 0$
 $(3 \sin \alpha + 2)(\sin \alpha - 4) = 0$
 $\sin \alpha = -\frac{2}{3}$ of $\sin \alpha = 4$
 geen oplossingen

ten 22 ✓
 verw \angle ✓
 $2\alpha = 75,82^\circ$
 $n \in \mathbb{Z}$ ✓
 4α -waarde ✓

$\cos = \cos$
 elke kwadrant ✓
 θ se waarden ✓

$\sin = \sin$
 elke kwadrant ✓
 θ se waarden ✓
 $\cos^2 \alpha = 1 - \sin^2 \alpha$

standaardform
 $(= 0)$ NB
 formule / factore
 $\sin \alpha = -\frac{2}{3}$ ✓
 $\sin \alpha = 4$ ✓

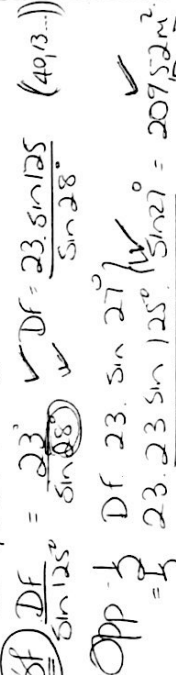
5
 $\sin \alpha = -\frac{2}{3}$
 $\text{verw } \angle = 41,81^\circ$
 $\alpha = 221,81^\circ + 360^\circ n$
 $\alpha = 318,19^\circ + 360^\circ n, n \in \mathbb{Z}$ (7)

6
 $2\alpha = 221,81^\circ, 318,19^\circ, -41,81^\circ, -138,19^\circ$
 $\sin(A+B) = -1$
 $A+B = 270^\circ$
 $A-B = 30^\circ$
 $2A = 300^\circ$
 $A = 150^\circ$
 $B = 120^\circ$

7
 $\cos \alpha = 0$
 $\alpha = 90^\circ + 360^\circ n, 270^\circ + 360^\circ n$
 $\tan \alpha = 90^\circ + 180^\circ$
 $\alpha = 90^\circ, -70^\circ$

8
 $\frac{FE}{\sin 27^\circ} = \frac{23}{\sin 28^\circ}$
 $FE = \frac{23 \sin 27^\circ}{\sin 28^\circ}$
 $\text{Opp. } \frac{1}{2} (23) FE \sin 125^\circ$
 $= \frac{1}{2} (23) \frac{23 \sin 27^\circ}{\sin 28^\circ} \sin 125^\circ$
 $= 209,52 \text{ m}^2$

9
 $\frac{DF}{\sin 125^\circ} = \frac{23}{\sin 28^\circ}$
 $DF = \frac{23 \sin 125^\circ}{\sin 28^\circ}$
 $\text{Opp. } \frac{1}{2} DF \sin 27^\circ$
 $= \frac{1}{2} \frac{23 \sin 125^\circ}{\sin 28^\circ} \sin 27^\circ = 209,52 \text{ m}^2$



elke
 2α -waarde ✓

al 4
 2α -waarde
 -1 font ✓

$A+B = 270^\circ$ ✓
 $A-B = 30^\circ$ ✓

A ✓
 B ✓

$90^\circ, -70^\circ$ ✓

28° ✓
 sin-formule ✓

subst opp form ✓

cont'n ✓

6.1

$$36000 = \frac{1}{2} \cdot 250 \cdot 360 \sin Q$$

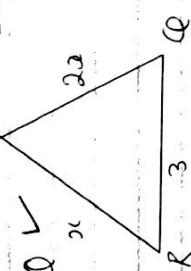
$$\sin Q = \frac{2 \times 36000}{250 \times 360}$$

$$Q = 53,13^\circ \text{ or } 126,87^\circ \quad (41)$$

$$PR^2 = 250^2 + 360^2 - 2(250)(360) \cos 53,13^\circ$$

$$PR^2 = 84099,74 \dots$$

$$PR = 290 \text{ m} \quad (4) \quad [8]$$



$$x^2 = 4x^2 + 9 - 2(2x)(3) \cos Q$$

$$12x \cos Q = -x^2 + 4x^2 + 9$$

$$\cos Q = \frac{3x^2 + 9}{12x}$$

$$= \frac{3(x^2 + 3)}{4x}$$

$$= \frac{x^2 + 3}{4x} \quad (3)$$

Skorshuet ✓

LR is greater, want teenaar greater sy (st) $x^2 + 3 > 0 \therefore \cos Q = +, \therefore Q$ skopp ✓

(2) [5]

Subst oppform ✓

sin Q ✓

elke Q waarde ✓

formule ✓

Subst ✓

RP² ✓

PR ✓

Subst cos-form ✓

cos Q ✓ (war vereenvoudig)

antw ✓

Skopp ✓

rede ✓

8.1

$$\frac{TR}{\sin(90-\theta)} = \frac{2}{\sin \alpha}$$

$$TR = \frac{2 \sin(90-\theta)}{\sin \alpha}$$

$$= \frac{2 \cos \theta}{\sin \alpha}$$

$$\frac{x}{\sin[90-(\theta-\alpha)]} = \frac{TR}{\sin 73^\circ}$$

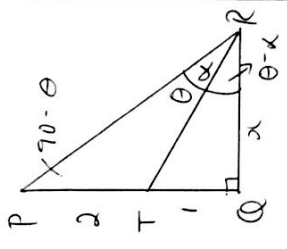
$$x = \frac{2 \cos \theta \sin[90-(\theta-\alpha)]}{\sin \alpha}$$

$$= \frac{2 \cos \theta \cos(\theta-\alpha)}{\sin \alpha} \quad (6)$$

$$x = \frac{2 \cos 50^\circ \cos 20^\circ}{\sin 30^\circ}$$

$$= 2,4 \text{ m} \quad (2)$$

[8]



Subst. sinform ✓

$$\sin(90-\theta) = \cos \theta \quad \checkmark$$

TR ✓

Subst sinform ✓

$$\sin(90-\alpha) = \cos(\alpha) \quad \checkmark$$

Subst ✓

antw ✓