

Rekord 2019: VR II GT&M

VRAAG 1

1.1 (a) ¹refleksie in die lyn $y = x$ ¹

(2)

(b) ²strek van faktor -3 , parallel aan x -as (y -as invariant)

OF

Refleksie in die y -as gevolg deur ¹strek faktor 3 , parallel aan x -as (y -as invariant) ¹ ¹ ¹ ¹

(4)

1.2 (a) $\begin{pmatrix} -1 & 0 \\ 0 & -1 \end{pmatrix}$ ²

(2)

(b) $\begin{pmatrix} 1 & 0 \\ 2 & 1 \end{pmatrix}$ ²skuiwing van faktor 2 , parallel aan y -as

Matrise: $1 + 1$

(4)

[12]

Vraag 2.

$$2.1 \quad K'L' = \begin{pmatrix} 1,8 & -2,4 \\ 2,4 & 1,8 \end{pmatrix} \begin{pmatrix} 3 & -2 \\ 0 & 5 \end{pmatrix}$$

$$= \begin{pmatrix} 5,4 & -15,6 \\ 7,2 & 4,2 \end{pmatrix} \quad (6)$$

$$\therefore K'(5,4; 7,2) \quad L'(-15,6; 4,2)$$

$$2.2 \quad T^{-1} = \frac{1}{9} \begin{pmatrix} 9 & 12 \\ -12 & 9 \end{pmatrix}$$

$$df = \frac{1}{9} \begin{pmatrix} 1,8 & 2,4 \\ -2,4 & 1,8 \end{pmatrix}$$

→ (4)

$$2.3 \quad \begin{pmatrix} 1,8 & -2,4 \\ 2,4 & 1,8 \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 15 \\ -30 \end{pmatrix}$$

$$\therefore 1,8x - 2,4y = 15 \quad | \quad 2,4x + 1,8y = -30$$

$$\therefore x = \frac{2,4y + 15}{1,8}$$

$$\therefore 2,4 \left[\frac{2,4y + 15}{1,8} \right] + 1,8y = -30$$

$$5,76y + 36 + 1,8y = -30$$

$$\therefore x = \frac{2,4 \left(\frac{-25}{1,8} \right) + 15}{1,8}$$

$$= \frac{75}{7}$$

$$= 10,7$$

$$\frac{252y}{25} = 18$$

$$\therefore y = \frac{25}{14}$$

$$= 1,8$$

(4)

Vraag 3

3.1. nie enkelvoudig
 $\det \neq 0$ / unieke opl. (2)

3.2. Ry-espilruim
 Elemente onder hoofdiagonaal
 is almal 0. (2)

3.3. $-5z = -10$
 $\therefore z = 2$
 $4y + 2 = -2$
 $\therefore y = -1$
 $x + 2(-1) + 3(2) = 4$
 $\therefore x = 0$
 $3w + 0(0) + 2(-1) + 1(2) = 0$
 $\therefore w = 3$ (8)
 [12]

Vraag 6

6.1.1. $\frac{1}{2}(6)(6-1) = 15$ 2 (2)

6.2. $|E(G)| + |E(G')| = \frac{n(n-1)}{2}$

$\therefore 21 + |E(G')| = \frac{10(10-1)}{2}$
 $|E(G')| = 45 - 21$
 $= 24$ (3)

[8]

VRAAG 4

4.1 $\begin{pmatrix} 6 & 2 & -3 \\ 6 & 3 & 1 \\ 9 & 3 & -2 \end{pmatrix}^{-1} = \frac{1}{15} \begin{pmatrix} -9 & -5 & 11 \\ 21 & 15 & -24 \\ -9 & 0 & 6 \end{pmatrix}$ OF $\begin{pmatrix} -0,6 & -0,333 & 0,733 \\ 1,4 & 1 & -1,6 \\ -0,6 & 0 & 0,4 \end{pmatrix}$

$\begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix} \begin{pmatrix} x \\ y \\ z \end{pmatrix} = \frac{1}{15} \begin{pmatrix} -9 & -5 & 11 \\ 21 & 15 & -24 \\ -9 & 0 & 6 \end{pmatrix} \begin{pmatrix} 2 \\ 15 \\ 8 \end{pmatrix}$

$\begin{pmatrix} x \\ y \\ z \end{pmatrix} = \frac{1}{15} \begin{pmatrix} -5 \\ 75 \\ 30 \end{pmatrix} = \begin{pmatrix} -\frac{1}{3} \\ 5 \\ 2 \end{pmatrix}$

(8)

4.2 $6(3t-3) - 2(6t-9) - 3(18-27) = 0$
 $6t + 27 = 0$

$t = -4,5$

(6)

4.3 skaalfaktor van 1,5:

