DISTRIBUTIVE INVOLUTIVE RESIDUATED LATTICES UP TO CARDINALITY 8

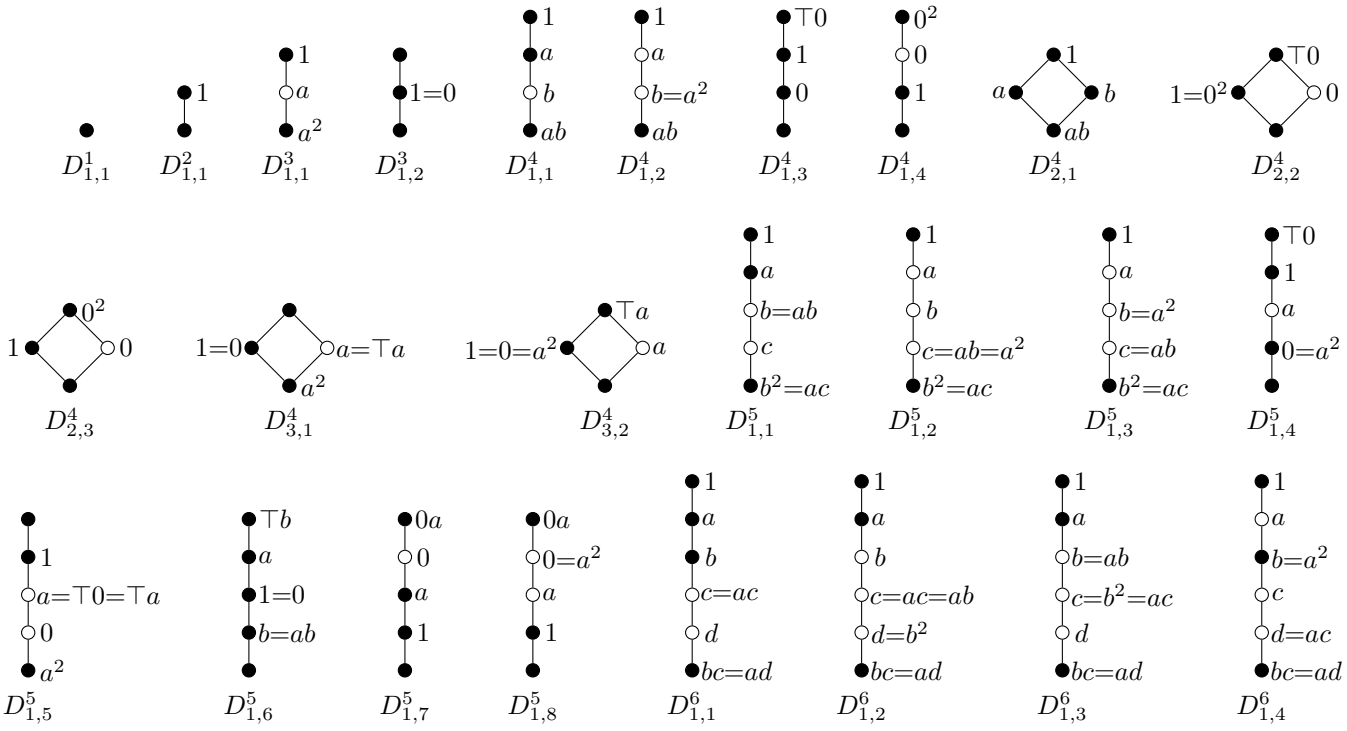
ANDREW CRAIG, PETER JIPSEN, AND CLAUDETTE ROBINSON

There are $1+1+2+9+8+43+49+282 = 395$ distributive involutive residuated lattices with ≤ 8 elements. In the list below, each algebra is named $D^n_{m,i}$ where n is the cardinality and m enumerates nonisomorphic involutive lattices of size n, in order of decreasing height. The index i enumerates nonisomorphic algebras with the same involutive lattice reduct. The linear negations $\sim, -$ are determined by the element labeled 0 (bottom for integral algebras). Algebras with more central elements (round circles) are listed earlier, hence commutative algebras precede noncommutative ones. Finally, algebras are listed in decreasing order of number of idempotents (black nodes).

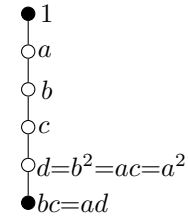
The monoid operation is indicated by labels. If a nonobvious product xy is not listed, then it can be deduced from the given information: either it follows from idempotence ($x^2 = x$) indicated by a black node or from commutativity or there are products $uv = wz$ such that $u \leq x \leq w$ and $v \leq y \leq z$ (possibly $uv = \bot\bot$ or $wz = \top\top$).

If you have comments or notice any issues in this list, please email `jipsen.AT.chapman.edu`.

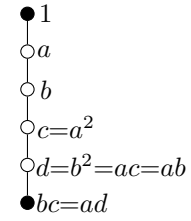
● = central idempotent
○ = central nonidempotent
■ = noncentral idempotent
□ = noncentral nonidempotent



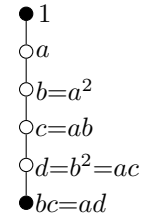
Date: April 27, 2025.



$D^6_{1,5}$



$D^6_{1,6}$



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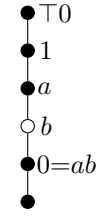

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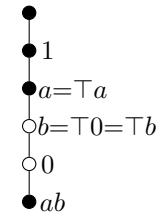

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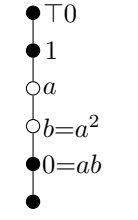

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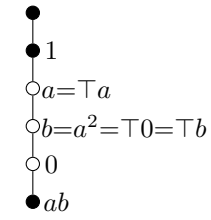

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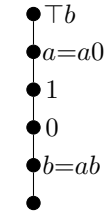

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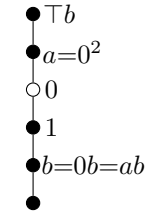

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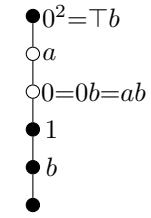

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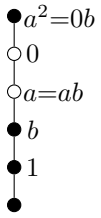

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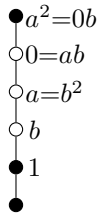

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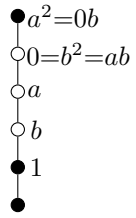

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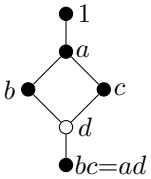

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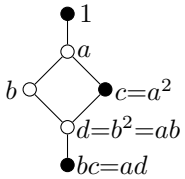

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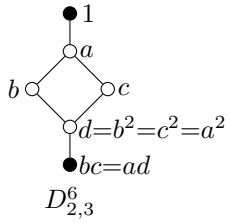

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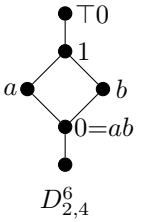

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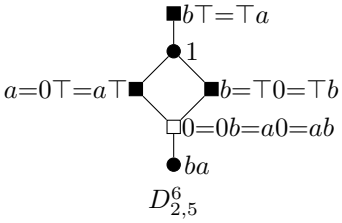

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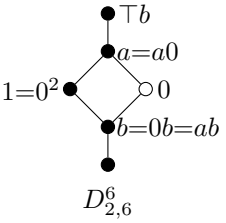

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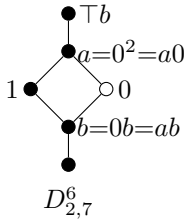

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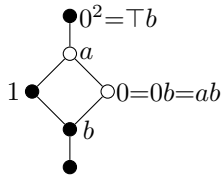

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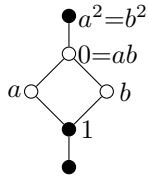

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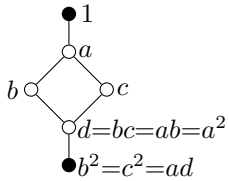

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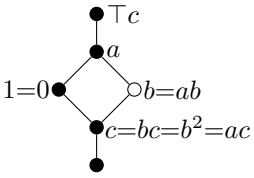

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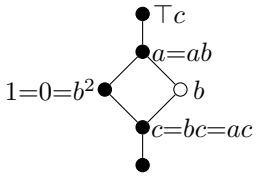

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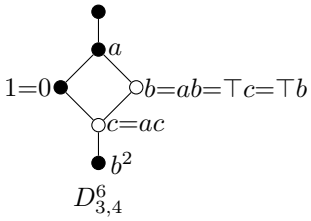

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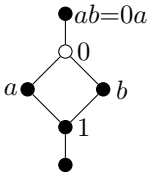

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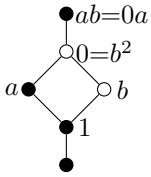

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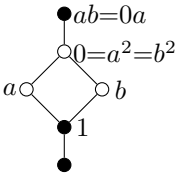

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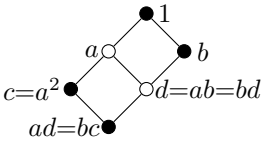

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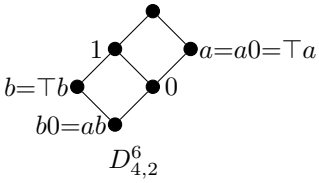

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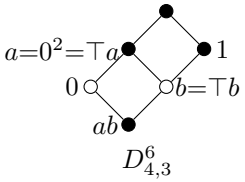

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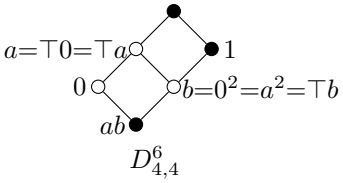

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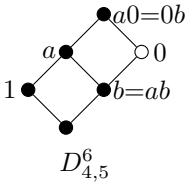

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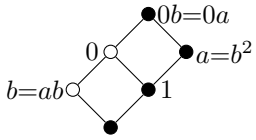

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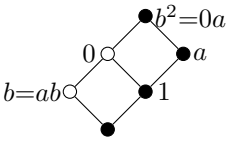

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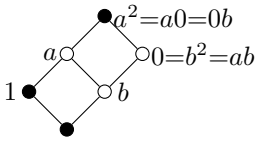

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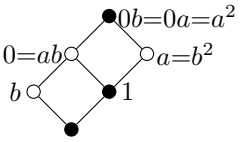

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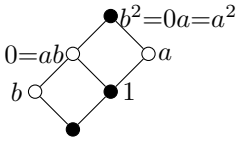

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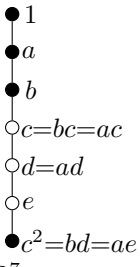

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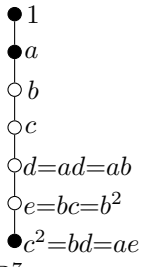

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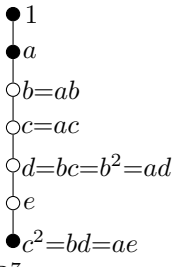

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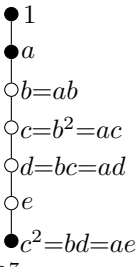

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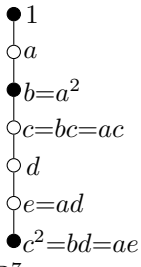

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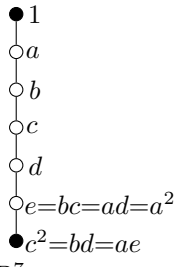

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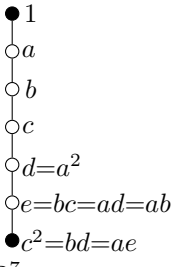

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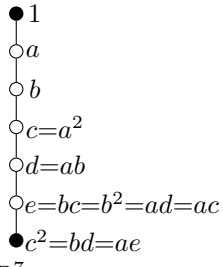

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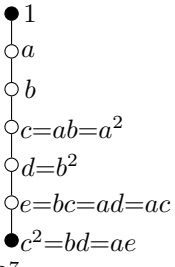

