

## 5.272 power

|                     | DESCRIPTION  | LINKS |
|---------------------|--|-------|
| <b>Origin</b>       | [121]  |       |
| <b>Constraint</b>   | <code>power(X, N, Y)</code>  |       |
| <b>Synonym</b>      | <code>xexpyeqz</code> .  |       |
| <b>Arguments</b>    | X : <code>dvar</code><br>N : <code>dvar</code><br>Y : <code>dvar</code>  |       |
| <b>Restrictions</b> | $X \geq 0$<br>$N \geq 0$<br>$Y \geq 0$   |       |
| <b>Purpose</b>      | Enforce the fact that Y is equal to $X^N$ .  |       |
| <b>Example</b>      | (2, 3, 8)  |       |
|                     | The power constraint holds since 8 is equal to $2^3$ .   |       |
| <b>Algorithm</b>    | In [121] a filtering algorithm for the <code>power</code> constraint was automatically derived from the algorithm that multiplies X by itself N times by using constructive disjunction and <a href="#">abstract interpretation</a> in order to approximate the behaviour of the while loop of that algorithm. |       |
| <b>Systems</b>      | <code>xexpyeqz</code> in <b>JaCoP</b> .  |       |
| <b>See also</b>     | <b>common keyword:</b> <code>gcd</code> ( <a href="#">abstract interpretation</a> ).   |       |
| <b>Keywords</b>     | <b>constraint arguments:</b> ternary constraint.<br><b>constraint type:</b> arithmetic constraint, predefined constraint.<br><b>filtering:</b> abstract interpretation.  |       |

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