KLASKAMER 10

GRAAD 12 WISKUNDE: EPISODE 49

TRIGONOMETRIE 2

VRAAG 1:

Herlei elk van die volgende uitdrukkings tot 'n **enkele trigonometriese** verhouding:

a. $\dfrac{\sin(180°-2x)\tan(360°-x)\cos(90°+x)}{\sin(180°-x)\tan(180°+x)\sin(90°-x)}$ (5)

b. $\dfrac{\cos(360°-2x)+1}{\dfrac{-1}{\tan(180+x)}\cdot\cos(90°+x)}$ (5)

TOTAAL: 10 PUNTE

VRAAG 2:

Vereenvoudig elk van die volgende deur van die **dubbel- asook saamgestelde hoekformules** gebruik te maak.

a. $\sin 165°$ (4)

b. $\dfrac{8sin^2 190° - 8cos^2 350°}{2 \sin 250°}$ (6)

TOTAAL: 10 PUNTE

GRAAD 12 WISKUNDE: EPISODE 49 *(MEMORANDUM)*

TRIGONOMETRIE 2

VRAAG 1:

a. $\frac{\sin(180°-2x)\tan(360°-x)\cos(90°+x)}{\sin(180°-x)\tan(180°+x)\sin(90°-x)}$

$= \frac{\sin 2x\checkmark\ (-\tan x)\checkmark(-\sin x)}{(\sin x)\ (\tan x)(\cos x)}\checkmark$

$= \frac{2\sin x\ \cancel{\cos x\ (-\tan x)(-\sin x)}}{\cancel{(\sin x)\ (\tan x)(\cos x)}}\checkmark$

$= 2\sin x\checkmark$

b. $\frac{\cos(360°-2x)+1}{\frac{-1}{\tan(180+x)}\cdot\cos(90°+x)}$

$= \frac{\cos 2x\checkmark + 1}{\frac{-1}{\tan x}\cdot(-\sin x)\checkmark}$

$= \frac{2cos^2x\ \cancel{-1+1}}{\frac{\cos x}{\cancel{\sin x}}\cdot\frac{\cancel{(-\sin x)}}{1}}\checkmark$

$= \frac{2cos^2x}{\cos x}\checkmark$

$= 2\cos x\checkmark$

VRAAG 2:

a. $\sin 165°$

$= \sin 15°\checkmark$

$= \sin(45° - 30°)\ \checkmark$

$= \sin 45°\cos 30° - \cos 45°\sin 30°\checkmark$

$= \left(\frac{\sqrt{2}}{2}\right)\left(\frac{\sqrt{3}}{2}\right) - \left(\frac{\sqrt{2}}{2}\right)\left(\frac{1}{2}\right)$

$= \frac{\sqrt{6}-\sqrt{2}}{4}\checkmark$

b. $\frac{8sin^2190°-8cos^2350°}{2\sin 250°}$

$= \frac{8sin^210° - 8cos^210°\checkmark}{-2\sin 70°\ \checkmark}$

$= \frac{-8(cos^210°-sin^210°)}{-2\sin 70°}\checkmark$

$= \frac{4\cos 2(10°)}{\sin 70°}\checkmark$

$= \frac{4\cos 20°}{\sin 70°}\checkmark = \frac{\cancel{4\sin 70°}}{\cancel{\sin 70°}}$

$= 4\checkmark$