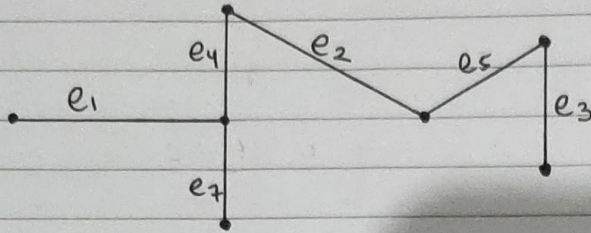


- 4.) $e_1 = 1$ $e_4 = 3$ $e_7 = 5$ $e_{10} = 6$
 $e_2 = 2$ $e_5 = 4$ $e_8 = 5$ $e_{11} = 7$
 $e_3 = 2$ $e_6 = 4$ $e_9 = 6$ $e_{12} = 8$



→ Minimum Spanning Tree (MST)

3.) a) $X \odot Y = XY + X'Y'$

X	Y	X'	Y'	$X \odot Y$	XY	$X'Y'$	$XY + X'Y'$	$(X \odot Y)'$
0	0	1	1	1	0	1	1	0
0	1	1	0	0	0	0	0	1
1	0	0	1	0	0	0	0	1
1	1	0	0	1	1	0	1	0

terbukti sama

b) full DNF $(X \odot Y)' \Rightarrow$

$\overline{Y} \backslash X$	0	1
0	0	1
1	1	0

$\rightarrow xy'$ (from the 0,1 cell)
 \downarrow
 $x'y$ (from the 1,0 cell)

$Y = x'y + xy'$

2.) $E_5 = \{0, 2, 4, 6, 8, \dots\}$
 $Z_5 = \{0, 1, 2, 3, 4, \dots\}$

Tabel Cayley

$\langle E_5, + \rangle$

+	0	2	4	6	8
0	0	2	4	6	8
2	2	4	6	8	10
4	4	6	8	10	12
6	6	8	10	12	14
8	8	10	12	14	16

Tabel Cayley

$\langle Z_5, \times \rangle$

X	0	1	2	3	4
0	0	0	0	0	0
1	0	1	2	3	4
2	0	2	4	6	8
3	0	3	6	9	12
4	0	4	8	12	16

① Himpunan tak kosong ✓

② tertutup Pd op. biner ✓

③ asosiatif, misal:

$$(2+4)+6 = 2+(4+6) \quad \checkmark$$

$$(2 \times 3) \times 4 = 2 \times (3 \times 4) \quad \checkmark$$

Semigrup.

④ memiliki elemen identitas

↳ identitas perkalian : 0 ✓

↳ identitas penjumlahan : 1

monoid

⑤ tiap anggota punya invers masing-masing

$$a + (-a) = (-a) + a = 0 \quad \checkmark$$

$$2 + (-2) = (-2) + 2 = 0 \quad \checkmark$$

grup

⑥ Komutatif $\Rightarrow 2+4=4+2=6 \quad \checkmark \langle 6 \in E_5 \rangle$

abelian

⑦ tertutup terhadap perkalian ✓

⑧ asosiatif pada perkalian

$$(1 \times 2) \times 3 = 1 \times (2 \times 3) \quad \checkmark$$

⑨ distributif

$$a(b+c) = ab+ac \quad \checkmark$$

$$(b+c)a = ba+ca \quad \checkmark$$

RING !!

1.) Mathematics Induction

$$n=1$$

$$S(n) \rightarrow S(1) = 3 \cdot 1 - 1 = \frac{1(3 \cdot 1 + 1)}{2}$$

$$2 = 2 \quad (\text{true})$$

Anggap $S(k) = \text{true} \rightarrow \text{assumption}$

$$S(k+1) = ???$$

$$2 + 5 + 8 + \dots + (3k-1) + (3(k+1)-1) = \frac{(k+1)(3(k+1)+1)}{2}$$

$$\frac{k(3k+1)}{2} + 3k+2 = \frac{(k+1)(3k+4)}{2}$$

$$k(3k+1) + 6k+4 = (k+1)(3k+4)$$

$$3k^2 + k + 6k + 4 = 3k^2 + 7k + 4$$

$$3k^2 + 7k + 4 = 3k^2 + 7k + 4$$

terbukti sama!!

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