



COLEGIO PREMIUM

INICIAL - PRIMARIA - SECUNDARIA

¡Educación Emprendedora con Visión Universitaria!

R.D.R. 1169

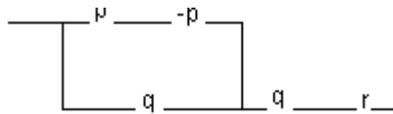
Curso: RAZONAMIENTO LÓGICO

Iero Secundaria - 2020

TEMA N° 07

CIRCUITOS LÓGICOS

1. Dado el siguiente circuito:



El número de variables y llaves es:

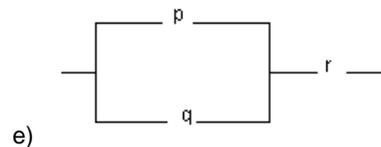
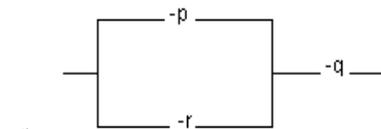
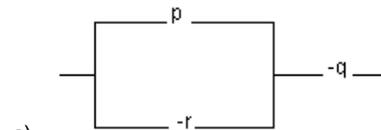
- a) 3 y 5 b) 2 y 5
c) 4 y 5 d) 3 y 4 e) 3 y 3

2. Lado el esquema: $p \downarrow (\sim q/r)$, representarlo en forma de circuito:

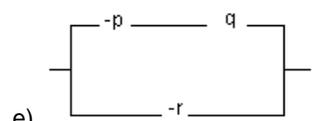
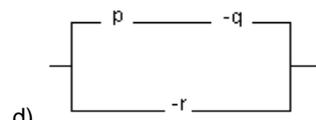
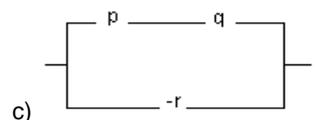
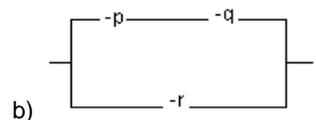
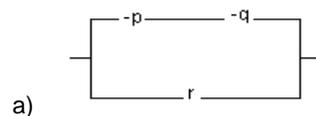
- a) _____ p _____ -q _____ r _____
b) _____ -p _____ q _____ r _____
c) _____ -p _____ -q _____ -r _____
d) _____ -p _____ -q _____ r _____
e) _____ p _____ q _____ r _____

3. Diseñar el circuito equivalente, dado el siguiente esquema: $\{[(r \vee p) \wedge p] \vee \sim r\} \wedge q$

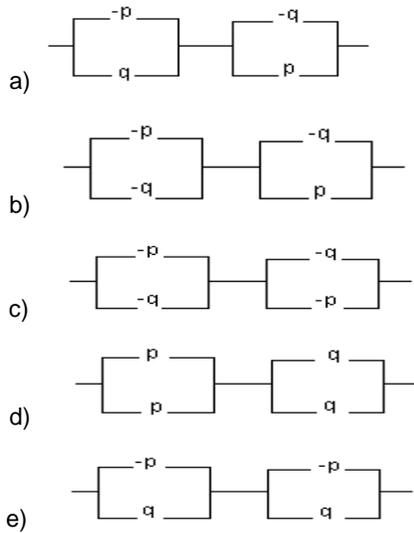
- a)
- b)



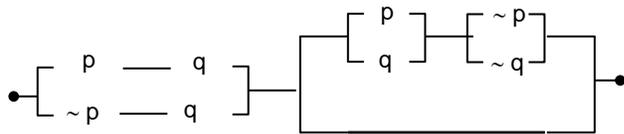
4. Construir el circuito del siguiente esquema: $(p \downarrow q) \vee r$



5. El circuito de la siguiente matriz principal 1001, será:



6. Dado el circuito:



Su esquema equivalente es:

