

# Algebra

## Ononderhandelbaar

1.1 Los op vir  $x$ :  $\frac{2x+1}{5} - x \leq \frac{1}{2}(3x-4) + 3$  (5)

$$\therefore 2(2x+1) - 10x \leq 5(3x-4) + 30 \quad \checkmark \quad \dots \text{vermenigvuldig elke term met 10}$$

$$\therefore 4x + 2 - 10x \leq 15x - 20 + 30 \quad \checkmark$$

$$\therefore -21x \leq 8 \quad \checkmark$$

$$\therefore x \geq -\frac{8}{21} \quad \checkmark \checkmark \quad \dots \text{let op die ongelykheidstekens verander}$$

1.2 Los op vir  $x$  en  $y$ :  $x - 4y = 12$  en  $3x + 2y = 8$  (4)

$$x - 4y = 12 \quad \textcircled{1}$$

$$3x + 2y = 8 \quad \textcircled{2}$$

$$3 \times \textcircled{1} \quad 3x - 12y = 36 \quad \textcircled{3} \quad \checkmark$$

$$\textcircled{2} - \textcircled{3} \quad \therefore 14y = -28 \quad \checkmark$$

$$\therefore y = -2 \quad \checkmark$$

$$x - 4(-2) = 12$$

$$\therefore x = 4 \quad \checkmark$$

$$\therefore x = 4 \text{ en } y = -2$$



## Neem dit 'n stappie verder

2.1 Vereenvoudig  $\frac{8x^3 - 1}{2x^2 + 5x - 3} \div \frac{8x^3 + 4x^2 + 2x}{8x^3 + 24x^2}$  (6)

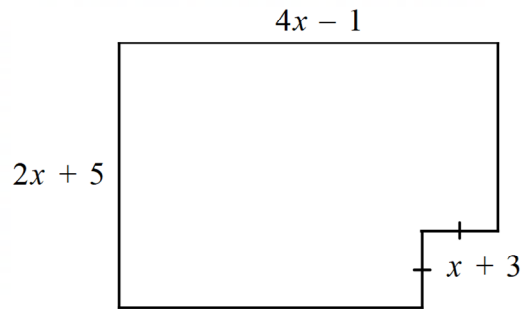
$$\frac{(2x-1)(4x^2+2x+1)\checkmark}{(2x-1)(x+3)\checkmark} \times \checkmark \frac{8x^2(x+3)\checkmark}{2x(4x^2+2x+1)\checkmark}$$

$$= \frac{8x^2}{2x}$$

$$= 4x \quad \checkmark$$



- 2.2 Bepaal die waarde van  $x$  as die oppervlakte van die figuur hieronder 146 eenhede<sup>2</sup> is.



(6)

$$(4x-1)(2x+5)-(x+3)^2 = 146 \checkmark$$

$$\therefore 8x^2 + 18x - 5 - (x^2 + 6x + 9) = 146$$

$$\therefore 8x^2 + 18x - 5 - x^2 - 6x - 9 = 146 \checkmark$$

$$\therefore 7x^2 + 12x - 160 = 0 \checkmark$$

$$\therefore (x-4)(7x+40) = 0 \checkmark$$

$$\therefore x = 4 \text{ of } x = -\frac{40}{7} \checkmark$$

$$\therefore x = 4 \checkmark$$

... die sye kan nie negatiewe lengtes hê nie



## Reik na die sterre

<https://www.theanswer.co.za/maths-grade-10-revision-algebra-2022/>



3. Gegee:  $9^w = 11$ ;  $11^x = 15$ ;  $15^y = 22$ ;  $22^z = 27$ . Bepaal die waarde van  $wxyz$  sonder die gebruik van 'n sakrekenaar.

(5)

$$9^w = 11$$

$$\therefore (9^w)^x = 11^x = 15 \checkmark$$

$$\therefore \left( (9^w)^x \right)^y = 15^y = 22 \checkmark$$

$$\therefore \left( \left( (9^w)^x \right)^y \right)^z = 22^z = 27 \checkmark$$

$$\therefore 9^{wxyz} = 27$$

$$\therefore 3^{2wxyz} = 3^3 \checkmark$$

$$\therefore 2wxyz = 3$$

$$\therefore wxyz = \frac{3}{2} \checkmark$$



# Patrone

## Ononderhandelbaar

1. Gegee: 2; 8; 14; 20; 26; ...

1.1 Skryf die volgende terme in die patroon neer. (1)

$$32 \checkmark$$

1.2 Bepaal die  $n$  de term van die patroon. (2)

$$T_n = 6n - 4 \checkmark$$

1.3 Skryf die 100<sup>ste</sup> term neer. (2)

$$T_{100} = 6(100) - 4 \checkmark = 596 \checkmark$$



1.4 Watter term is gelyk aan 278? (2)

$$6n - 4 = 278 \checkmark$$

$$\therefore 6n = 282$$

$$\therefore n = 47 \checkmark$$

## Neem dit 'n stappie verder

2. Die patroon hieronder bestaan uit grys en wit vierkante. Beskou slegs eenheidsvierekante in hierdie voorbeeld.

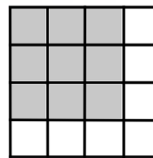
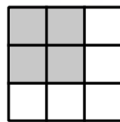


Fig. 1

Fig. 2

Fig. 3

Fig. 4

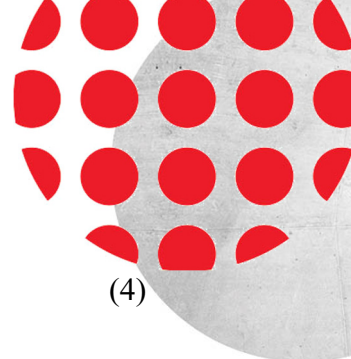
2.1 Skryf die aantal grys vierkante in die 15<sup>de</sup> figuur neer. (1)

<b>Figure</b>	1	2	3	4	15
<b>Aantal grys vierkante</b>	0	1	4	9	196 $\checkmark$

2.2 Bepaal die aantal wit vierkante in die 15<sup>de</sup> figuur. (2)

<b>Figure</b>	1	2	3	4	15
<b>Aantal wit vierkante</b>	1	3	5	7	29 $\checkmark$





- 2.3 Bepaal die aantal grys vierkante wat in die figuur is wat 379 wit vierkante het.

