Soluzioni in Algebra Relazionale
Database Formula 1

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Notazione

- σ : selezione
- π : proiezione
- $\bowtie$: join naturale o condizionato
- $-$: differenza insiemistica

Soluzioni

Livello 1

Q1. $\pi_{forename,surname,nationality}(drivers)$

Q2. $\pi_{name}(constructors)$

Q3. $\pi_{name}(\sigma_{country='Italy'}(circuits))$

Q4. $\pi_{gpId,name}(gps)$

Q5. $\pi_{year}(seasons)$

Livello 2

Q6. $\pi_{forename,surname}(\sigma_{nationality='Italian'}(drivers))$

Q7. $\pi_{name}(\sigma_{alt>500}(circuits))$

Q8. $\sigma_{points>10}(results)$

Q9. $\pi_{forename,surname}(\sigma_{dob>'1990-01-01'}(drivers))$

Q10. $\pi_{raceId}(\sigma_{year=2020}(races))$

Livello 3

Q11. $\pi_{driverId,forename,surname}(drivers \bowtie results)$

Q12. $\pi_{name}(circuits \bowtie races)$

Q13. $\pi_{year,name}(races \bowtie gps)$

Q14. $\pi_{forename,surname,raceId,points}(drivers \bowtie results)$

Q15. $\pi_{name,raceId,points}(constructors \bowtie results)$

Livello 4

Q16. $\pi_{forename,surname}(\sigma_{positionOrder=1}(drivers \bowtie results))$

Q17. $\pi_{raceId}((races \bowtie circuits) \bowtie \sigma_{country='France'}(circuits))$

Q18. $\pi_{forename,surname}((drivers \bowtie results) \bowtie \sigma_{nationality='British'}(constructors))$

Q19. $\pi_{raceId,name,location}((races \bowtie circuits) \bowtie gps)$

Q20. $\pi_{forename,surname}((drivers \bowtie results) \bowtie \sigma_{status='Finished'}(status))$

Livello 5

Q21. $\pi_{driverId}(results \bowtie races) - \pi_{driverId}(\sigma_{year=y}(results \bowtie races))$
(dove y è una stagione fissata)

Q22. $\pi_{name}(\sigma_{positionOrder=1}(constructors \bowtie results))$

Q23. $\pi_{circuitId}(races) - \pi_{circuitId}(\sigma_{year=y}(races))$

Q24. $\pi_{driverId}(drivers) - \pi_{driverId}(\sigma_{points>0}(results))$

Q25. $\pi_{driverId}(results) - \pi_{driverId}((results \bowtie status)\sigma_{status\neq'Finished'})$