- a) $p \oplus q$
- b) q
- c) $p \leftrightarrow q$
- d) F
- e) $p \wedge q$

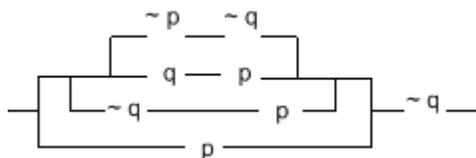
7. Dado el esquema:

$$[(q \rightarrow p) \wedge p] \oplus [(\sim p \vee q) \wedge q] \oplus [\sim p \vee (\sim q \wedge \sim p)]$$

representarlo en forma de circuito equivalente:

- a)
- b)
- c)
- d)
- e)

8. Hallar la suma de las filas falsas en base 2 de la matriz principal del siguiente circuito:

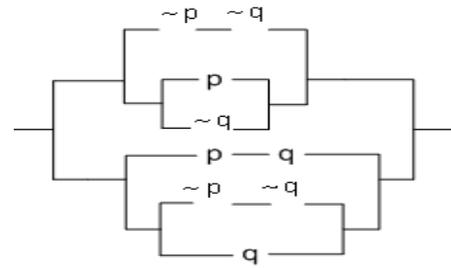


- a) 101
- b) 110
- c) 100
- d) 111
- e) 1000

9. Hallar el circuito equivalente de:

$$\sim \langle A \vee \{[(p \leftrightarrow q) \wedge (p \leftrightarrow \sim q)] \leftrightarrow p\} \rangle$$

donde A es el esquema simplificado del siguiente circuito:

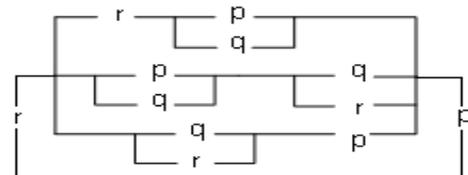


- a)
- b)
- c)
- d)
- e)

10. La matriz numérica de cierto esquema molecular es: 01010000, entonces podemos afirmar que su circuito es:

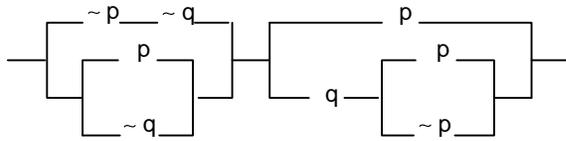
- a)
- b)
- c)
- d)
- e)

11. El circuito lógico más simple que representa a:

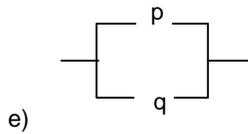


- a)
- b)
- c)
- d)
- e)

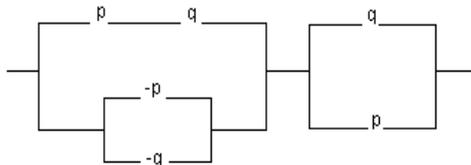
12. Hallar el circuito equivalente de $(A \vee q) \rightarrow \sim q$ donde A es el esquema simplificado del siguiente circuito:



- a) $\text{--- } p \text{ ---}$
- b) $\text{--- } \sim q \text{ ---}$
- c) $\text{--- } \sim p \text{ ---}$
- d) $\text{--- } p \text{ --- } q \text{ ---}$



13. El circuito:



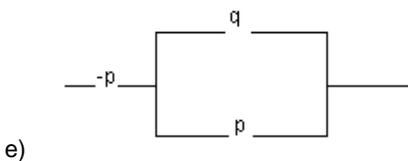
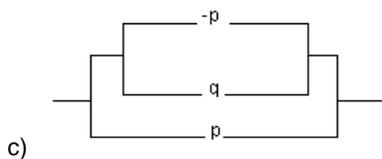
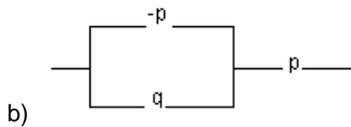
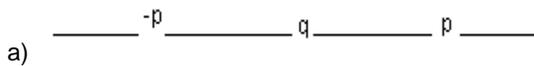
Simplificando equivale a:

1. $\sim p \rightarrow q$
2. $p \vee q$
3. $\sim (\sim p \wedge \sim q)$
4. $\sim q \rightarrow p$