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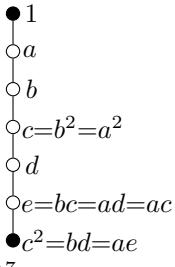

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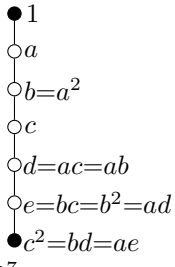

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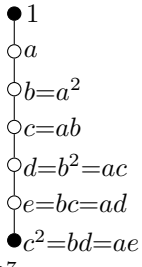

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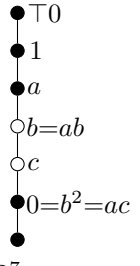
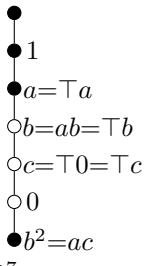


$D^7_{1,13}$



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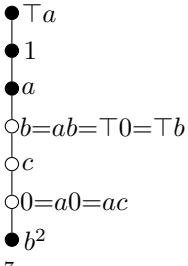

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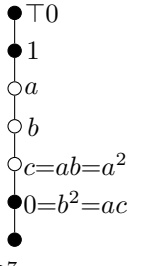

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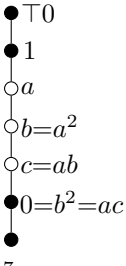
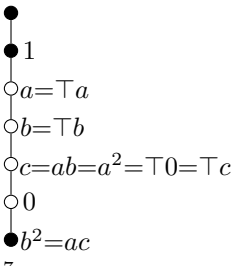
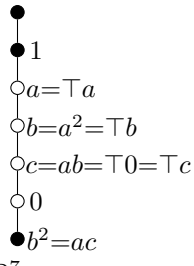


$D^7_{1,17}$



$D^7_{1,18}$



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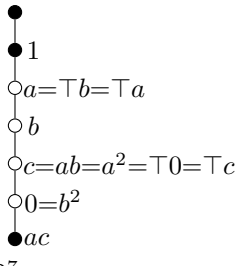

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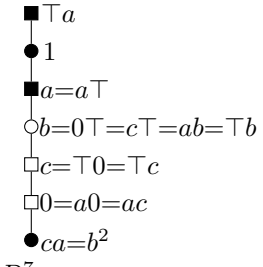

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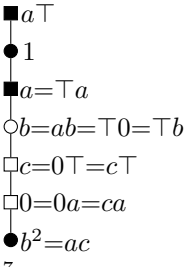

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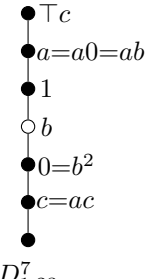
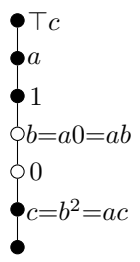


$D^7_{1,23}$



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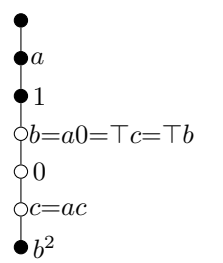
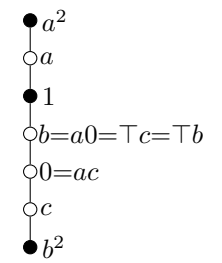


$D^7_{1,25}$



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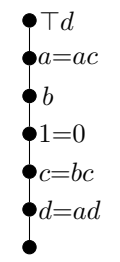

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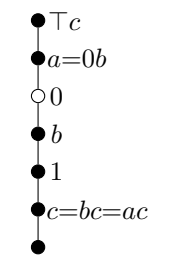
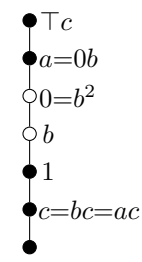
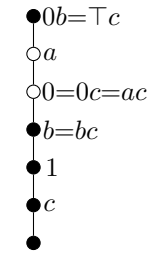


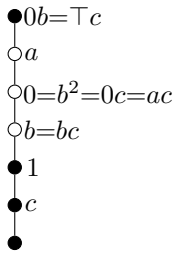
$D^7_{1,28}$



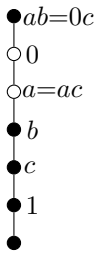
$D^7_{1,29}$



$D^7_{1,30}$



$D^7_{1,31}$



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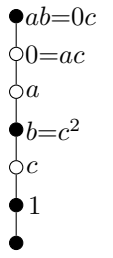

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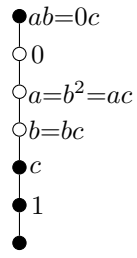
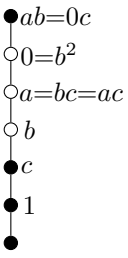
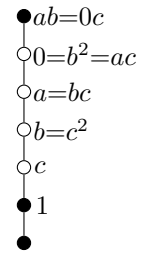


$D^7_{1,34}$



$D^7_{1,35}$



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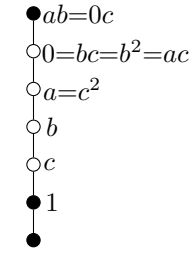
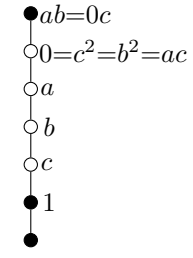
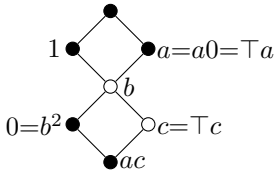


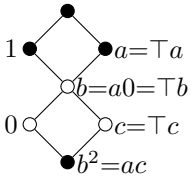
$D^7_{1,37}$



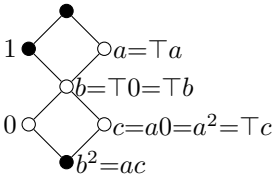
$D^7_{1,38}$



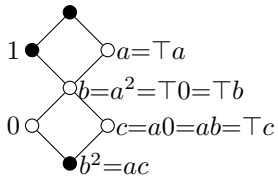
$D^7_{2,1}$



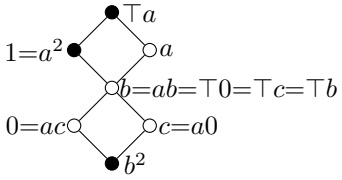
$D^7_{2,2}$



$D^7_{2,3}$



$D^7_{2,4}$



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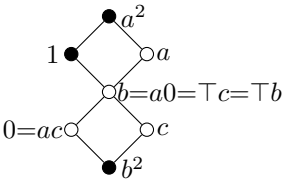
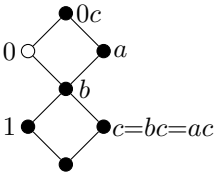
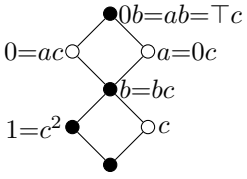


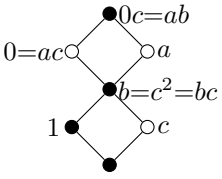
$D^7_{2,6}$



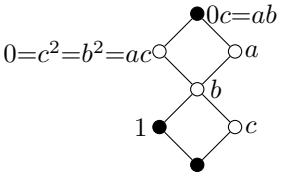
$D^7_{2,7}$



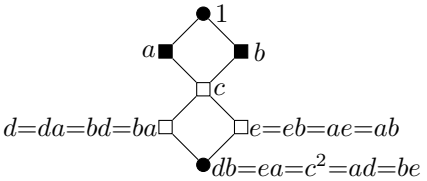
$D^7_{2,8}$



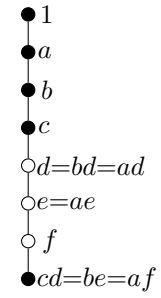
$D^7_{2,9}$



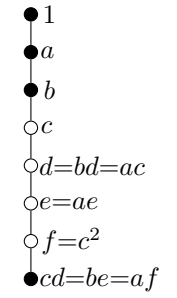
$D^7_{2,10}$



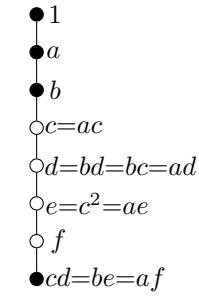
$D^7_{3,1}$



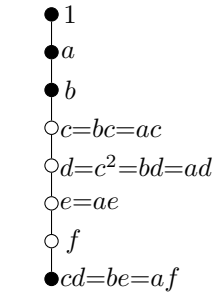
$D^8_{1,1}$



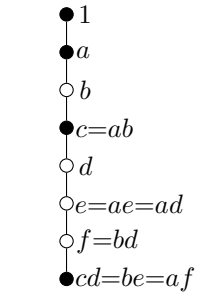
$D^8_{1,2}$



$D^8_{1,3}$



$D^8_{1,4}$



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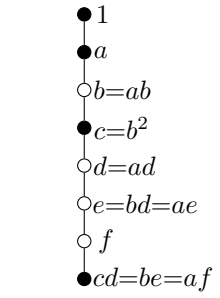
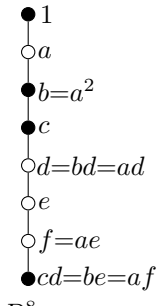
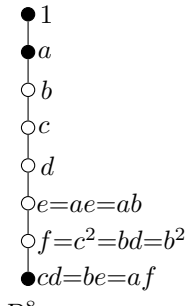


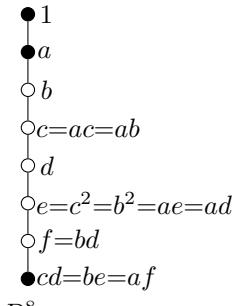
$D^8_{1,6}$



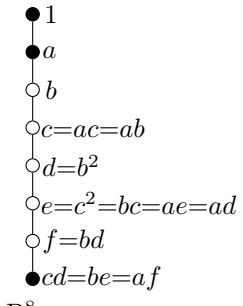
$D^8_{1,7}$



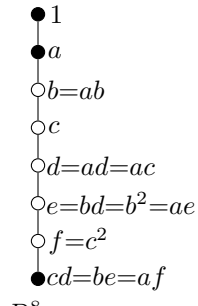
$D^8_{1,8}$



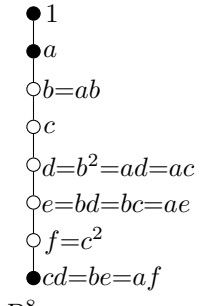
$D^8_{1,9}$



$D^8_{1,10}$



$D^8_{1,11}$



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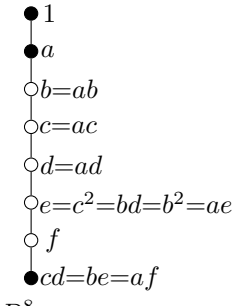
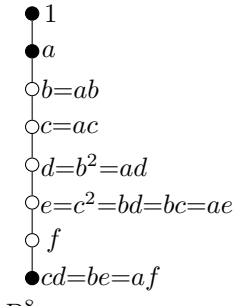
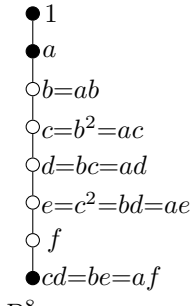


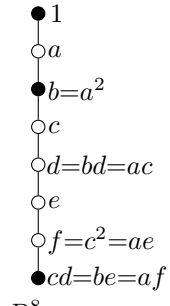
$D^8_{1,13}$



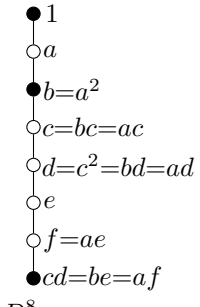
$D^8_{1,14}$



$D^8_{1,15}$



$D^8_{1,16}$



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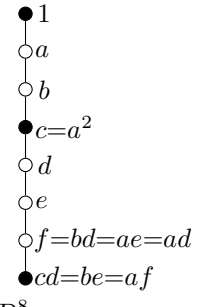
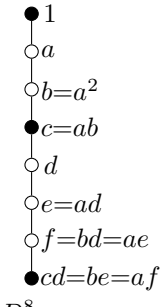