(4)

$$\text{Wit vierkante: } T_n = 2n - 1$$

$$\therefore 2n - 1 = 379 \quad \checkmark$$

$$\therefore n = 190 \quad \checkmark$$

$$\text{Grys vierkante: } T_n = (n - 1)^2$$

$$\therefore T_{190} = (190 - 1)^2 \checkmark = 35\,721 \quad \checkmark$$

- 2.4 Twee opeenvolgende figure het 'n TOTALE aantal van 10 805 vierkante. Bepaal watter twee figure dit is.

(5)

$$\text{Totaal van vierkante: } T_n = n^2$$

$$\therefore n^2 + (n + 1)^2 = 10\,805 \quad \checkmark$$

$$\therefore n^2 + n^2 + 2n + 1 = 10\,805 \quad \checkmark$$

$$\therefore 2n^2 + 2n - 10\,804 = 0$$

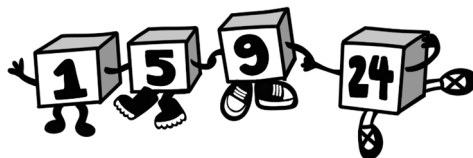
$$\therefore n^2 + n - 5\,402 = 0 \quad \checkmark$$

$$\therefore (n - 73)(n + 74) = 0 \quad \checkmark$$

$$\therefore n = 73 \text{ of } n = -74$$

$$\therefore n = 73$$

$$\therefore \text{die } 73^{\text{ste}} \text{ en } 74^{\text{ste}} \text{ figure. } \checkmark$$



## Reik na die sterre



<https://www.theanswer.co.za/maths-grade-10-revision-patterns-2022/>

3. Gegee:  $1^2 + 2^2 = 3^2 - 2^2$  Ry 1  
 $2^2 + 3^2 = 7^2 - 6^2$  Ry 2  
 $3^2 + 4^2 = 13^2 - 12^2$  Ry 3

3.1 Skryf ry 4 neer. (1)

$$4^2 + 5^2 = 21^2 - 20^2 \checkmark$$

3.2 Skryf ry  $n$  neer. (2)

$$n^2 + (n+1)^2 = [n(n+1)+1]^2 - [n(n+1)]^2 \checkmark \checkmark$$
$$\therefore n^2 + (n+1)^2 = (n^2 + n + 1)^2 - (n^2 + n)^2$$

Of

$$n^2 + (n+1)^2 = [(n+1)+n^2]^2 - [(n+1)+n^2-1]^2 \checkmark \checkmark$$
$$\therefore n^2 + (n+1)^2 = (n^2 + n + 1)^2 - (n^2 + n)^2$$

As jy nie seker is hoe om die antwoorde te kry nie, kyk die video!

3.3 Bewys algebraïes dat ry  $n$  waar is. (4)

$$LK = n^2 + (n+1)^2$$

$$\therefore LK = n^2 + n^2 + 2n + 1$$

$$\therefore LK = 2n^2 + 2n + 1 \checkmark$$

$$RK = (n^2 + n + 1)^2 - (n^2 + n)^2$$

$$\therefore RK = [(n^2 + n + 1) - (n^2 + n)][(n^2 + n + 1) + (n^2 + n)] \checkmark \checkmark$$

$$\therefore RK = [1][2n^2 + 2n + 1] \checkmark$$

$$\therefore RK = 2n^2 + 2n + 1$$

$$\therefore LK = RK$$

Of

$$LHS = n^2 + (n+1)^2$$

$$\therefore LHS = n^2 + n^2 + 2n + 1$$

$$\therefore LHS = 2n^2 + 2n + 1 \checkmark$$

$$RHS = (n^2 + n + 1)^2 - (n^2 + n)^2$$

$$\therefore RHS = n^4 + n^2 + 1 + 2n^3 + 2n^2 + 2n - (n^4 + 2n^3 + n^2) \checkmark \checkmark$$

$$\therefore RHS = n^4 + n^2 + 1 + 2n^3 + 2n^2 + 2n - n^4 - 2n^3 - n^2 \checkmark$$

$$\therefore RHS = 2n^2 + 2n + 1$$

$$\therefore LHS = RHS$$



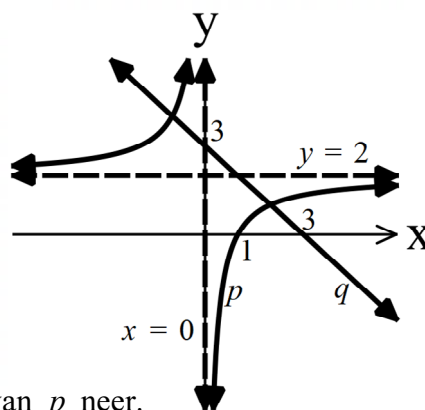
# Funksies

## Ononderhandelbaar

1. Gegee:  $p(x) = -\frac{2}{x} + 2$  en  $q(x) = -x + 3$ .

1.1 Teken die grafieke van  $p$  en  $q$  op dieselfde assestelsel. Wys alle belangrike inligting. (5)

- ✓ asimptote van  $p$
- ✓  $(1;0)$
- ✓ vorm van  $p$
- ✓  $(0;3)$
- ✓  $(3;0)$



1.2 Skryf die waardeversameling van  $p$  neer. (2)

$$y \in \mathbb{R}; y \neq 2 \quad \checkmark \checkmark$$

1.3 Skryf die vergelyking van die simmetrie-as van  $p$  wat 'n positiewe gradiënt het, neer. (2)

$$y = x + 2 \quad \checkmark$$

1.4 Vir watter waarde(s) van  $x$  is:

1.4.1  $p(x) = q(x)$ ? (5)

