

**Vraag 1**

1.1 Bereken elk van die volgende en rond jou antwoord af tot 2 desimale syfers:

1.1.1 $\cot 34,45^\circ$ (2)

$$= \frac{1}{\tan 34,45^\circ} \checkmark$$

$$= 1,46 \checkmark$$

1.1.2 $\cos 88^\circ + \sec^2 50^\circ$ (2)

$$= \cos 88^\circ + \frac{1}{\cos^2 50^\circ} \checkmark$$

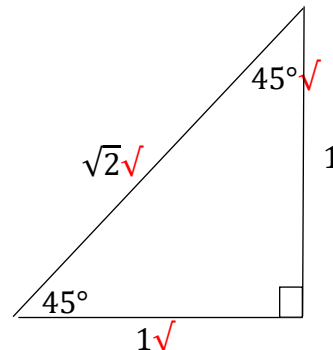
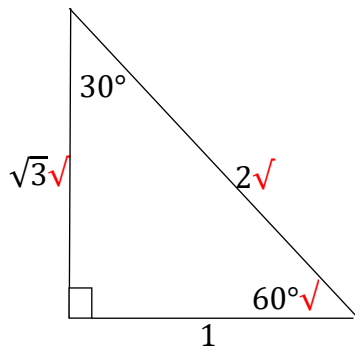
$$= 2,46 \checkmark$$

1.1.3 $\frac{1}{\operatorname{cosec} 55^\circ}$ (2)

$$= \frac{1}{\frac{1}{\sin 55^\circ}} \checkmark$$

$$= 0,82 \checkmark$$

1.2 Voltooi die ontbrekende sye en hoeke in elk van die volgende spesiale driehoeke: (6)



1.3 Bereken, sonder die gebruik van 'n sakrekenaar:

1.3.1 $\sin^2 30^\circ + \cos 60^\circ$ (3)

$$= \left(\frac{1}{2}\right)^2 + \frac{1}{2} \checkmark$$

$$= \frac{1}{4} + \frac{1}{2} \checkmark$$

$$= \frac{1+2}{4} \checkmark$$

$$= \frac{3}{4} \checkmark$$

1.3.2 $\tan 45^\circ - \operatorname{cosec} 30^\circ$ (2)

$$= 1 - 2 \checkmark$$

$$= -1 \checkmark$$

$$1.3.3 \quad 3\cot 60^\circ - 2\sin 60^\circ$$

(3)

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

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

$$= \frac{3-3}{\sqrt{3}}$$

$$= 0$$

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Vraag 2

2.1 Los op vir x :

$$2.1.1 \quad 100\tan 2x = \sin 20^\circ$$

(4)

$$\tan 2x = \frac{\sin 20^\circ}{100}$$

$$2x = \tan^{-1}\left(\frac{\sin 20^\circ}{100}\right)$$

$$x = \tan^{-1}\left(\frac{\sin 20^\circ}{100}\right) \div 2$$

$$x = 0,1^\circ$$

$$2.1.2 \quad \frac{1}{3}\cos(x - 41^\circ) = 0,2$$

(4)

$$\cos(x - 41^\circ) = 0,2 \times 3$$

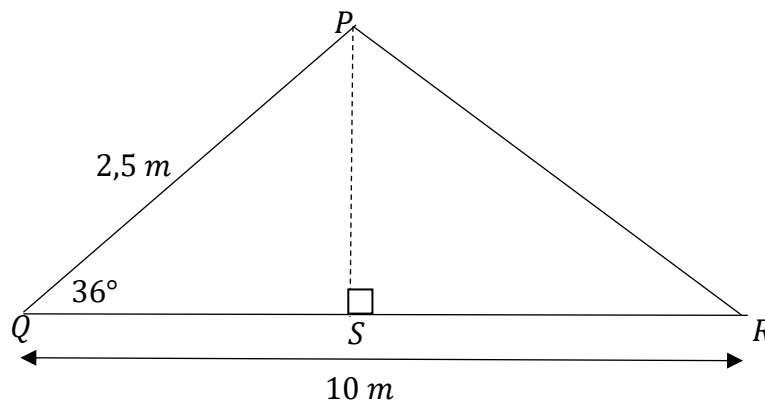
$$x - 41^\circ = \cos^{-1}(0,6)$$

$$x = \cos^{-1}(0,6) + 41^\circ$$

$$x = 94,13^\circ$$

2.2 Bereken die oppervlakte van ΔPQR .

(4)