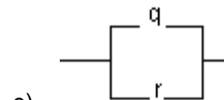
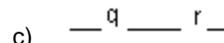
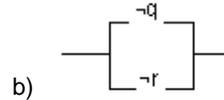
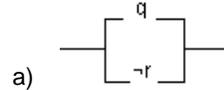
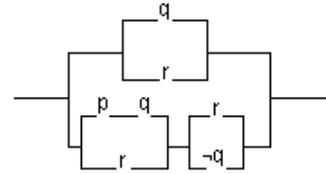
- a) 1, 2
- b) 1, 3
- c) 2, 3
- d) 2, 4
- e) 1, 2, 3, 4

14. Diseñe el circuito correspondiente a la fórmula:

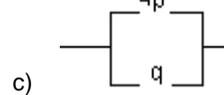
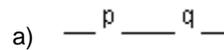
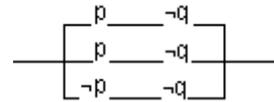
$$(\sim p \vee q) \vee p$$



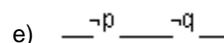
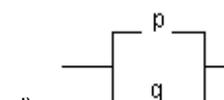
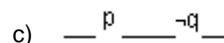
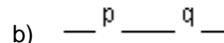
15. Simplificar el circuito:



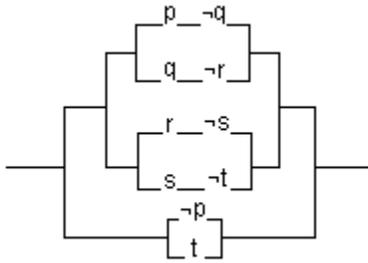
16. Simplificar el siguiente circuito:



17. Dado el siguiente esquema: $\sim [\sim (p \wedge q) \rightarrow \sim q] \vee q$, obtenemos el siguiente circuito simplificado:



18. El circuito:



Se simplifica como:

- a)
- b)
- c)
- d)
- e)

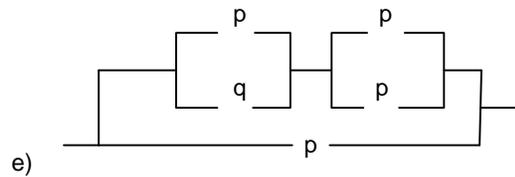
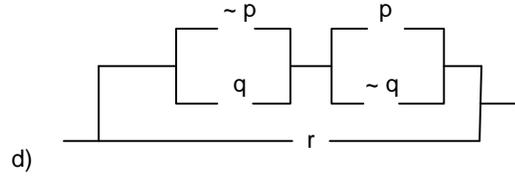
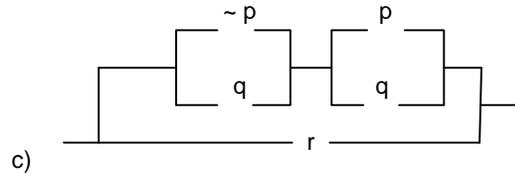
19. Luego de reducir, diseñar un circuito para:

$$[p | \sim(\sim p \downarrow q)] \oplus p$$

- a)
- b)
- c)
- d)
- e)

20. Dada la salida numérica 00010100. Diseñar el circuito equivalente de la negación de dicha salida.

- a)
- b)



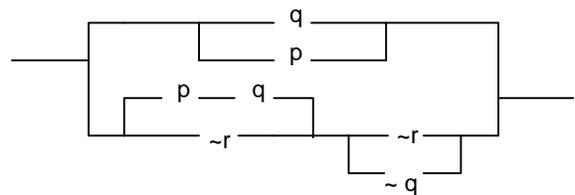
21. Dado el esquema:

$$\{[\sim(p \oplus q) \vee (p \equiv \sim q)] \oplus p\} \wedge \sim q$$

Diseñar el circuito equivalente.

- a)
- b)
- c)
- d)
- e)

22. Simplificar el siguiente circuito, y representarlo en forma de esquema lógico.



- a) $(p \rightarrow q) \vee r$
- b) $(q \vee r) \wedge p$
- c) $p \wedge q \wedge r$
- d) $(r \vee p) \vee \sim q$
- e) $\sim(\sim p \wedge r) \vee q$