$$-\frac{2}{x} + 2 = -x + 3 \quad \checkmark$$

$$\therefore -2 + 2x = -x^2 + 3x \quad \checkmark$$

$$\therefore x^2 - x - 2 = 0 \quad \checkmark$$

$$\therefore (x-2)(x+1) = 0 \quad \checkmark$$

$$\therefore x = 2 \text{ of } x = -1 \quad \checkmark$$

1.4.2  $p(x) > 0$ ? (2)

$$x < 0 \quad \checkmark \text{ of } x > 1 \quad \checkmark$$

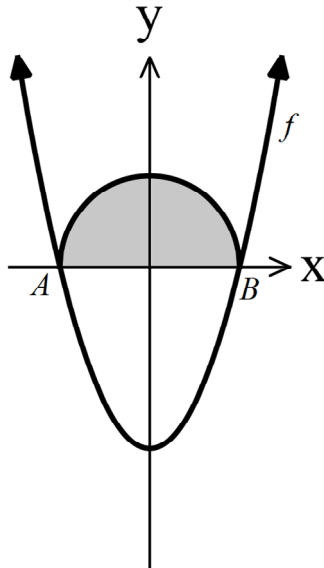
1.4.3  $p(x) \geq q(x)$ ? (3)

$$-1 \leq x < 0 \quad \checkmark \checkmark \text{ of } x \geq 2 \quad \checkmark$$



## Neem dit 'n stappie verder

2.  $f(x) = ax^2 + c$  wat deur  $(2; -6)$  en  $(-8; 24)$  gaan, is geteken. 'n Semi-sirkel met middellyn AB is geteken.



- 2.1 Bepaal die vergelyking van  $f(x)$ . (4)

$$y = ax^2 + c$$

$$\text{Vervang } (2; -6) \quad -6 = 4a + c \quad \textcircled{1} \checkmark$$

$$\text{Vervang } (-8; 24) \quad 24 = 64a + c \quad \textcircled{2} \checkmark$$

$$\textcircled{2} - \textcircled{1} \quad 30 = 60a$$

$$\therefore a = \frac{1}{2} \checkmark$$

$$-6 = 4\left(\frac{1}{2}\right) + c$$

$$\therefore c = -8 \checkmark$$

$$\therefore f(x) = \frac{1}{2}x^2 - 8$$

- 2.2 Vervolgens bepaal die oppervlakte van die semi-sirkel, korrek tot twee desimale plekke. (4)

$$\frac{1}{2}x^2 - 8 = 0 \checkmark$$

$$\therefore x^2 - 16 = 0$$

$$\therefore (x-4)(x+4) = 0 \checkmark$$

$$\therefore A(-4; 0) \text{ en } B(4; 0)$$

$$\text{Area} = \frac{1}{2} \times \pi \times 4^2 \checkmark$$

$$\therefore \text{Area} = 25,13 \text{ eenhede}^2 \checkmark$$



## Reik na die sterre



<https://www.theanswer.co.za/maths-grade-10-revision-functions-2022/>

3. Die funksie  $y = f(x)$  is 'n reguit lyn.  $f(0) = 5$  en  $f(f(0)) = -5$ .  
Bepaal  $f(f(f(0)))$ . (5)

$$f(f(0)) = -5$$

$$\therefore f(5) = -5 \quad \checkmark \quad \dots \text{ omdat } f(0) = 5$$

$f(x)$  is 'n reguit lyn met  $(0;5)$  en  $(5;-5)$  daarop.

$$5 = m(0) + c$$

$$\therefore c = 5 \quad \checkmark$$

$$-5 = m(5) + 5$$

$$\therefore m = -2 \quad \checkmark$$

$$\therefore f(x) = -2x + 5$$

$$f(f(f(0)))$$

$$= f(f(5))$$

$$= f(-5) \quad \checkmark$$

$$= -2(-5) + 5$$

$$= 15 \quad \checkmark$$





# Finansies

## Ononderhandelbaar

1. 'n Bedrag van R5 000 is belê in 'n rekening teen 5,6% p.a. kwartaalliks saamgestel. Bepaal die totale bedrag in die rekening na ses jaar. (3)

$$A = 5\,000 \left(1 + \frac{0,056}{4}\right)^{6 \times 4} \quad \checkmark \checkmark$$

$$\therefore A = R6\,980,41 \quad \checkmark$$



## Neem dit 'n stappie verder

2. R7 000 is belê teen 8% p.a. kwartaalliks saamgestel vir twee jaar. Die rentekoers verander dan na  $x\%$  p.a. maandeliks saamgestel vir vier jaar. Jy hoop om ten minste R12 000 in die rekening te hê na die ses jaar. Bepaal, korrek tot twee desimale plekke, die kleinste waarde van  $x$  wat die resultaat tot gevolg sal hê. (5)

$$7\,000 \left(1 + \frac{0,08}{4}\right)^{2 \times 4} \checkmark \left(1 + \frac{x\%}{12}\right)^{4 \times 12} \checkmark = 12\,000 \checkmark$$

$$\therefore \left(1 + \frac{x\%}{12}\right)^{48} = 1,46312\dots$$

$$\therefore 1 + \frac{x\%}{12} = 1,00796\dots \checkmark$$

$$\therefore x = 9,55220\dots$$

$\therefore$  om ten minste R12 000 te kry, is die laagste rentekoers korrek tot twee desimale plekke 9,56%.  $\checkmark$