$D^8_{1,18}$



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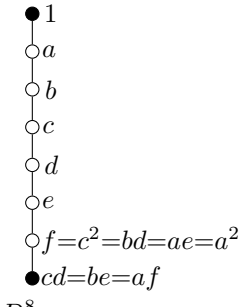

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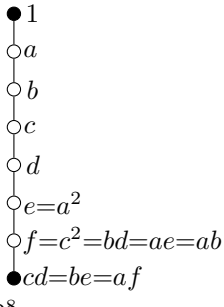
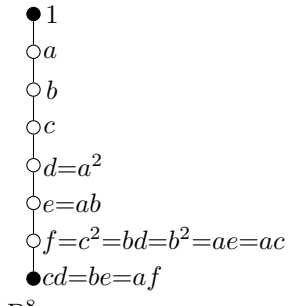
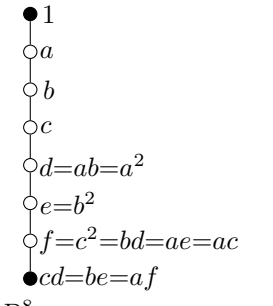


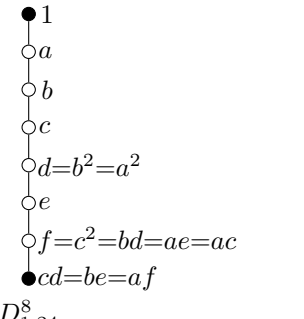
$D^8_{1,21}$



$D^8_{1,22}$



$D^8_{1,23}$



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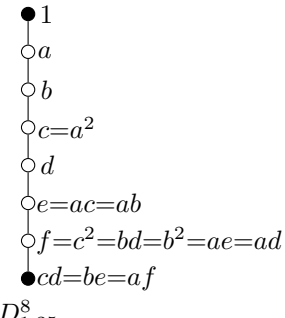
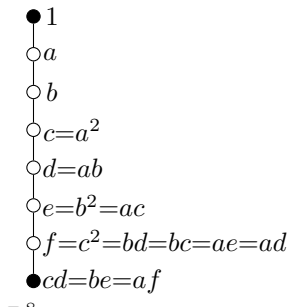


$D^8_{1,25}$



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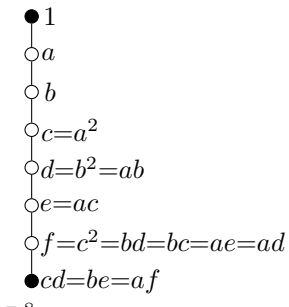

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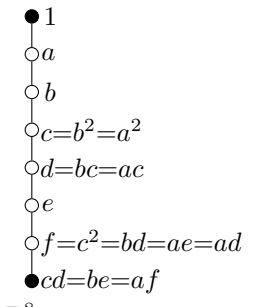

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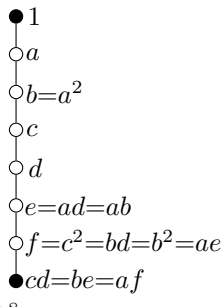

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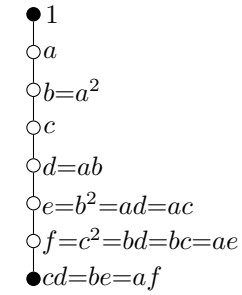

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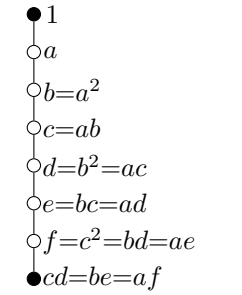

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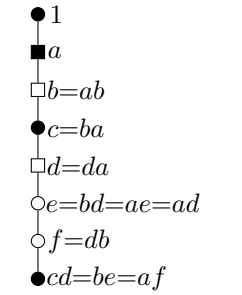

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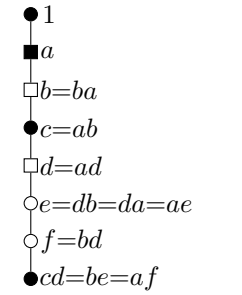
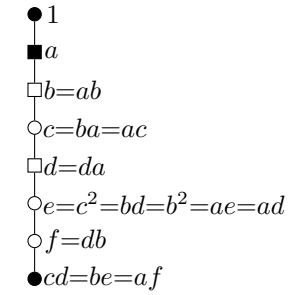
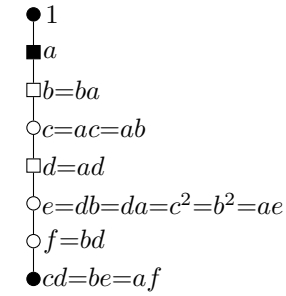


$D^8_{1,33}$



$D^8_{1,34}$



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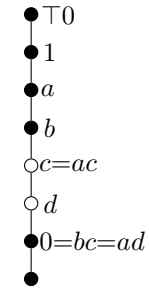
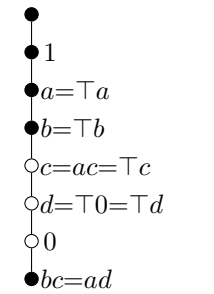
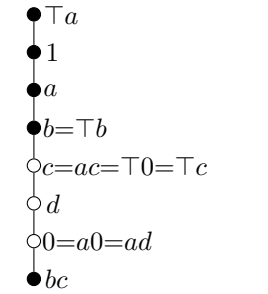


$D^8_{1,36}$



$D^8_{1,37}$



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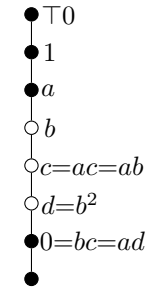
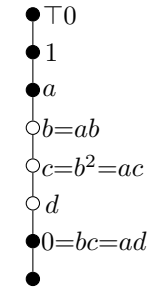
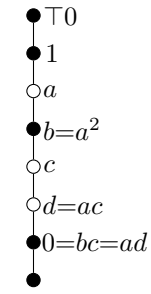


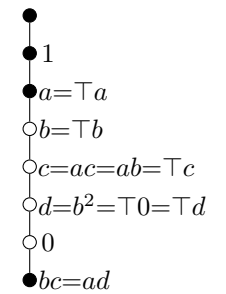
$D^8_{1,39}$



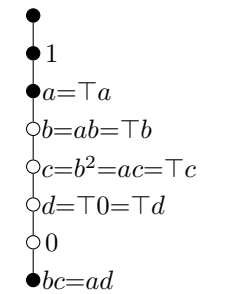
$D^8_{1,40}$



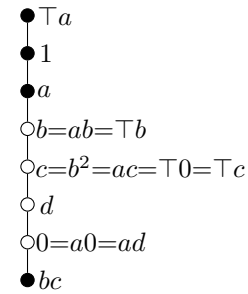
$D^8_{1,41}$



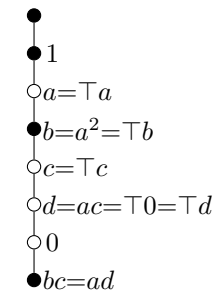
$D^8_{1,42}$



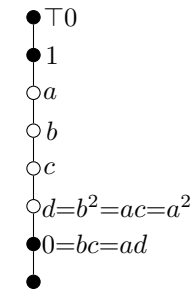
$D^8_{1,43}$



$D^8_{1,44}$



$D^8_{1,45}$



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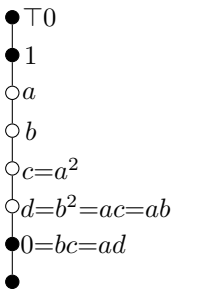

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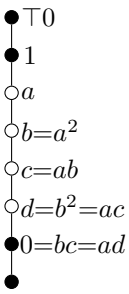
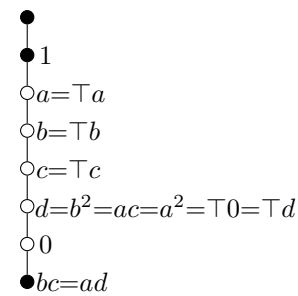
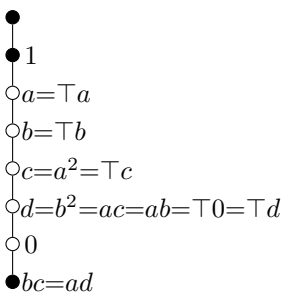


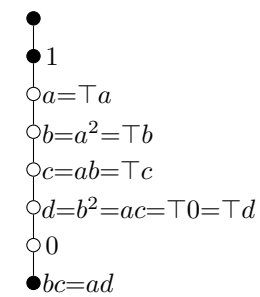
$D^8_{1,48}$



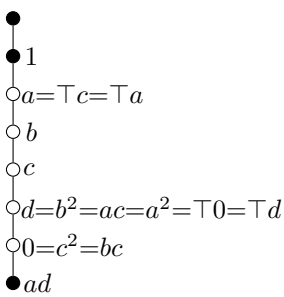
$D^8_{1,49}$



$D^8_{1,50}$



$D^8_{1,51}$



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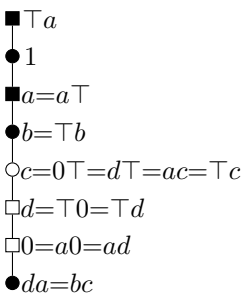
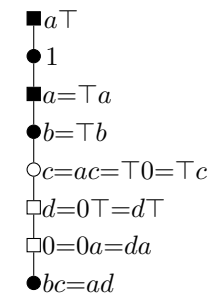
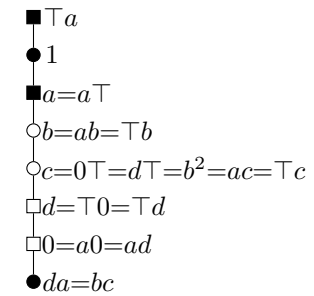


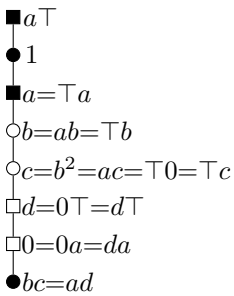
$D^8_{1,53}$



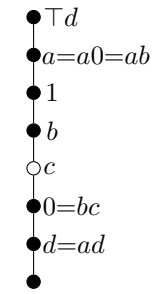
$D^8_{1,54}$



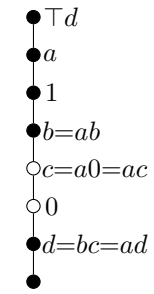
$D^8_{1,55}$



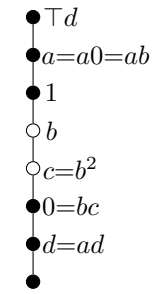
$D^8_{1,56}$



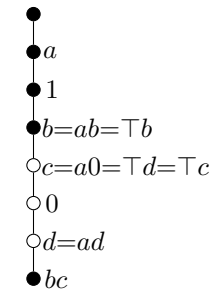
$D^8_{1,57}$



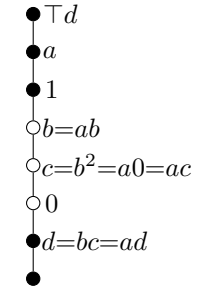
$D^8_{1,58}$



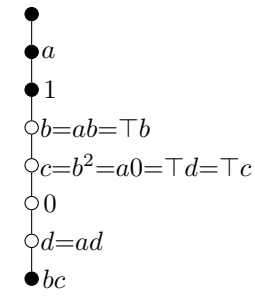
$D^8_{1,59}$



$D^8_{1,60}$



$D^8_{1,61}$



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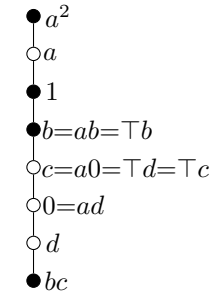
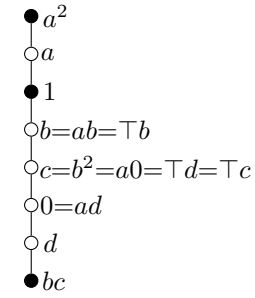
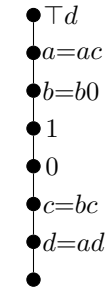