$w = 3$

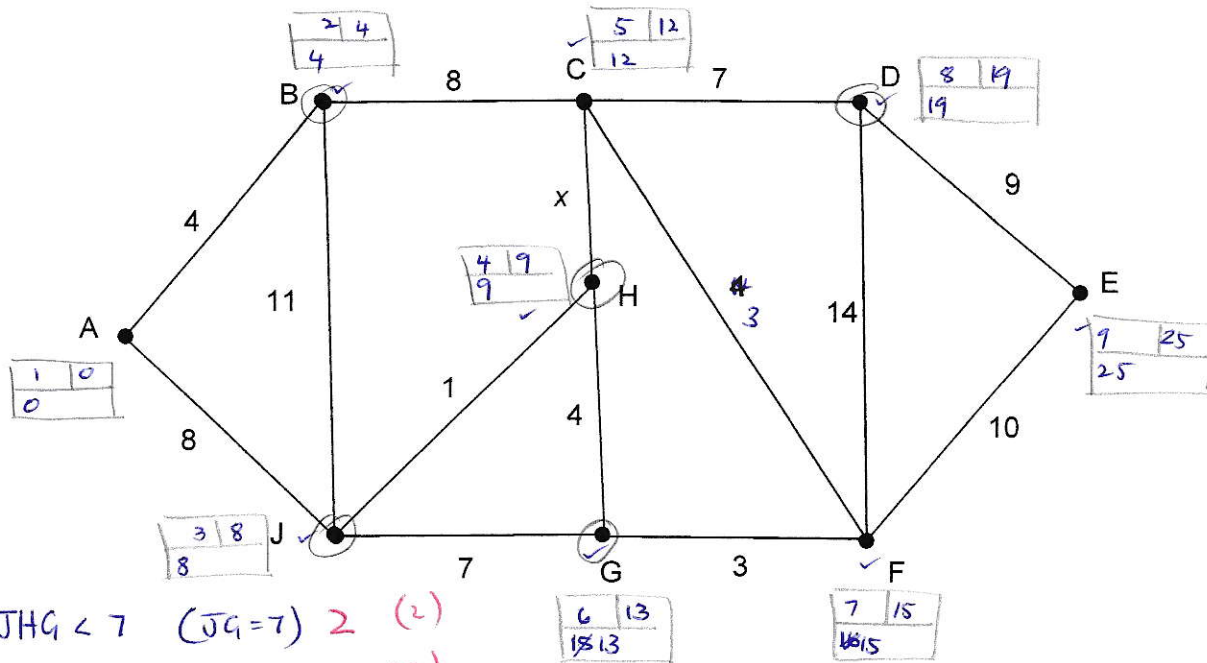
(2)

[16]

ANTWOORDBLAD

NAAM: Memo

VRAAG 5



5.1. $JH < 7$ ($JH=7$) 2 (2)

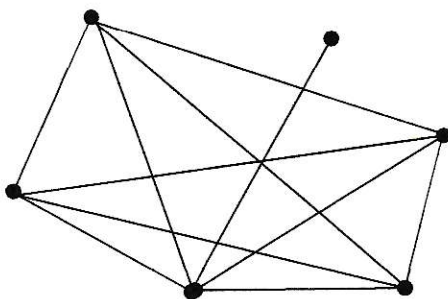
5.2. DF 2 (2)

5.3. $8 + 1 + x + 3 + 10 < 25$
 $x < 3$
 $\therefore x = 2$

Etiket = 7 (10)

5.4. $BC = 8$
 $CD = 7$
 $HG = 4$
 19
 Lengtes: 1 (4)
 GF
 CD
 CF
 BA (4)

VRAAG 6



5.5. Ondergrens:

A uit: $JH = 1$
 $HC = 2$
 $GF = 3$
 $HG = 4$
 $CD = 7$
 $DE = 9$
 $BC = 8$
 34

A terug

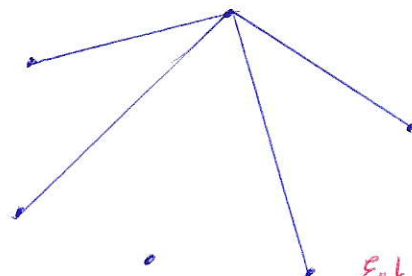
$AB = 4$
 $AJ = 8$
 46

Boven grens:

$AB = 4$
 $BC = 8$
 $CH = 2$
 $HJ = 14$
 $JG = 7$
 $GF = 3$
 $FE = 10$
 $ED = 9$

Maak: $DCHJA = 18$
 60

(20)



Sye: 2
 Ent. Nodus: 1

(3)

2.3.

$$\begin{pmatrix} x \\ y \end{pmatrix} = \frac{1}{9} \begin{pmatrix} 1,8 & 2,4 \\ -2,4 & 1,8 \end{pmatrix} \begin{pmatrix} 15 \\ -30 \end{pmatrix}$$

$$= \begin{pmatrix} -5 \\ -10 \end{pmatrix}$$

(4)