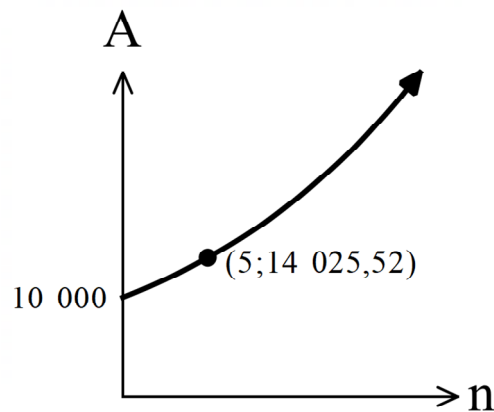


## Reik na die sterre



<https://www.theanswer.co.za/maths-grade-10-revision-finance-2022/>

3. 'n Seker bedrag geld word in 'n rekening belê wat saamgestelde rente aanbied. Die grafiek hieronder stel die formule  $A = P(1+i)^n$  voor. Die punte  $(0; 10\ 000)$  en  $(5; 14\ 025,52)$  lê op die grafiek.



Bepaal die waarde van  $i$  korrek tot die naaste heelgetal.

(5)

$$10\ 000 = P(1+i)^0 \checkmark \quad \dots \text{vervang } (0; R10\ 000)$$

$$\therefore P = 10\ 000 \checkmark$$

$$14\ 025,52 = 10\ 000(1+i)^5 \checkmark \quad \dots \text{vervang } (5; R14\ 025,52)$$

$$\therefore (1+i)^5 = 1,402552 \checkmark$$

$$\therefore 1+i = 1,07000\dots$$

$$\therefore i = 0,07000\dots$$

$$\therefore i = 7\% \checkmark$$

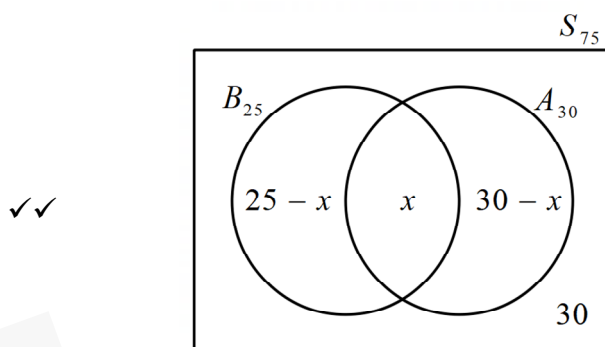


# Waarskynlikheid

## Ononderhandelbaar

1. Daar is 75 leerders in Graad 10 in 'n sekere skool. 25 van hulle hou daarvan om voor skool in die biblioteek te werk, 30 van hulle hou daarvan om na skool in die biblioteek te werk en 30 gaan nooit biblioteek toe nie.

- 1.1 Bepaal, deur van 'n Venn-diagram gebruik te maak, die aantal leerders wat daarvan hou om voor en na skool in die biblioteek te werk. (4)



$$25 - x + x + 30 - x + 30 = 75 \quad \checkmark$$

$$\therefore 85 - x = 75$$

$$\therefore x = 10 \quad \checkmark$$

$\therefore$  10 leerders werk in die biblioteek beide voor en na skool

- 1.2 Bepaal die waarskynlikheid dat 'n leerder slegs na skool in die biblioteek sal werk. (2)

$$P = \frac{30 - 10}{75} \quad \checkmark$$

$$\therefore P = \frac{4}{15} \quad \checkmark$$



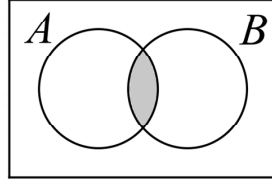
## Neem dit 'n stappie verder

2. Gebruik 'n nuwe Venn-diagram vir elke vraag en skakeer die vereiste deel.

2.1  $P(A \text{ en } B)$

(2)

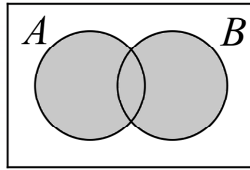
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2.2  $P(A \text{ of } B)$

(2)

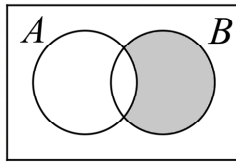
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2.3  $P(A' \text{ en } B)$

(2)

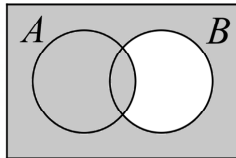
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2.4  $P(A \text{ of } B')$

(2)

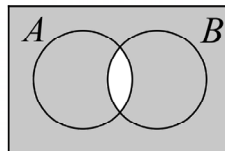
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2.5  $P(A \text{ en } B)'$

(2)

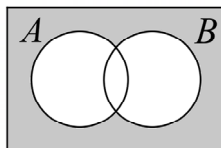
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2.6  $P(A' \text{ en } B')$

(2)

✓✓



## Reik na die sterre



<https://www.theanswer.co.za/maths-grade-10-revision-probability-2022/>

3. Gegee:

- $P(A \text{ en } B) = 0,2$
- $P(A \text{ of } B)' = 0,28$
- $P(B) = 3P(A)$

Bepaal  $P(B \text{ en } A')$ .