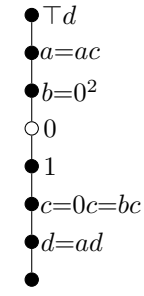
$D^8_{1,63}$



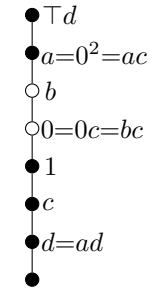
$D^8_{1,64}$



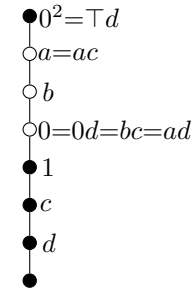
$D^8_{1,65}$



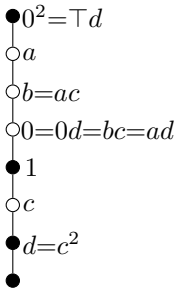
$D^8_{1,66}$



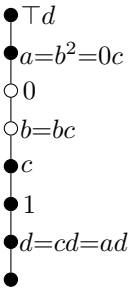
$D^8_{1,67}$



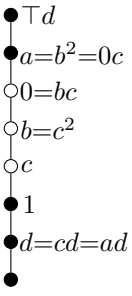
$D^8_{1,68}$



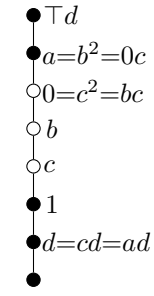
$D^8_{1,69}$



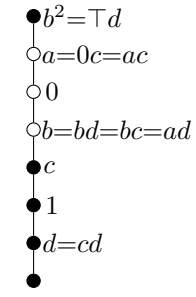
$D^8_{1,70}$



$D^8_{1,71}$



$D^8_{1,72}$



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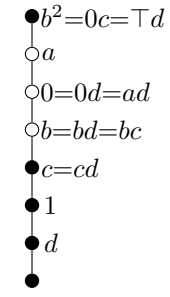

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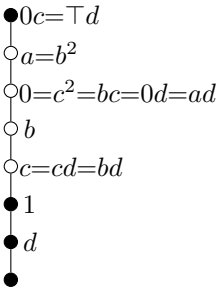

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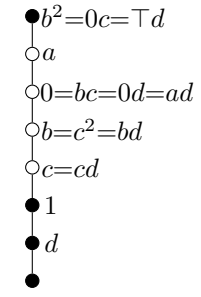

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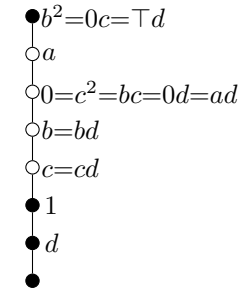

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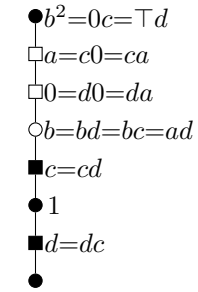

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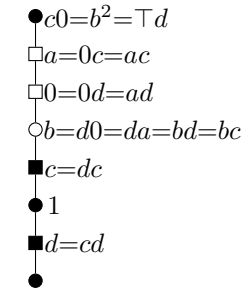

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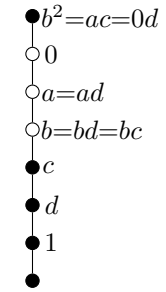

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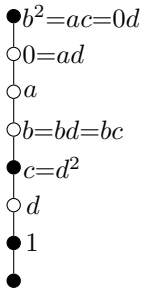

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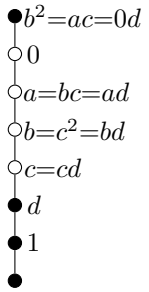
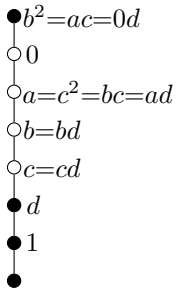


$D^8_{1,82}$



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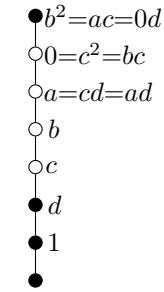
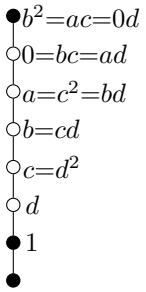


$D^8_{1,84}$



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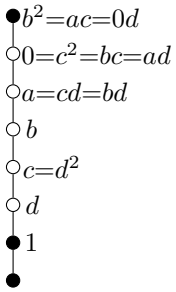

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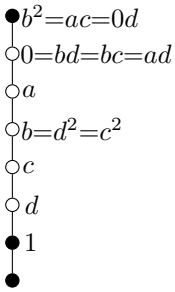

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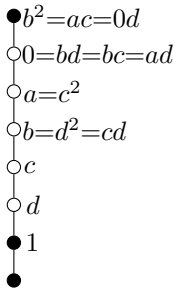
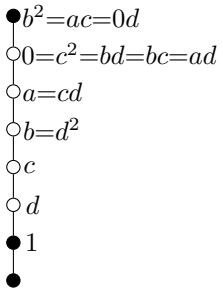


$D^8_{1,88}$



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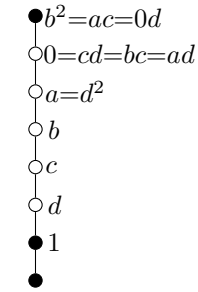
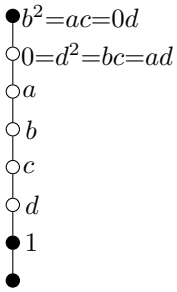
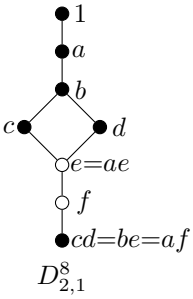


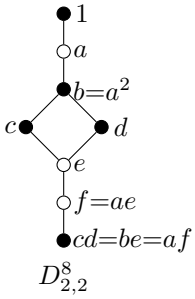
$D^8_{1,90}$



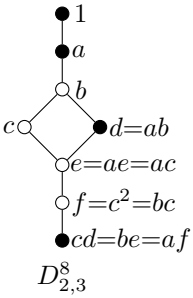
$D^8_{1,91}$



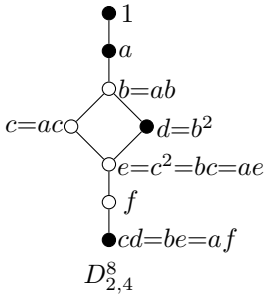
$D^8_{2,1}$



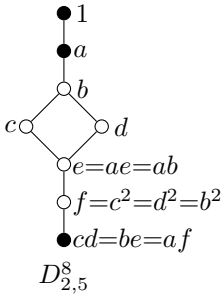
$D^8_{2,2}$



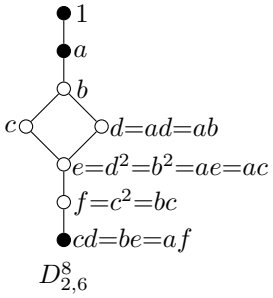
$D^8_{2,3}$



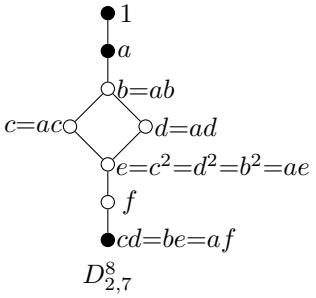
$D^8_{2,4}$



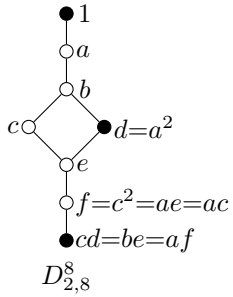
$D^8_{2,5}$



$D^8_{2,6}$



$D^8_{2,7}$



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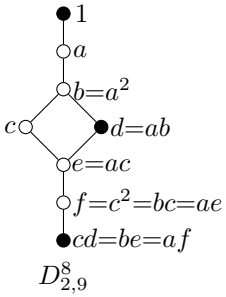

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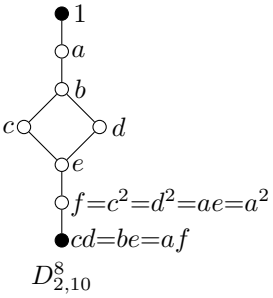
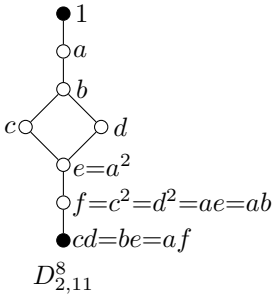
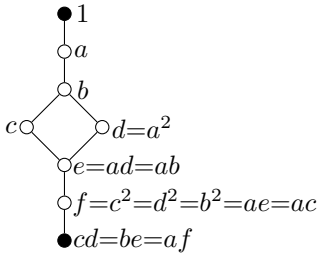


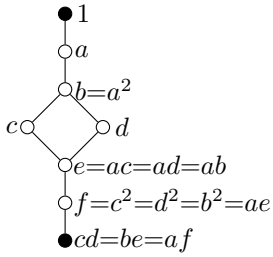
$D^8_{2,10}$



$D^8_{2,11}$



$D^8_{2,12}$



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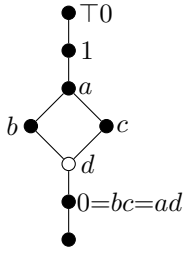
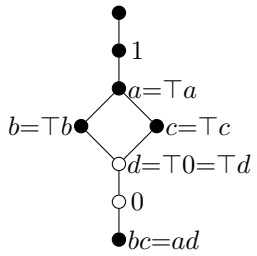


$D^8_{2,14}$



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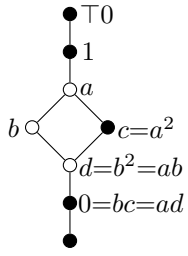

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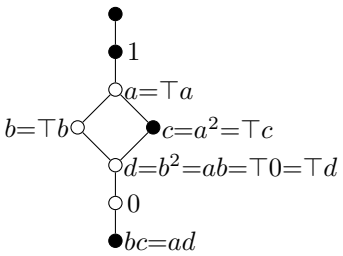

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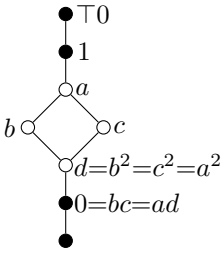

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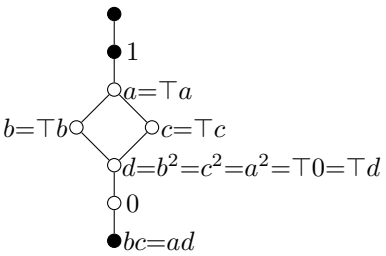
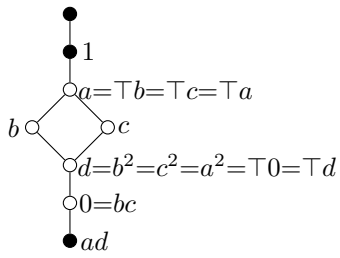
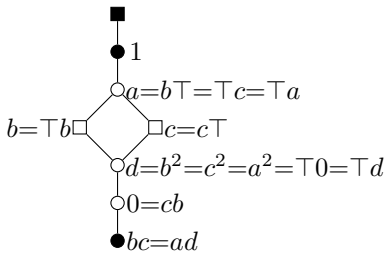