$$\sin 36^\circ = \frac{PS}{2,5}$$

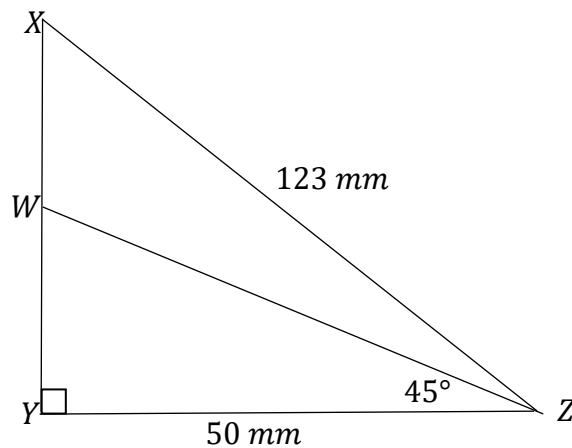
$$PS = 2,5 \times \sin 36^\circ$$

$$PS = 1,47 \text{ m}$$

$$\text{Area } \Delta PQR = \frac{1}{2} \times 10 \times 1,47$$

$$\text{Area } \Delta PQR = 7,35 \text{ m}^2$$

2.3 Beskou die onderstaande skets en beantwoord die vrae wat volg:



2.3.1 Bereken die lengte van WY . (2)

$$\tan 45^\circ = \frac{WY}{50} \checkmark$$

$$WY = 50 \times \tan 45^\circ$$

$$WY = 50 \text{ m} \checkmark$$

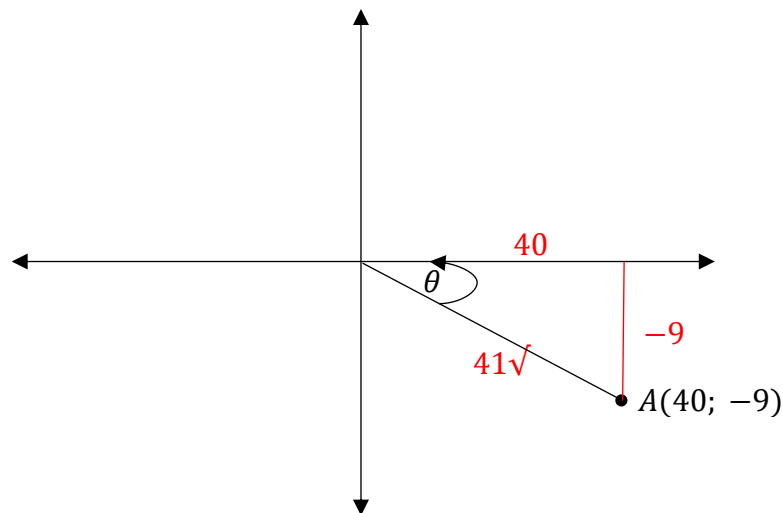
2.3.2 Bereken die grootte van $\hat{X}$. (2)

$$\sin X = \frac{50}{123} \checkmark$$

$$\hat{X} = \sin^{-1}\left(\frac{50}{123}\right)$$

$$\hat{X} = 23,99^\circ \checkmark$$

2.4 Beskou die onderstaande skets en beantwoord die vrae wat volg:



Bereken:

2.4.1 $\sin \theta + \cos \theta$ (4)

$$= \frac{-9}{41} \checkmark + \frac{40}{41} \checkmark$$

$$= \frac{31}{41} \checkmark$$

2.4.2 $\tan \theta \div \sec^2 \theta$ (3)