(5)

$$P(A \text{ or } B)' = 0,28$$

$$\therefore P(A \text{ or } B) = 1 - 0,28 = 0,72 \quad \checkmark$$

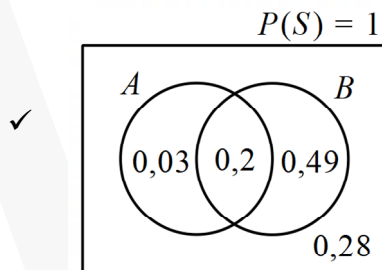
$$P(A \text{ of } B) = P(A) + P(B) - P(A \text{ en } B)$$

$$\therefore 0,72 = P(A) + 3P(A) - 0,2 \quad \checkmark$$

$$\therefore 4P(A) = 0,92$$

$$\therefore P(A) = 0,23 \quad \checkmark$$

$$\therefore P(B) = 3 \times 0,23 = 0,69$$



$$\therefore P(B \text{ and } A') = 0,49 \quad \checkmark$$



# Datahantering

## Ononderhandelbaar

1. Die volgende punte word deur 'n klas van graad 10-leerders vir 'n toets uit 50 behaal.

Punte	Frekwensie
$0 < x \leq 10$	2
$10 < x \leq 20$	7
$20 < x \leq 30$	13
$30 < x \leq 40$	8
$40 < x \leq 50$	5



- 1.1 Bepaal die benaderde gemiddeld van die data. (4)

Punte	Frekwensie ( $f$ )	Middelpunt ( $x$ )	$f \times x$
$0 < x \leq 10$	2	5	10
$10 < x \leq 20$	7	15	105
$20 < x \leq 30$	13	25	325
$30 < x \leq 40$	8	35	280
$40 < x \leq 50$	5	45	225
Som	35 ✓		945 ✓✓

$$\text{Benaderde gemiddeld} = \frac{945}{35} = 27 \checkmark$$

- 1.2 Skryf die modale klas neer. (1)

$$20 < x \leq 30 \checkmark$$

- 1.3 Watter persentasie van die klas het meer as 80% behaal? Gee jou antwoord tot die naaste persentasie. (2)

$$\frac{5 \checkmark}{35} = 14\% \checkmark$$

## Neem dit 'n stappie verder

2. Ag getalle word in stygende orde geskryf.

17; 20; 21; 27;  $x$ ; 32; 36; 39

Bepaal die waarde van  $x$ , as die gemiddeld en die mediaan van die ag getalle dieselfde is. (5)

$$\text{Mediaan} = \frac{27+x}{2} \checkmark$$

$$\text{Gemiddeld} = \frac{192+x}{8} \checkmark$$

$$\therefore \frac{27+x}{2} = \frac{192+x}{8} \checkmark$$

$$\therefore 8(27+x) = 2(192+x)$$

$$\therefore 216+8x = 384+2x \checkmark$$

$$\therefore 6x = 168$$

$$\therefore x = 28 \checkmark$$

## Reik na die sterre

<https://www.theanswer.co.za/maths-grade-10-revision-data-2022/>



3. Die volgende stam-en-blaardigram word gegee.

6		0	2	2			
10		1	3	3	3		
14		0	2	2	3	3	
18		0	2	3	3	3	3
22		3	3	3	3		
26		0	0	2			
30		1	2				

Hierdie is 'n baie ongewone manier om dit te vra – kyk versigting na die sleutel!



Sleutel 6 | 2 beteken  $6 + 2 = 8$

- 3.1 Bepaal die vyfgetalopsomming van die data. (4)

$$\text{Mediaan} = 18 + 2 = 20 \checkmark$$

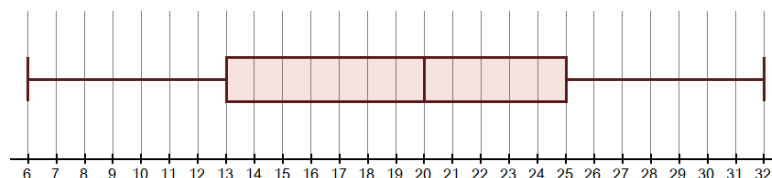
$$\text{Onderste kwartiel} = 10 + 3 = 13 \checkmark$$

$$\text{Boonste kwartiel} = 22 + 3 = 25 \checkmark$$

$$\text{Vyfgetalopsomming: } 6; 13; 20; 25; 32 \checkmark$$

- 3.2 Teken die mond-en-snordigram van die data. (3)

✓✓✓



# Analitiese Meetkunde

## Ononderhandelbaar

1. Gegee:  $A(-3;4)$  en  $B(1;-6)$

1.1 Bepaal die lengte van AB in wortelvorm. (2)

$$AB = \sqrt{(-3-1)^2 + (4-(-6))^2} \checkmark$$

$$\therefore AB = \sqrt{116} = 2\sqrt{29} \checkmark$$

1.2 Bepaal die middelpunt van AB. (2)

$$\text{Middelpunt} = \left( \frac{-3+1}{2}; \frac{4+(-6)}{2} \right) = (-1; -1) \checkmark \checkmark$$