$D^8_{2,19}$



$D^8_{2,20}$



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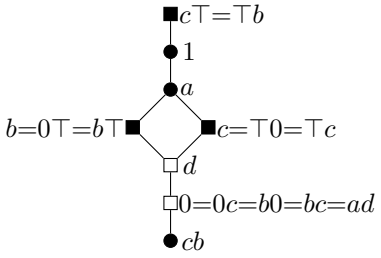

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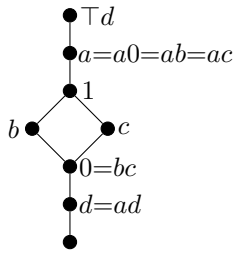

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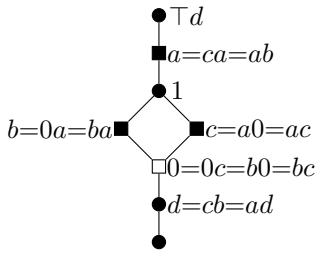

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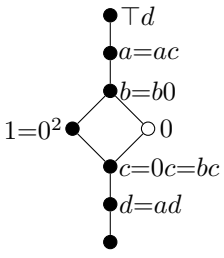

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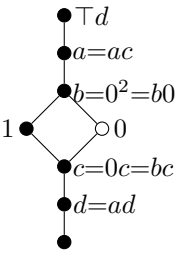

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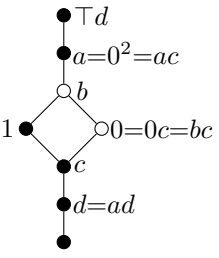

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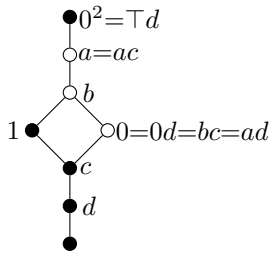

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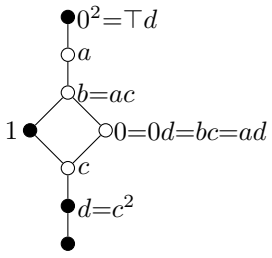
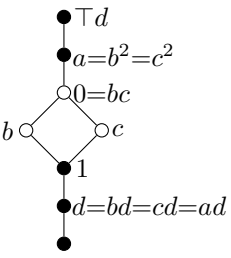
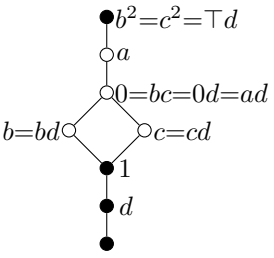


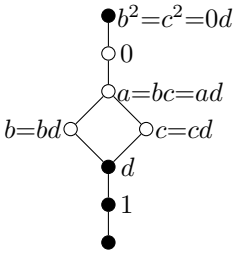
$D^8_{2,29}$



$D^8_{2,30}$



$D^8_{2,31}$



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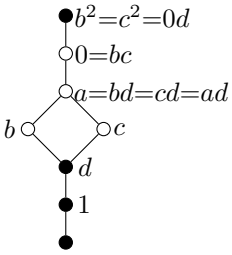

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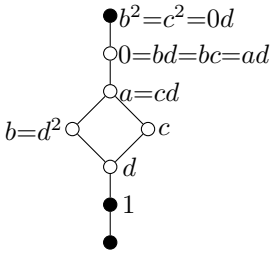

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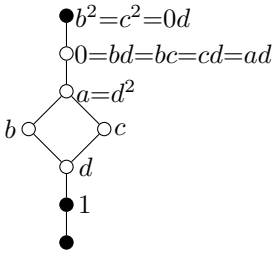
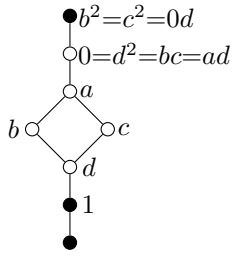
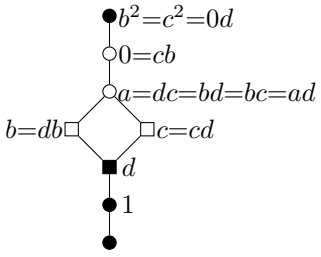


$D^8_{2,35}$



$D^8_{2,36}$



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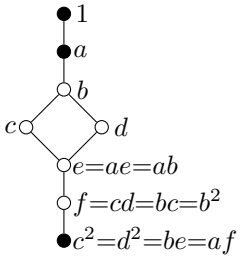

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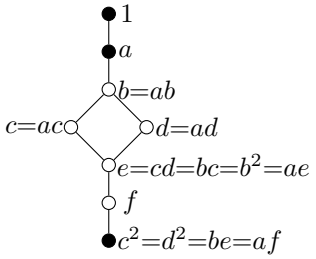
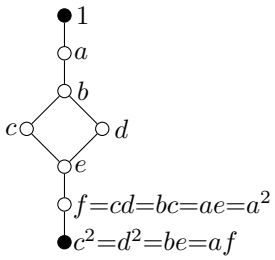


$D^8_{3,2}$



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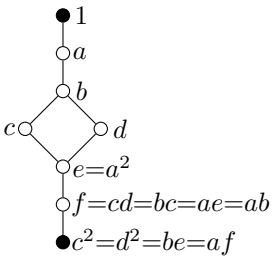
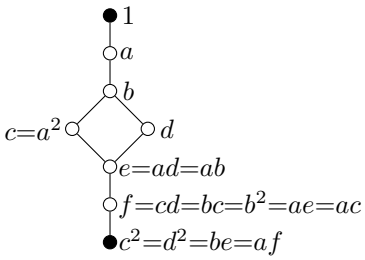
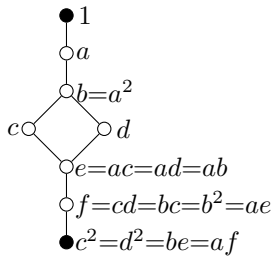


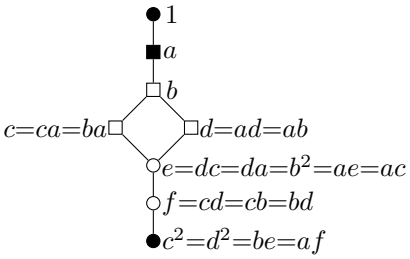
$D^8_{3,4}$



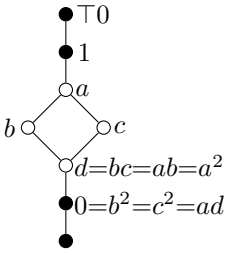
$D^8_{3,5}$



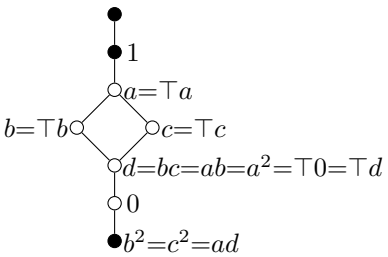
$D^8_{3,6}$



$D^8_{3,7}$



$D^8_{3,8}$



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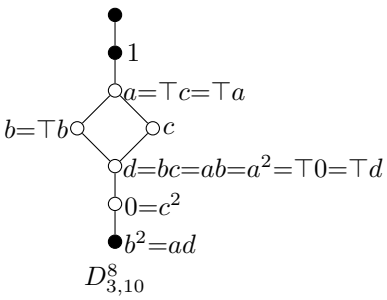
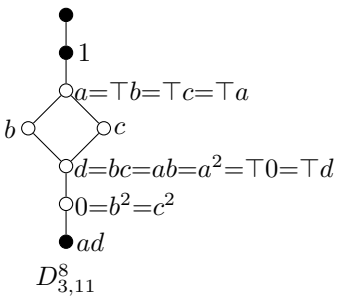
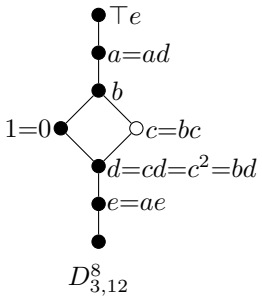


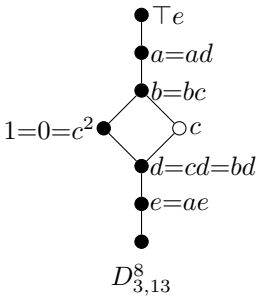
$D^8_{3,10}$



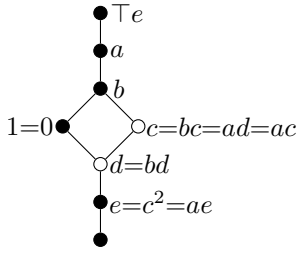
$D^8_{3,11}$



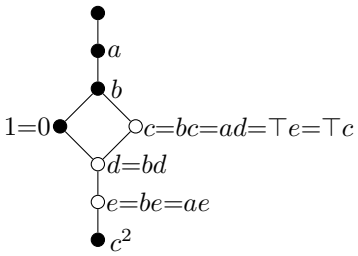
$D^8_{3,12}$



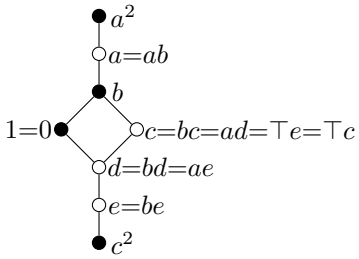
$D^8_{3,13}$



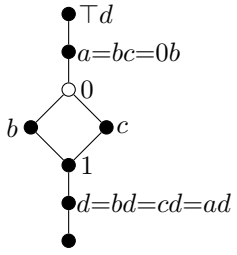
$D^8_{3,14}$



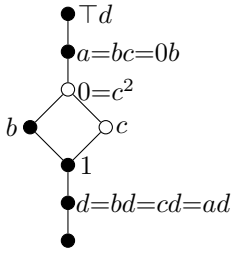
$D^8_{3,15}$



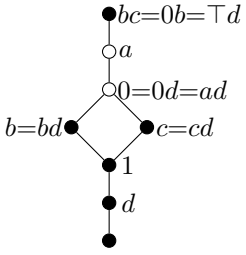
$D^8_{3,16}$



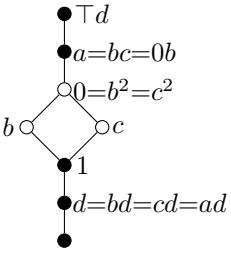
$D^8_{3,17}$



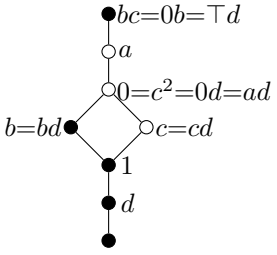
$D^8_{3,18}$



$D^8_{3,19}$



$D^8_{3,20}$



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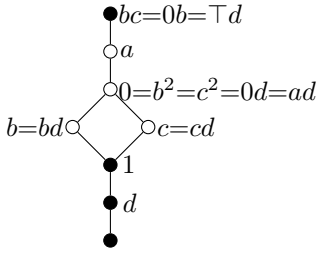

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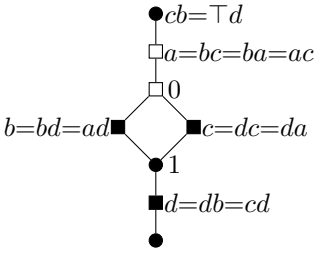

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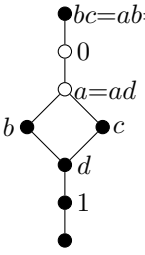
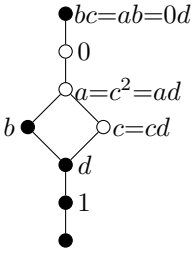
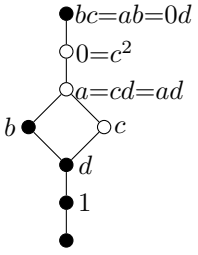