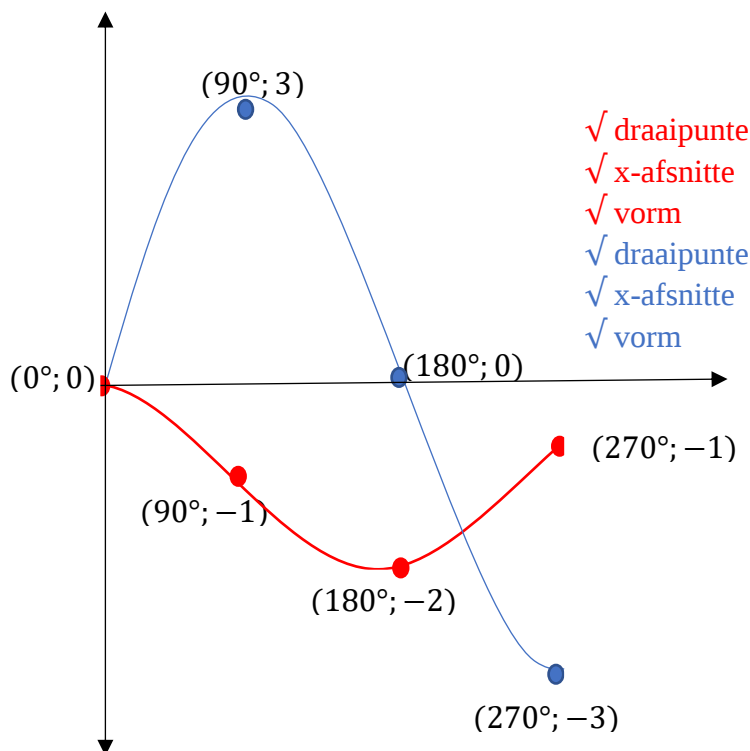
$$= \frac{-9}{40} \checkmark \times \left(\frac{40}{41}\right)^2 \checkmark$$

$$= \frac{-360}{1681} \checkmark$$

Vraag 3

3.1 Gegee: $f(x) = \cos x - 1$ en $g(x) = 3\sin x$ vir $0^\circ \leq x \leq 270^\circ$.

3.1.1 Skets beide grafieke op dieselfde assestelsel en toon duidelik alle afsnitte met die asse. (6)



3.1.2 Skryf die amplitude van g neer. (1)

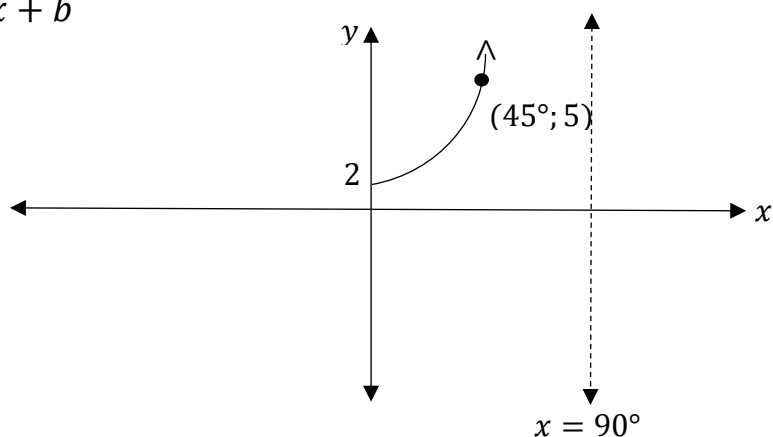
3✓

3.1.3 Skryf die waardeversameling van f neer. (1)

$y \in [-2; 0]$ ✓

3.2 Bepaal die vergelyking van elk van die volgende trig grafieke in die vorm:

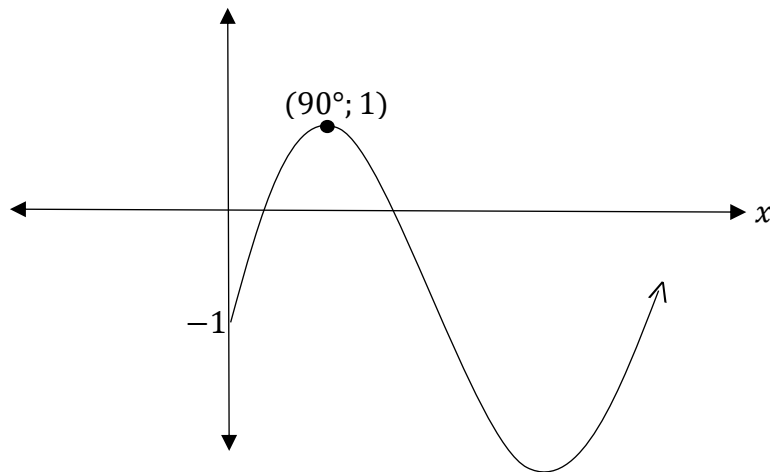
3.2.1 $y = a \tan x + b$ (2)



$y = 3 \tan x + 2$ ✓

3.2.2 $y = c \sin x + d$

(2)



