1. $\pi_{student}(student \bowtie_{course\_id=1 \wedge mark='A'} student\_mark)$
2. (a) $student \setminus \pi_{sudent}(student \bowtie_{course\_id=1 \wedge mark \neq null} student\_mark)$
   (b) $\pi_{student}(student \bowtie_{course\_id=1 \wedge mark=null} student\_mark)$
3. $\pi_{student}(student \bowtie_{lecturer\_id=1 \wedge mark \neq null} student\_mark)$
4. $\pi_{sudent\_id}(student) \setminus \pi_{sudent\_id}(student \bowtie_{lecturer\_id=1 \wedge mark \neq null} \text{student\_mark})$
5. $\pi_{sudent,course\_id}(student \bowtie_{mark \neq null} student\_mark) \div \pi_{course\_id}(\sigma_{lecturer\_id=1} student\_mark)$
6. $\pi_{sudent\_name,course\_id}(student \bowtie_{mark=null} student\_mark)$
7. $\pi_{sudent}(student \bowtie_{lectorer\_id=1} student\_mark)$
8. $(\rho_{student\_id=s2\_id,student\_name=s2\_name,group\_id=s2\_gr}(\pi_{sudent,course_id}(student \bowtie_{mark \neq null} student\_mark))) \div$
   $(\rho_{student\_id=s1\_id,student\_name=s1\_name,group\_id=s1\_gr}(\pi_{sudent,course_id}(student \bowtie_{mark \neq null} student\_mark)))$
9. $(\pi_{student\_id,course\_id}(\sigma_{mark \neq null}(student\_mark))) \div (\pi_{group\_id,student\_id}(student)))$
10. (a) $sum_{to\_points(mark),\emptyset}(\sigma_{mark \neq null \& student\_id=1}(\pi_{student\_id,mark}(mark))) /$
    $/count_{mark,\emptyset}(\sigma_{mark \neq null \& student\_id=1}(\pi_{student\_id,mark}(mark)))$
    (b) $div_{(sum,count),student\_id}(sum_{to\_points(mark),student\_id}(\sigma_{mark \neq null}(\pi_{student\_id,mark}(mark))) \bowtie$
    $\bowtie count_{mark,student\_id}(\sigma_{mark \neq null}(\pi_{student\_id,mark}(mark))))$
11. Для понятности записи обозначим отношение из 10(b) за $avarage_mark$, у которого есть атрибуты $student\_id, points$.
    $div_{(sum,count),group\_id}(sum_{points,group\_id}(\pi_{student\_id,points,group\_id}(avarage\_mark \bowtie student)) \bowtie$
    $\bowtie count_{points,group\_id}(\pi_{student\_id,points,group\_id}(avarage\_mark \bowtie student))$
12. $\epsilon_{total=closed+unclosed}(\rho_{count=closed}(count_{mark,student_id}(\sigma mark \neq null(mark))) \bowtie$
    $\bowtie \rho_{count=unclosed}(count_{mark,student_id}(\sigma mark = null(mark))))$