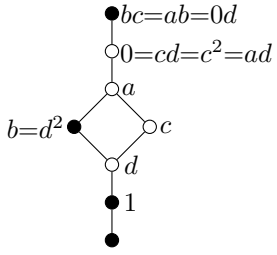
$D^8_{3,24}$



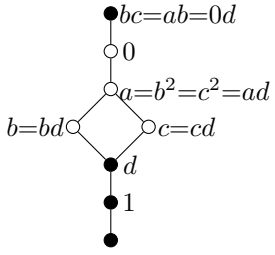
$D^8_{3,25}$



$D^8_{3,26}$



$D^8_{3,27}$



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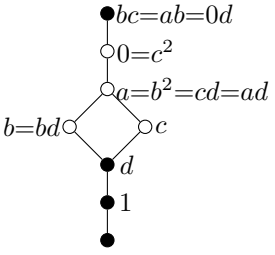
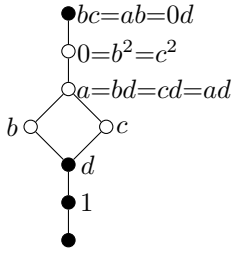
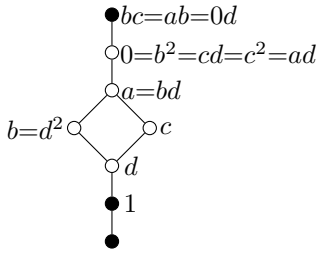


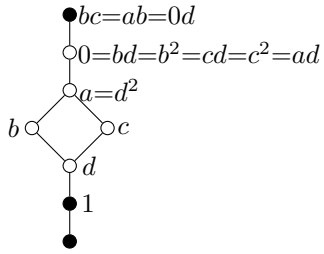
$D^8_{3,29}$



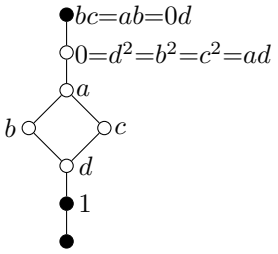
$D^8_{3,30}$



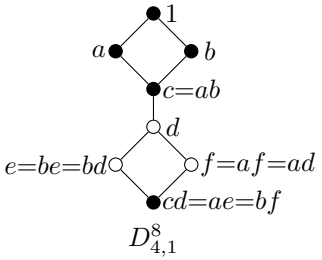
$D^8_{3,31}$



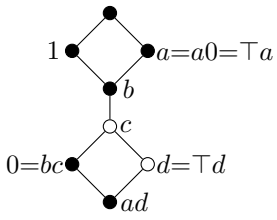
$D^8_{3,32}$



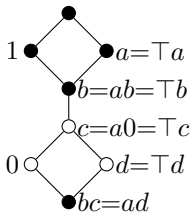
$D^8_{3,33}$



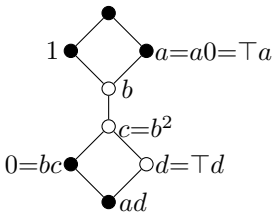
$D^8_{4,1}$



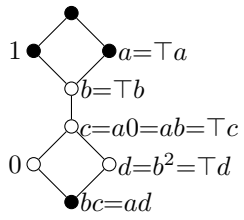
$D^8_{4,2}$



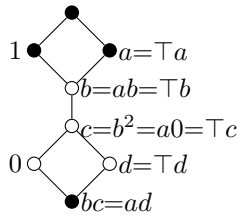
$D^8_{4,3}$



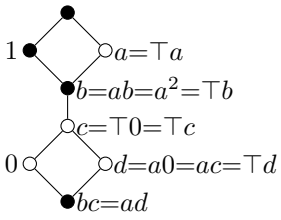
$D^8_{4,4}$



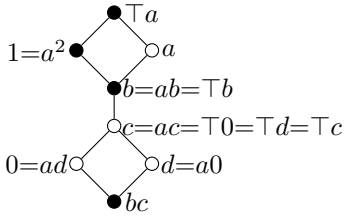
$D^8_{4,5}$



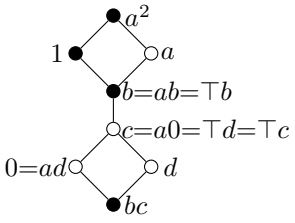
$D^8_{4,6}$



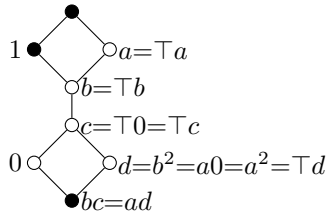
$D^8_{4,7}$



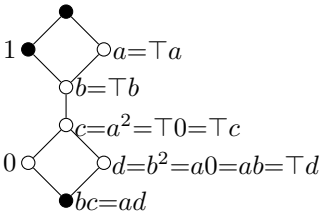
$D^8_{4,8}$



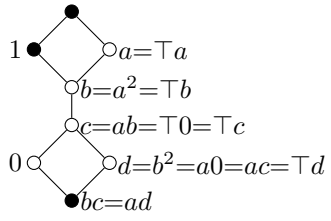
$D^8_{4,9}$



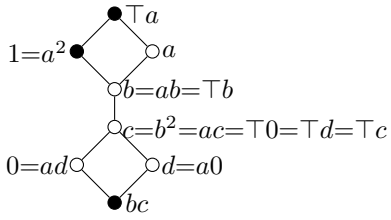
$D^8_{4,10}$



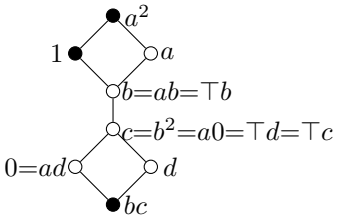
$D^8_{4,11}$



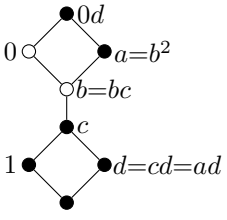
$D^8_{4,12}$



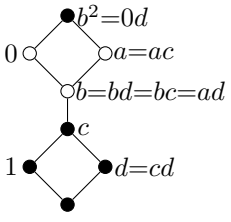
$D^8_{4,13}$



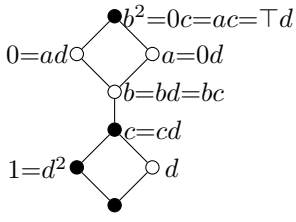
$D^8_{4,14}$



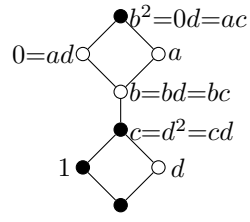
$D^8_{4,15}$



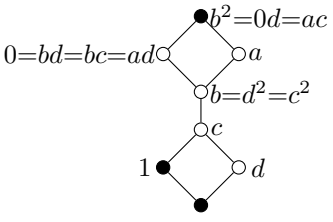
$D^8_{4,16}$



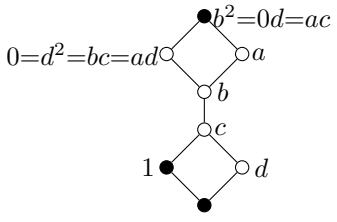
$D^8_{4,17}$



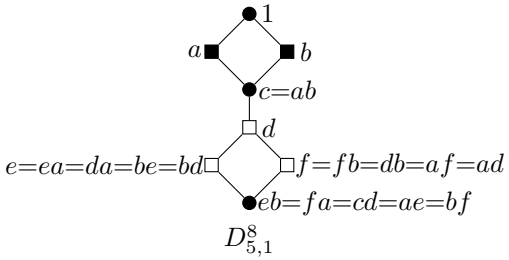
$D^8_{4,18}$



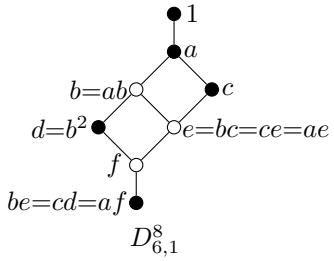
$D^8_{4,19}$



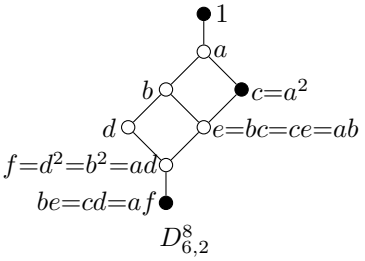
$D^8_{4,20}$



$D^8_{5,1}$



$D^8_{6,1}$



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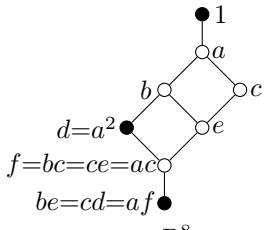

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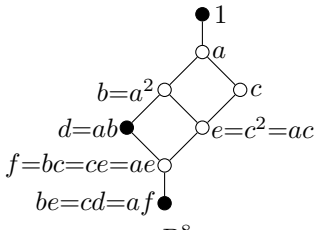
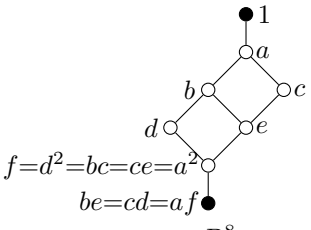
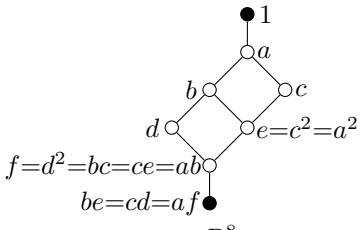


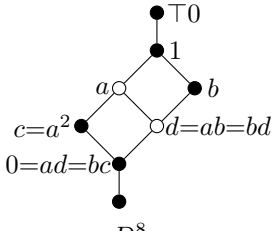
$D^8_{6,4}$



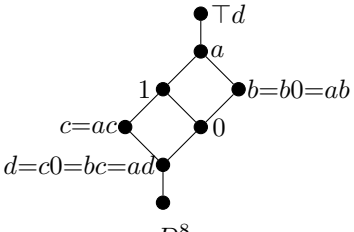
$D^8_{6,5}$



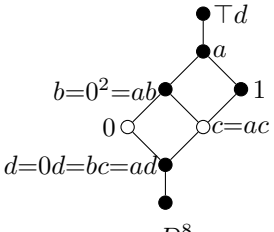
$D^8_{6,6}$



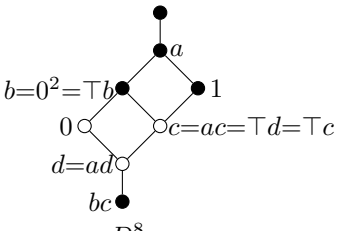
$D^8_{6,7}$



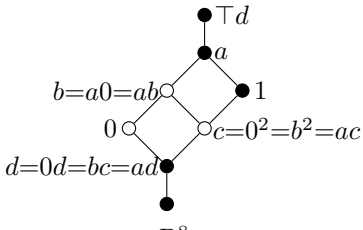
$D^8_{6,8}$



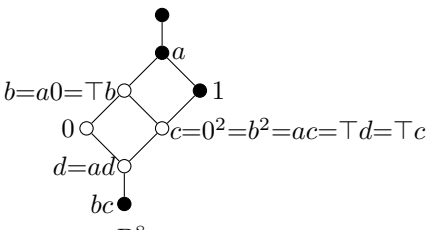
$D^8_{6,9}$



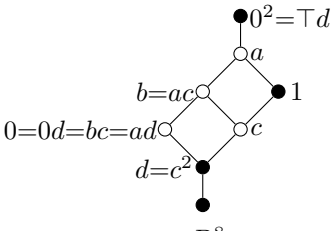
$D^8_{6,10}$



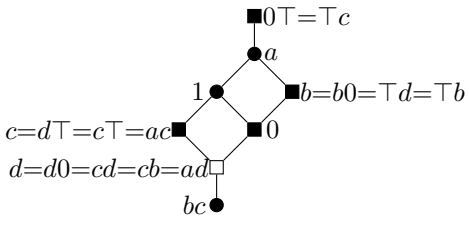
$D^8_{6,11}$



$D^8_{6,12}$



$D^8_{6,13}$



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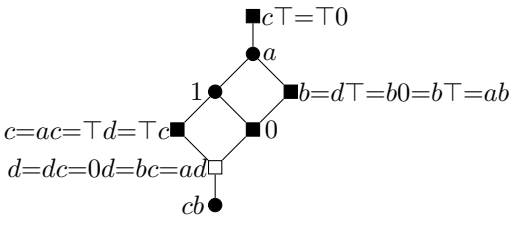