1.3 Bepaal die gradiënt van AB. (2)

$$m_{AB} = \frac{4-(-6)}{-3-1} \checkmark = -\frac{5}{2} \checkmark$$

1.4 Bepaal die vergelyking van AB. (2)

$$y = -\frac{5}{2}x + c$$

$$\therefore 4 = -\frac{5}{2}(-3) + c \checkmark \quad \dots \text{vervang } A(-3;4)$$

$$\therefore c = -\frac{7}{2}$$

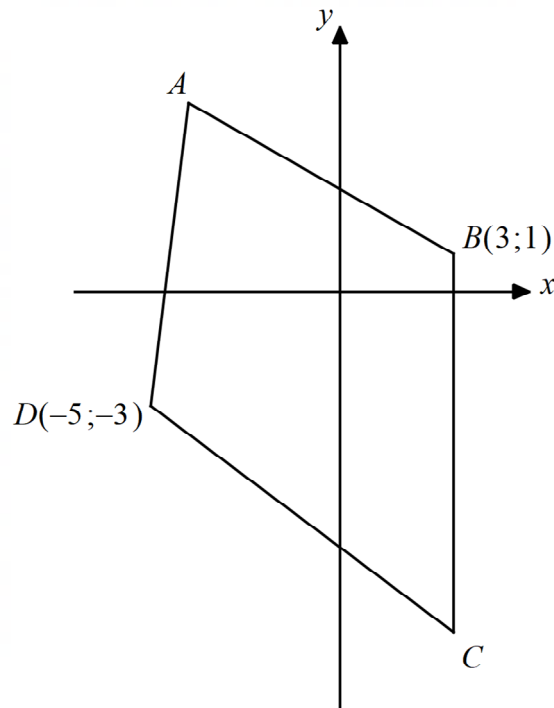
$$\therefore y = -\frac{5}{2}x - \frac{7}{2} \checkmark$$





## Neem dit 'n stappie verder

2. ABCD is 'n vlieër met  $B(3;1)$  en  $D(-5;-3)$ .



Bepaal die vergelyking van die lyn wat deur  $A$  en  $C$  gaan.

(7)

$$\text{Middelpunt van } BD = \left( \frac{-5+3}{2}; \frac{-3+1}{2} \right) = (-1; -1) \checkmark \checkmark$$

$$m_{BD} = \frac{1 - (-3)}{3 - (-5)} \checkmark = \frac{1}{2} \checkmark$$

$$\therefore m_{AC} = -2 \checkmark \quad \dots \quad m_{AC} \times m_{BD} = -1$$

$$\therefore y = -2x + c$$

$$\therefore -1 = -2(-1) + c \checkmark$$

$$\therefore c = -3$$

$$\therefore y = -2x - 3 \checkmark$$

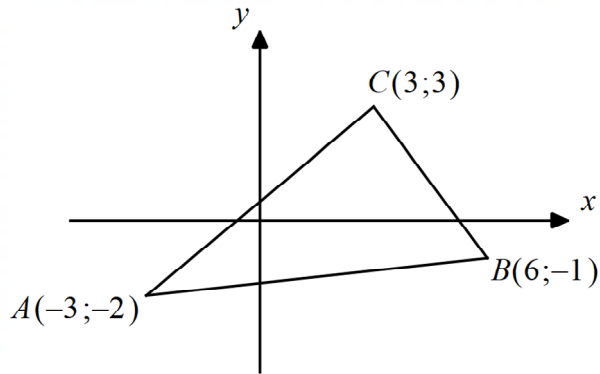


## Reik na die sterre



<https://www.theanswer.co.za/maths-grade-10-revision-analytical-geometry-2022/>

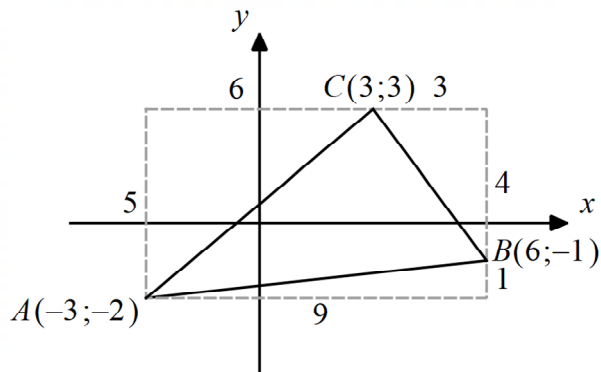
3. Gegee:  $A(-3;-2)$ ,  $B(6;-1)$  en  $C(3;3)$ .



Bepaal die oppervlakte van  $\triangle ABC$ .

(5)

Teken 'n reghoek rondom  $\triangle ABC$ . Die oppervlakte sal die oppervlakte van die reghoek minus die oppervlakte van die drie driehoeke wees.



$$Area = 9 \times 8 - \frac{1}{2} \times 5 \times 6 - \frac{1}{2} \times 4 \times 3 - \frac{1}{2} \times 1 \times 9$$

$$\therefore Area = \frac{39}{2} \text{ eenhede}^2 \checkmark$$

'n Alternatiewe manier om dit te doen: Kry die vergelyking van AB en die vergelyking van die hoogtelyn deur C gaan. Bepaal waar hierdie twee lyne sny, bepaal dan die lengte van AB en die lengte van die hoogtelyn deur C. Gebruik dan die formule  $Area = \frac{1}{2}bh$ . Die bogenoemde metode is 'n baie lekker visuele manier om dit vinniger te doen!



# Trigonometrie

## Ononderhandelbaar

Sakrekenaars mag nie in hierdie vraag gebruik word nie.

