

KLASKAMER 10

GRAAD 12 WISKUNDE: EPISODE 44

TRIGONOMETRIE 1

VRAAG 1

Gegee dat $2 \tan \theta - 1 = 0$ en $90^\circ < \theta < 270^\circ$, bepaal **sonder die gebruik van 'n sakrekenaar** die waarde van:

- a. $\tan^2 \theta + \sin^2 \theta$ (3)
- b. $\sqrt{5} \cos \theta + \frac{1}{\sin^2 \theta}$ (4)
- c. $\sin 2\theta + 1$ (4)
- d. $\cos 2\theta - 1$ (4) [15]

VRAAG 2

Gegee $\sin 47^\circ = m$, druk elk van die volgende uit **in terme van m** :

- a. $\sin 94^\circ$ (5)
- b. $\cos 2^\circ$ (5)
- c. $\tan(-403^\circ)$ (5)
- d. $2\sin^2 21,5^\circ$ (5) [20]

TOTAAL: 35 PUNTE

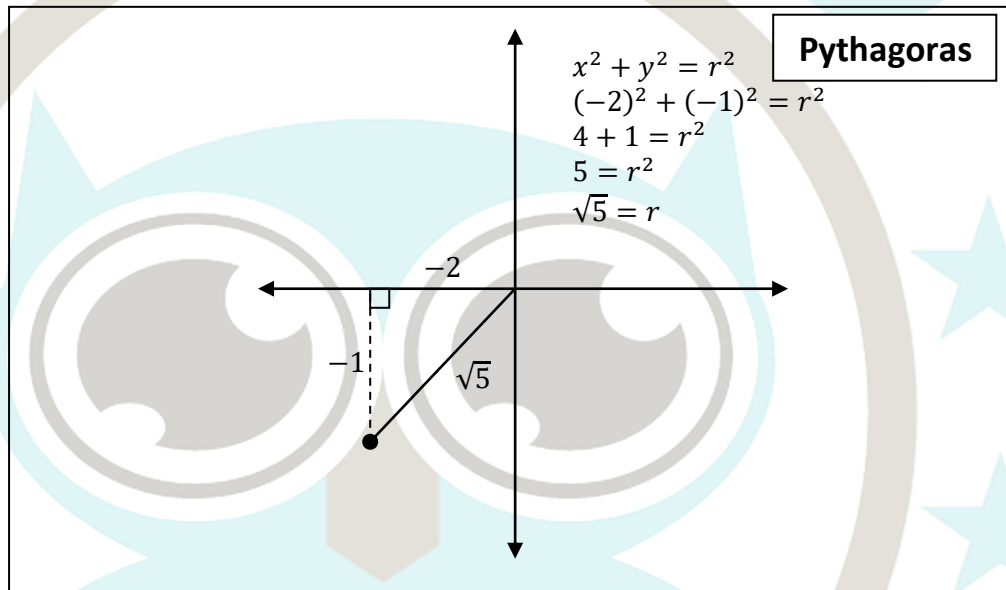
GRAAD 12 WISKUNDE: EPISODE 44 (MEMORANDUM)

TRIGONOMETRIE 1

VRAAG 1

$$2 \tan \theta - 1 = 0$$

$$\therefore \tan \theta = \frac{1}{2}$$



a. $\tan^2 \theta + \sin^2 \theta$

$$= \left(\frac{-1}{-2}\right)^2 \checkmark + \left(\frac{-1}{\sqrt{5}}\right)^2 \checkmark$$
$$= \frac{9}{20} \checkmark$$

b. $\sqrt{5} \cos \theta + \frac{1}{\sin^2 \theta}$

$$= \sqrt{5} \left(\frac{-2}{\sqrt{5}}\right) \checkmark + \frac{1}{\left(\frac{-1}{\sqrt{5}}\right)^2} \checkmark = 3 \checkmark \checkmark$$

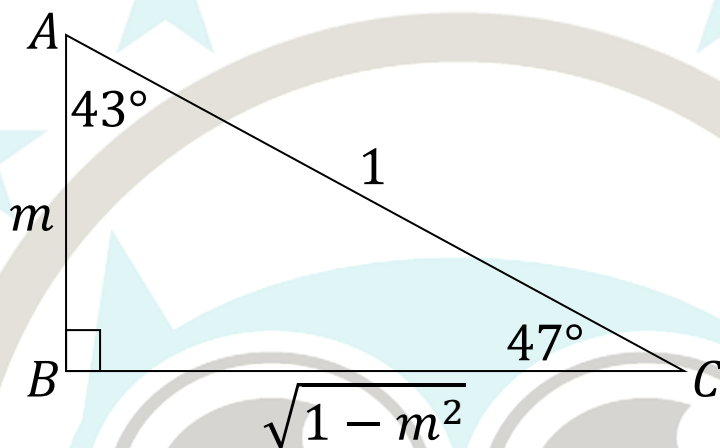
c. $\sin 2\theta + 1$

$$= 2 \sin \theta \cos \theta \checkmark + 1$$
$$= 2 \left(\frac{-1}{\sqrt{5}}\right) \checkmark \left(\frac{-2}{\sqrt{5}}\right) \checkmark + 1 = \frac{9}{5} \checkmark$$

d. $\cos 2\theta - 1$

$$= 1 - 2 \sin^2 \theta - 1 \checkmark$$
$$= -2 \sin^2 \theta \checkmark$$
$$= -2 \left(\frac{-1}{\sqrt{5}}\right)^2 \checkmark = -\frac{2}{5} \checkmark$$

VRAAG 2



Pythagoras

$$AC^2 = AB^2 + BC^2$$

$$(1)^2 = (m)^2 + BC^2$$

$$1 - m^2 = BC^2$$

$$\sqrt{1 - m^2} = BC$$

a. $\sin 94^\circ$
 $= \sin 86^\circ \checkmark$
 $= \sin 2(43^\circ) \checkmark$
 $= 2\sin 43^\circ \cos 43^\circ \checkmark$
 $= 2(\sqrt{1 - m^2})(m) \checkmark$
 $= 2m\sqrt{1 - m^2} \checkmark$

b. $\cos 2^\circ$
 $= \cos(47^\circ - 45^\circ) \checkmark$
 $= \cos 47^\circ \cos 45^\circ + \sin 47^\circ \sin 45^\circ \checkmark$
 $= (\sqrt{1 - m^2})\left(\frac{\sqrt{2}}{2}\right) \checkmark + (m)\left(\frac{\sqrt{2}}{2}\right) \checkmark$
 $= \frac{\sqrt{2(1 - m^2)} + \sqrt{2}m}{2} \checkmark$

c. $\tan(-403^\circ)$
 $= \tan(-43^\circ) \checkmark \checkmark$
 $= -\tan 43^\circ \checkmark$
 $= -\frac{\sqrt{1 - m^2}}{m} \checkmark \checkmark$

d. $2\sin^2 21,5^\circ$
 $= 1 - \cos 2(21,5^\circ) \checkmark \checkmark$
 $= 1 - \cos 43^\circ \checkmark$
 $= 1 - m \checkmark \checkmark$

Blik Slim
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