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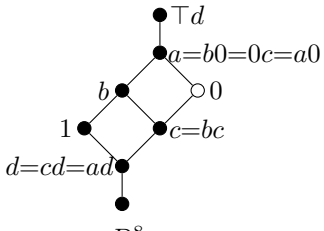

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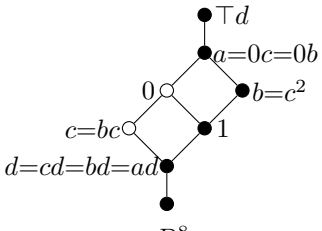

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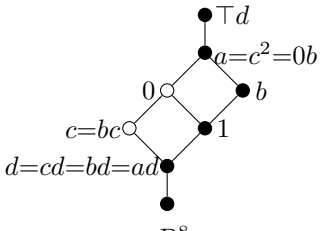
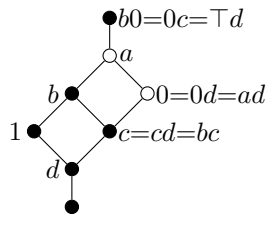
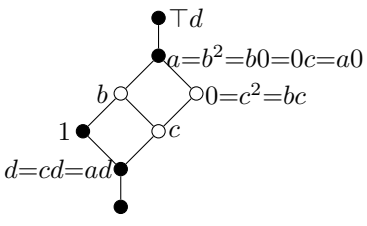


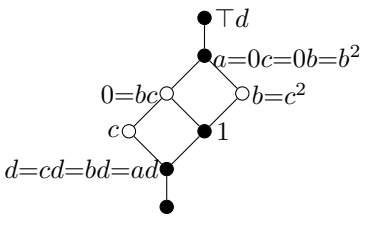
$D^8_{6,18}$



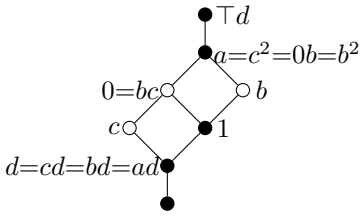
$D^8_{6,19}$



$D^8_{6,20}$



$D^8_{6,21}$



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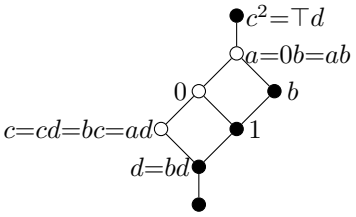

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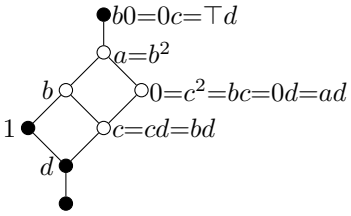
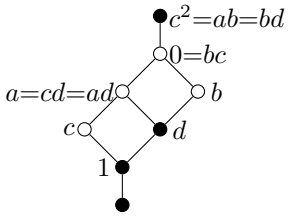


$D^8_{6,24}$



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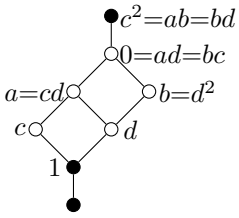

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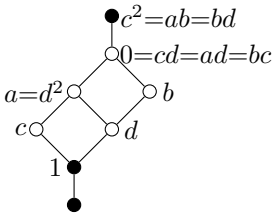

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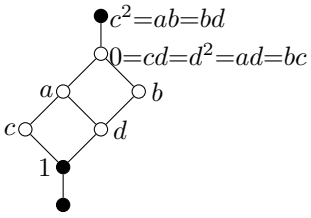

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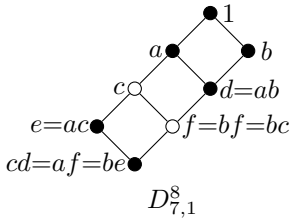

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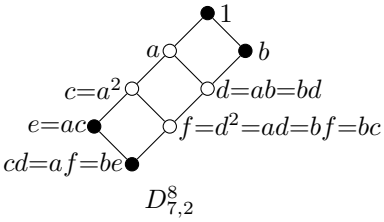
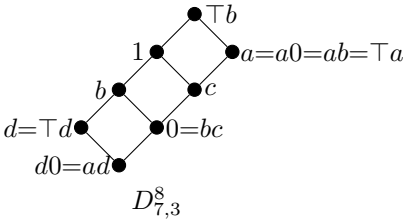
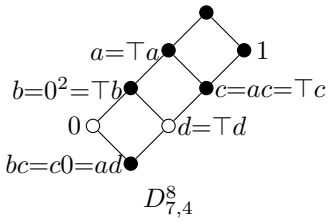


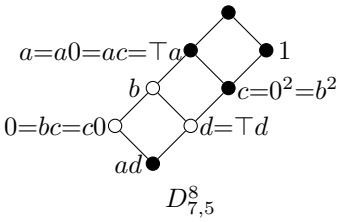
$D^8_{7,2}$



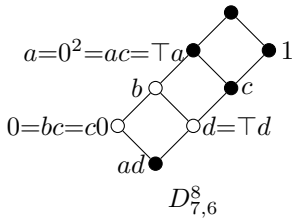
$D^8_{7,3}$



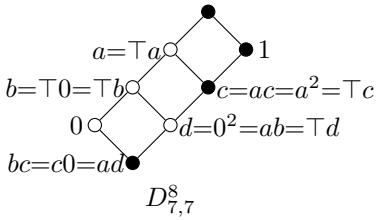
$D^8_{7,4}$



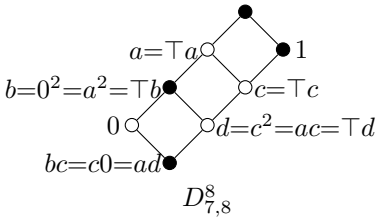
$D^8_{7,5}$



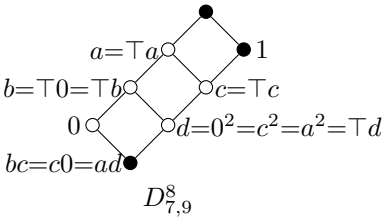
$D^8_{7,6}$



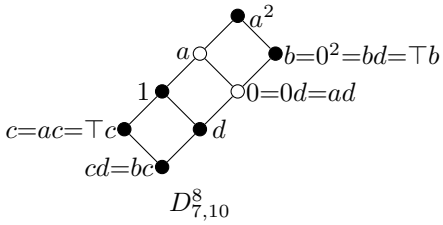
$D^8_{7,7}$



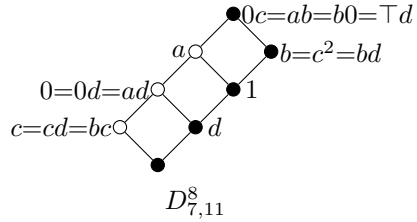
$D^8_{7,8}$



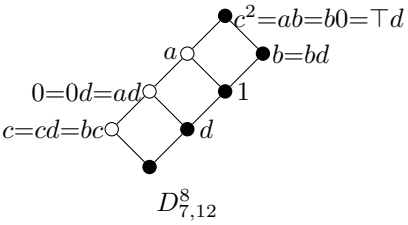
$D^8_{7,9}$



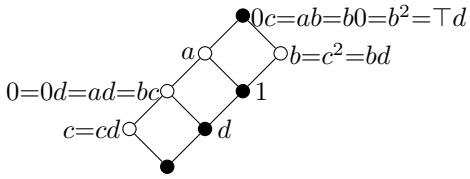
$D^8_{7,10}$



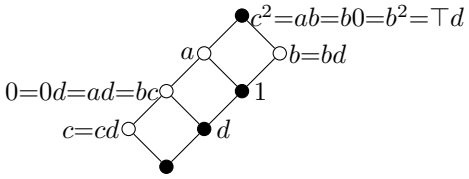
$D^8_{7,11}$



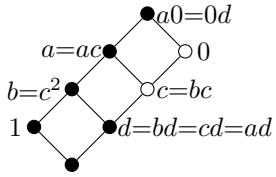
$D^8_{7,12}$



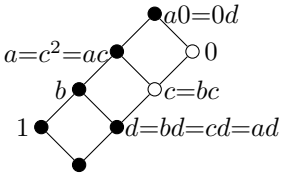
$D^8_{7,13}$



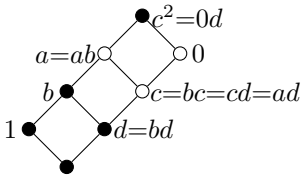
$D^8_{7,14}$



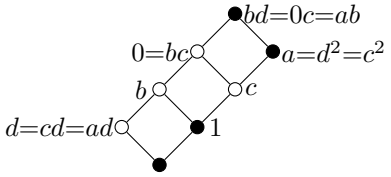
$D^8_{7,15}$



$D^8_{7,16}$



$D^8_{7,17}$



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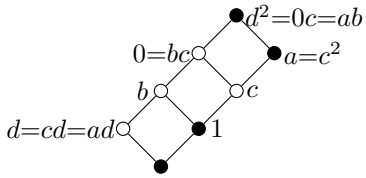
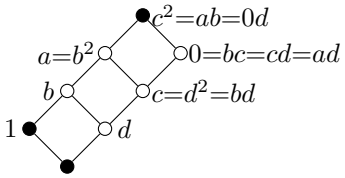
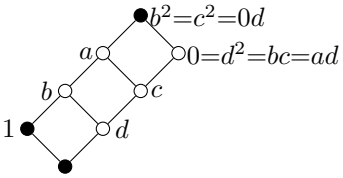


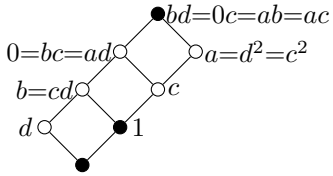
$D^8_{7,19}$



$D^8_{7,20}$



$D^8_{7,21}$



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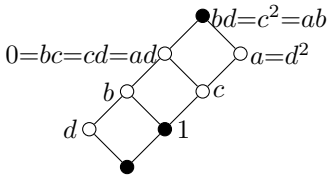
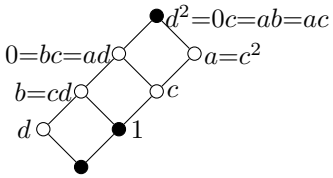
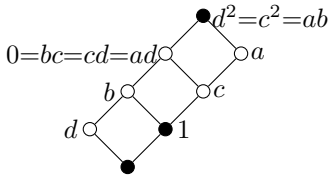