1.1 As  $13 \cos \theta + 5 = 0$  en  $180^\circ < \theta < 360^\circ$ , bepaal die waarde van  $12 \operatorname{cosec} \theta - 10 \tan \theta$ . (6)

$$\cos \theta = -\frac{5}{13} \checkmark$$

$$(-5)^2 + y^2 = 13^2$$

$$\therefore y = \pm 12$$

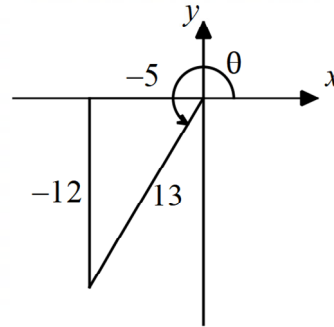
$$\therefore y = -12 \checkmark \quad \dots \text{derde kwadrant}$$

$$12 \operatorname{cosec} \theta - 10 \tan \theta$$

$$= 12 \left( \frac{13}{-12} \checkmark \right) - 10 \left( \frac{-12}{-5} \checkmark \right)$$

$$= -13 - 24 \checkmark$$

$$= -37 \checkmark$$



1.2 Bepaal die waarde van  $\operatorname{cosec} 60^\circ \cot 30^\circ + \cos 45^\circ \operatorname{cosec} 45^\circ$ .

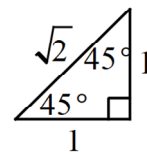
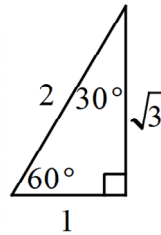
(5)

$$\operatorname{cosec} 60^\circ \cot 30^\circ + \cos 45^\circ \operatorname{cosec} 45^\circ$$

$$= \frac{2}{\sqrt{3}} \checkmark \times \frac{\sqrt{3}}{1} \checkmark + \frac{1}{\sqrt{2}} \checkmark \times \frac{\sqrt{2}}{1} \checkmark$$

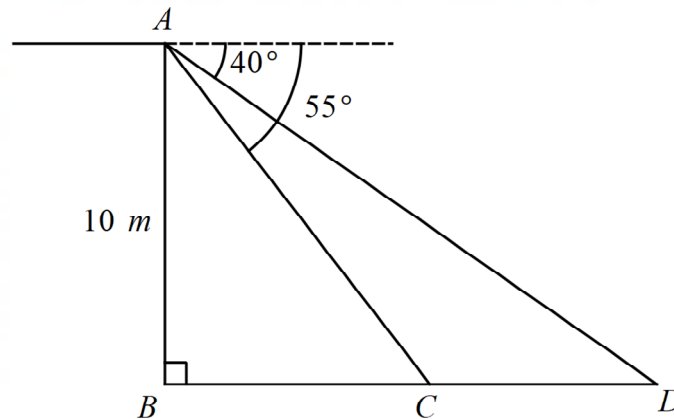
$$= 2 + 1$$

$$= 3 \checkmark$$



## Neem dit 'n stappie verder

2. 'n Persoon staan bo-op 'n 10-meter hoë gebou en sien 'n man wat staan by punt D en 'n hond by punt C. Die dieptehoek na die man is  $40^\circ$  en na die hond is  $55^\circ$ .



Bepaal die afstand tussen die man en die hond, d.w.s. DC, korrek tot twee desimale plekke.

(5)

$$\widehat{BAC} = 35^\circ$$

$$\therefore \tan 35^\circ = \frac{BC}{10} \checkmark$$

$$\therefore BC = 7,00 \checkmark$$

$$\therefore CD = 11,92 - 7,00 = 4,92 \text{ meter } \checkmark$$

$$\widehat{BAD} = 50^\circ$$

$$\therefore \tan 50^\circ = \frac{BD}{10} \checkmark$$

$$\therefore BD = 11,92 \checkmark$$

## Reik na die sterre



<https://www.theanswer.co.za/maths-grade-10-revision-trigonometry-2022/>

3.  $\sin A = \frac{2x}{x^2 + 1}$  en  $A$  en  $B$  is komplementêr. Bepaal  $\tan B$  in terme van  $x$ . (5)

$$AC^2 = (x^2 + 1)^2 - (2x)^2 \checkmark \quad \dots \text{Pythag}$$

$$\therefore AC^2 = x^4 + 2x^2 + 1 - 4x^2 \checkmark$$

$$\therefore AC^2 = x^4 - 2x^2 + 1$$

$$\therefore AC^2 = (x^2 - 1)^2 \checkmark$$

$$\therefore AC = \pm(x^2 - 1)$$

If  $x > 1$

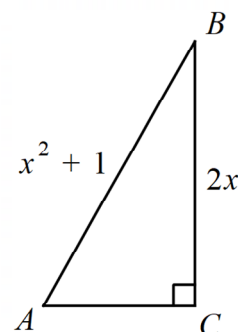
$$AC = x^2 - 1$$

$$\therefore \tan B = \frac{x^2 - 1}{2x} \checkmark$$

If  $0 < x < 1$

$$AC = 1 - x^2$$

$$\therefore \tan B = \frac{1 - x^2}{2x} \checkmark$$



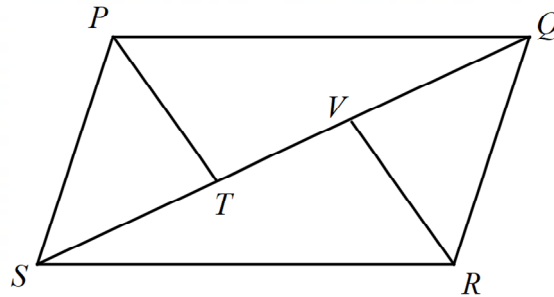
As jy nie seker is hoe om die antwoord te kry nie, kyk die video!



