

# Algebraic Division Algorithm

## Algorithm

```
AlgebraicDivision( A, D ) { /* divide D into A */  
  for ( each cube d in divisor D ) {  
    let C = { cubes in A that contain this product term "d" };  
    if ( C is empty ) {  
      return ( quotient = 0, remainder = A );  
    }  
    let C = cross out literals of cube "d" in each cube of C;  
    if ( d is the first cube we have looked at in divisor D )  
      let Q = C;  
      else Q = Q  $\cap$  C; bugfix  
  }  
  R = A - ( Q * B );  
  return ( quotient = Q, remainder = R )  
}
```

bugfix



Example:  
Cube  $xyzw$  contains  
product term "yz"



Example:  
Suppose  $C = xyz + yzw + pqyz$   
and  $d = "xy"$ . Then crossing  
out all the "xy" parts yields  
 $z + y + pq$