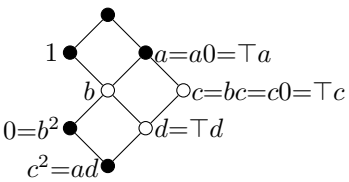
$D^8_{7,23}$



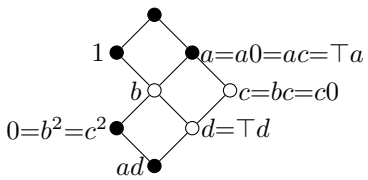
$D^8_{7,24}$



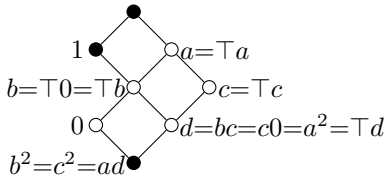
$D^8_{7,25}$



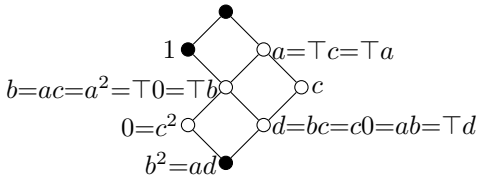
$D^8_{8,1}$



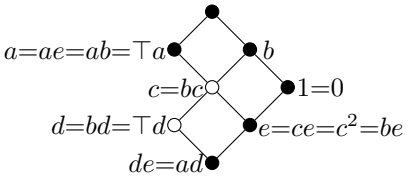
$D^8_{8,2}$



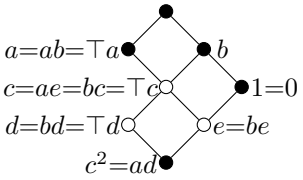
$D^8_{8,3}$



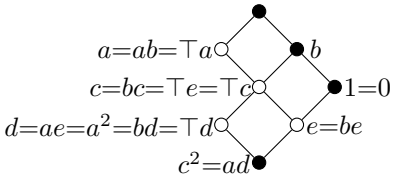
$D^8_{8,4}$



$D^8_{8,5}$



$D^8_{8,6}$



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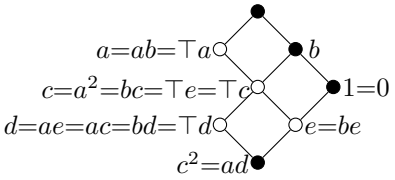
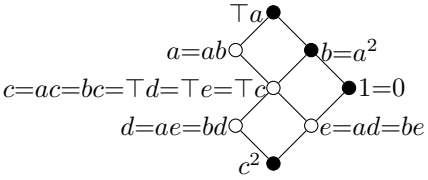
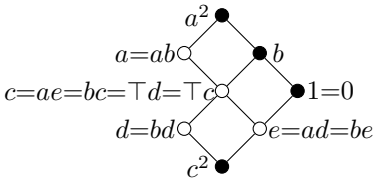


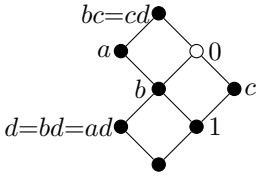
$D^8_{8,8}$



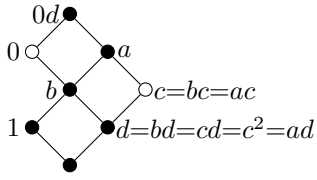
$D^8_{8,9}$



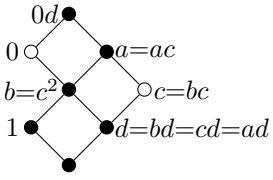
$D^8_{8,10}$



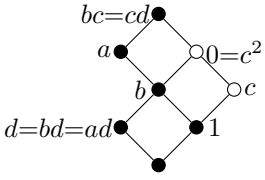
$D^8_{8,11}$



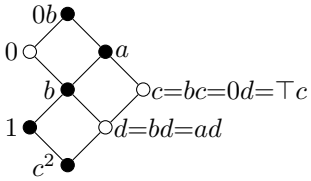
$D^8_{8,12}$



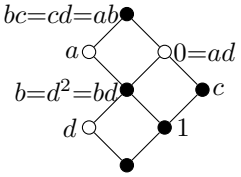
$D^8_{8,13}$



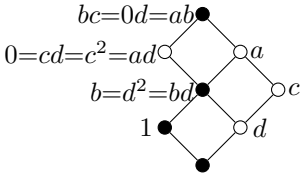
$D^8_{8,14}$



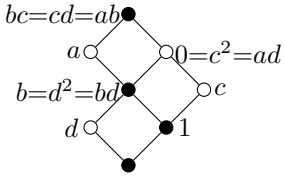
$D^8_{8,15}$



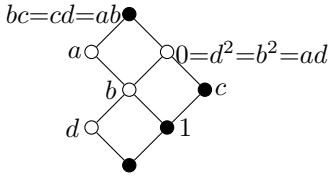
$D^8_{8,16}$



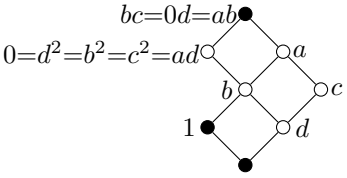
$D^8_{8,17}$



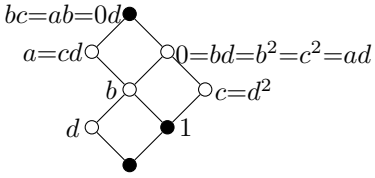
$D^8_{8,18}$



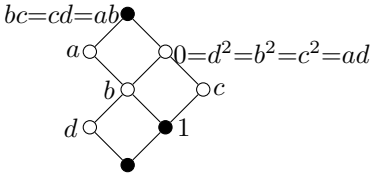
$D^8_{8,19}$



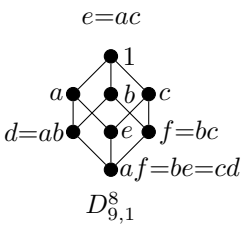
$D^8_{8,20}$



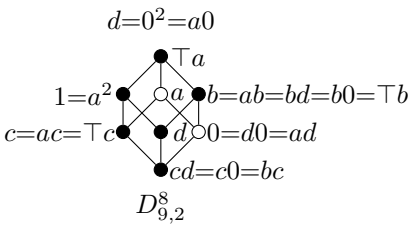
$D^8_{8,21}$



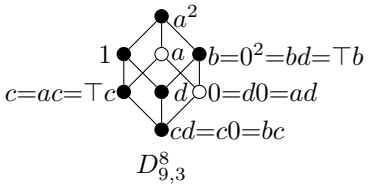
$D^8_{8,22}$



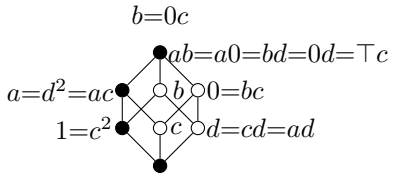
$D^8_{9,1}$



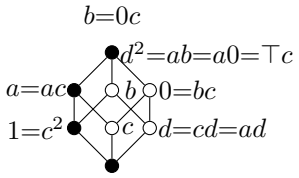
$D^8_{9,2}$



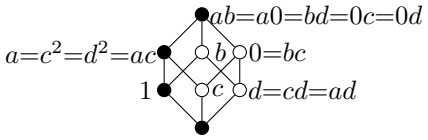
$D^8_{9,3}$



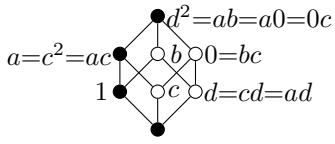
$D^8_{9,4}$



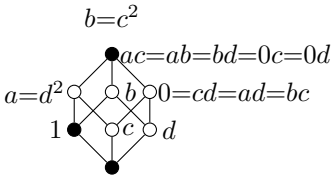
$D^8_{9,5}$



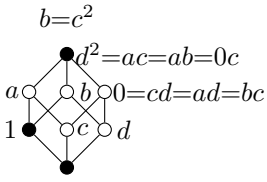
$D^8_{9,6}$



$D^8_{9,7}$



$D^8_{9,8}$



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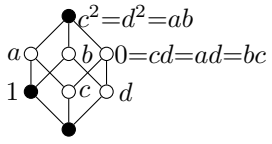
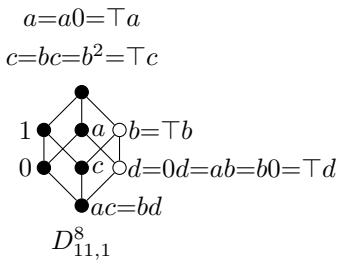
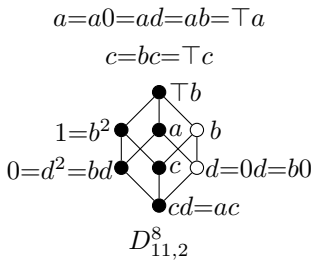


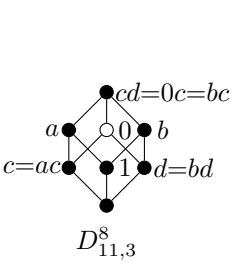
$D^8_{9,10}$



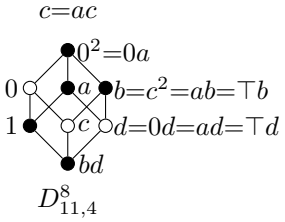
$D^8_{11,1}$



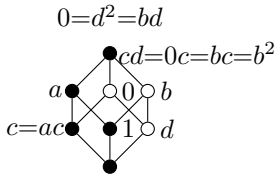
$D^8_{11,2}$



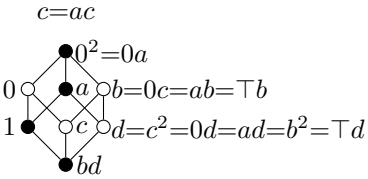
$D^8_{11,3}$



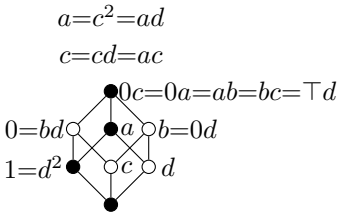
$D^8_{11,4}$



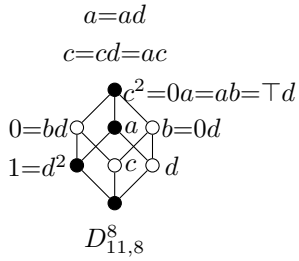
$D^8_{11,5}$



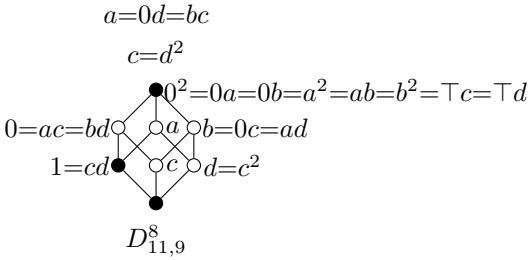
$D^8_{11,6}$



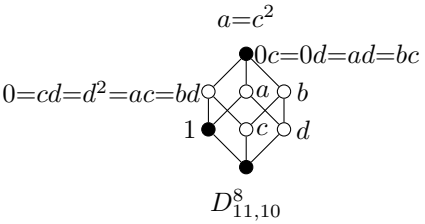
$D^8_{11,7}$



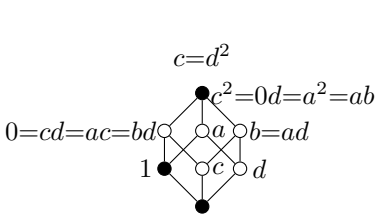
$D^8_{11,8}$



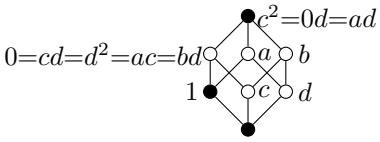
$D^8_{11,9}$



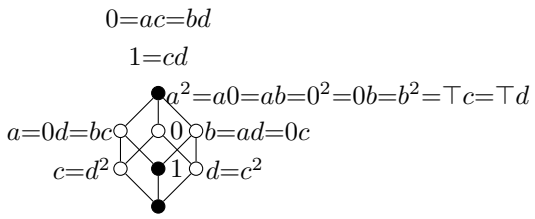
$D^8_{11,10}$



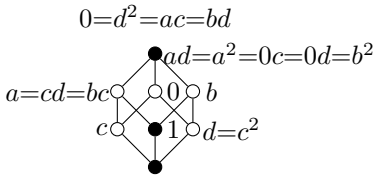
$D^8_{11,11}$



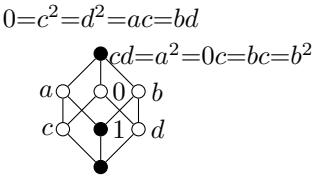
$D^8_{11,12}$



$D^8_{11,13}$



$D^8_{11,14}$



$D^8_{11,15}$