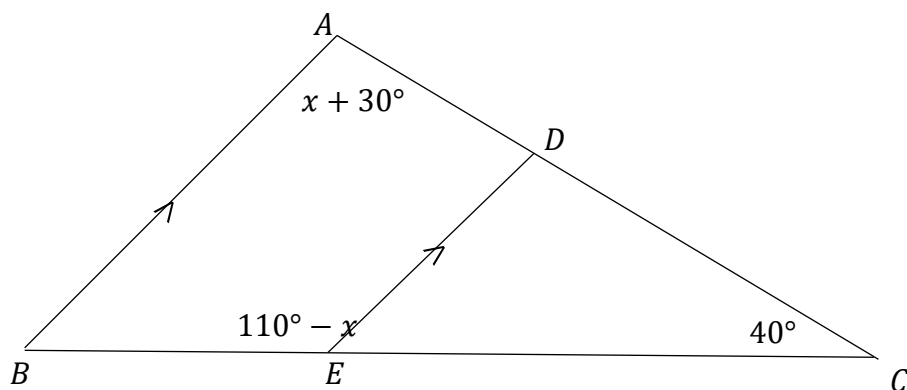
$$y = 2\sin x - 1$$

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Vraag 4

4.1 Bereken, met redes, die grootte van x in die onderstaande skets:

(5)



$$\hat{B} = 180^\circ - (110^\circ - x) \text{ [Ko - binnehoek; } AB \parallel DE \text{]} \checkmark$$

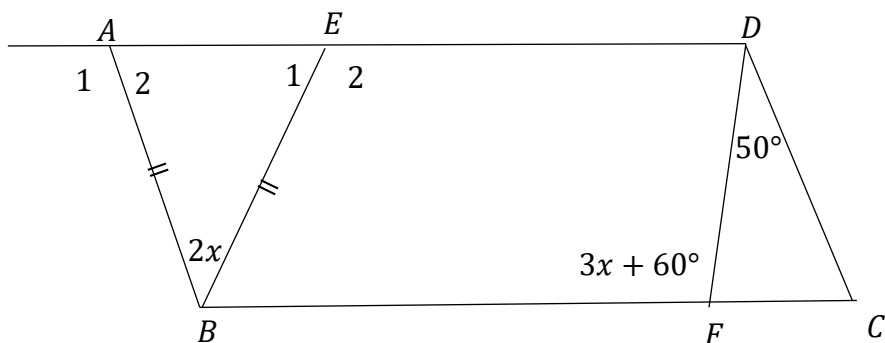
$$\hat{B} = 70^\circ + x \checkmark$$

$$70^\circ + x + x + 30^\circ + 40^\circ = 180^\circ \text{ [Binnehoek van } \Delta \text{]} \checkmark$$

$$2x = 40^\circ$$

$$x = 20^\circ \checkmark$$

4.2 Gegee: ABCD is 'n parallelogram



4.2.1 Bepaal die grootte van $E\hat{B}F$, in terme van x . (5)

$$\widehat{A_2} = (180^\circ - 2x) \div 2 \text{ [Binnehoek van } \Delta \checkmark; \text{ hoeke teenoor} = \text{ sye } \checkmark]$$

$$\widehat{A_2} = 90^\circ - x \checkmark$$

$AD \parallel BC$ [Teenoorstaande sye van parallelogram $ABCD$ is $\parallel$]

$$E\hat{B}F = 180^\circ - (90^\circ - x + 2x) \text{ [Ko - binnehoeke; } BC \parallel AD \text{]} \checkmark$$

$$E\hat{B}F = 90^\circ - x \checkmark$$

4.2.2 Bepaal die grootte van x . (5)

$$D\hat{C}F = 3x + 10^\circ \checkmark \text{ [Buitehoek van } \Delta \text{]} \checkmark$$

$AB \parallel CD$ [Teenoorstaande sye van parallelogram $ABCD$ is $\parallel$]

$$180^\circ = 3x + 10^\circ + 2x + 90^\circ - x \checkmark \text{ [Ko - binnehoeke; } AB \parallel CD \text{]} \checkmark$$

$$80^\circ = 4x$$

$$20^\circ = x \checkmark$$

4.3 Lys die vyf voorwaardes waaraan 'n vierhoek moet voldoen om 'n parallelogram te wees. (5)

2 pare teenoorstaande sye is $=$ $\checkmark$

2 pare teenoorstaande sye is $\parallel$ $\checkmark$

1 paar teenoorstaande sye is $=$ en $\parallel$ $\checkmark$

2 pare teenoorstaande hoeke is $=$ $\checkmark$

Hoeklyne halveer mekaar $\checkmark$

[20]

Totaal: [75]