# Euklidiese Meetkunde & Meting

## Ononderhandelbaar

1. PQRS is 'n parallelogram. PT halveer  $\widehat{QPS}$  en RV halveer  $\widehat{QRS}$ .



- 1.1 Bewys dat  $\Delta PTS \equiv \Delta RVQ$ . (5)

In  $\Delta PTS$  and  $\Delta RVQ$

1.  $PS = QR$  (teenoorst sye van  $\parallel m$ ) ✓
2.  $\widehat{PST} = \widehat{VRQ}$  (verw  $\sphericalangle e$ ;  $PS \parallel QR$ ) ✓
3.  $\widehat{QPS} = \widehat{QRS}$  (teenoorst  $\sphericalangle e$  van  $\parallel m$ ) ✓  
 $\therefore \widehat{SPT} = \widehat{RVQ}$  (albei halveer) ✓  
 $\therefore \Delta PTS \equiv \Delta RVQ$  ( $\sphericalangle \sphericalangle S$ ) ✓

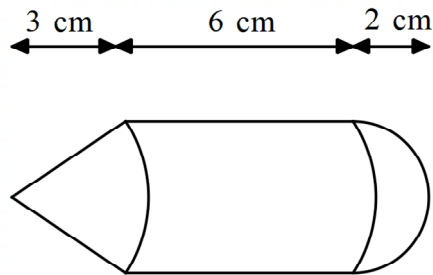


- 1.2 Vervolgens bewys dat PVRT 'n parallelogram is. (4)

- $PT = VR$  ( $\Delta PTS \equiv \Delta RVQ$ ) ✓  
 $\widehat{PTS} = \widehat{RVQ}$  ( $\Delta PTS \equiv \Delta RVQ$ )  
 $\therefore \widehat{PTV} = \widehat{RVT}$  ( $\sphericalangle e$  op 'n reguit lyn) ✓  
 $\therefore PT \parallel VR$  (verw  $\sphericalangle e$  gelyk) ✓  
 $\therefore PVRT$  is 'n parallelogram ('n paar teenoorst sye = en  $\parallel$ ) ✓

## Neem dit 'n stappie verder

2. 'n Keël word op 'n silinder geplaas, wat weer op 'n hemisfeer geplaas word.



Bepaal die volume van die saamgestelde vorm, korrek tot twee desimale plekke..(7)

Radius van alle vorme = 2 cm ... van die hemisfeer

Keël:  $V = \frac{1}{3}\pi r^2 h$   
 $\therefore V = \frac{1}{3} \times \pi \times 2^2 \times 3 \checkmark = 4\pi \checkmark$

Silinder:  $V = \pi r^2 h$   
 $\therefore V = \pi \times 2^2 \times 6 \checkmark = 24\pi \checkmark$

Hemisfeer:  $V = \frac{2}{3}\pi r^3$   
 $\therefore V = \frac{2}{3} \times \pi \times 2^3 \checkmark = \frac{16}{3}\pi \checkmark$

$$\therefore V = 4\pi + 24\pi + \frac{16}{3}\pi$$

$$\therefore V = 104,72 \text{ cm}^3 \checkmark$$

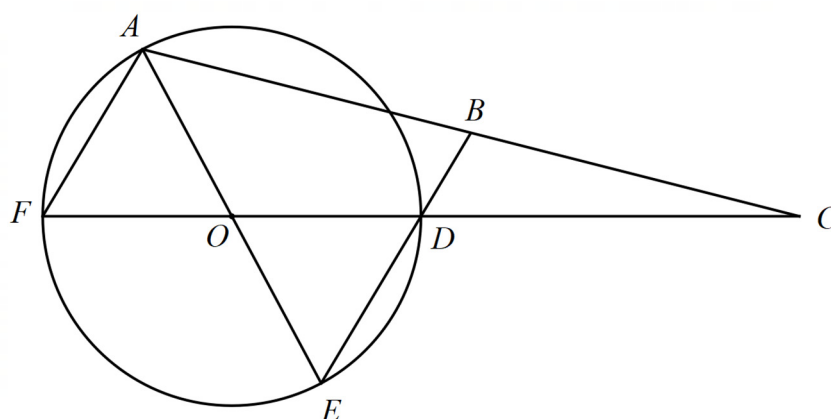


## Reik na die sterre



<https://www.theanswer.co.za/maths-grade-10-revision-euclidean-geometry-2022/>

3. 'n Sirkel met middelpunt  $O$ , gaan deur  $A$ ,  $D$ ,  $E$  en  $F$ .  $FD$  verleng en  $AB$  verleng ontmoet by  $C$ .  $FD = DC$ .



Bepaal  $ED : DB$ .

(7)

In  $\triangle OAF$  en  $\triangle OED$

1.  $OA = OE$  (radii)
2.  $OF = OD$  (radii)
3.  $\widehat{AOF} = \widehat{EOD}$  (regoorst  $\angle$ e)

$$\therefore \triangle OAF \equiv \triangle OED \text{ (S}\angle\text{S)} \checkmark \checkmark$$

$$\therefore AF = DE \text{ (}\triangle OAF \equiv \triangle OED\text{)} \checkmark$$

$$\text{en } \widehat{OFA} = \widehat{ODE} \text{ (}\triangle OAF \equiv \triangle OED\text{)}$$

$$\therefore AF \parallel DE \text{ (verw } \angle\text{e gelyk)} \checkmark$$

$$\therefore AF \parallel BD \text{ en } FD = DC \text{ (gegeë)}$$

$$\therefore AB = BC \text{ (omgek midpt st)} \checkmark$$

$$\therefore BD = \frac{1}{2} AF \text{ (midpt st)} \checkmark$$

$$\therefore BD = \frac{1}{2} DE \text{ (} AF = DE \text{)}$$

$$\therefore ED : DB = 2 : 1 \checkmark$$

