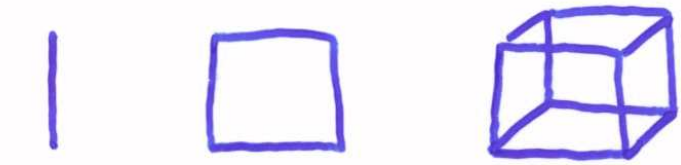
JOE CHAVEZ

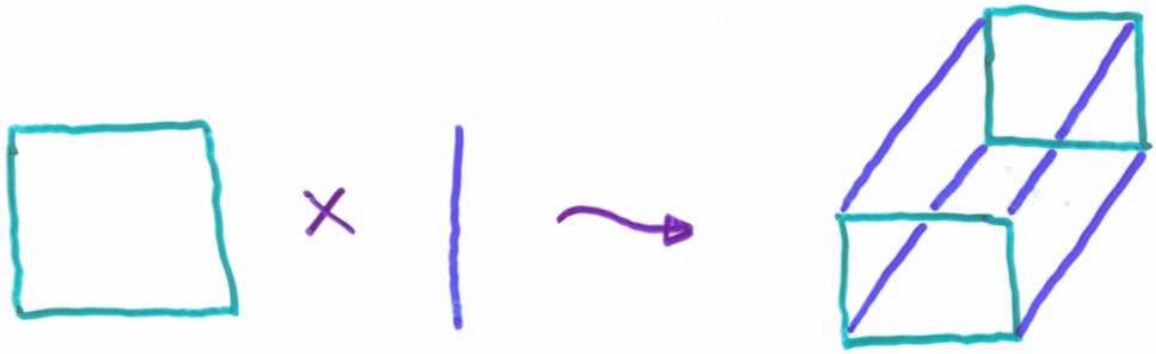


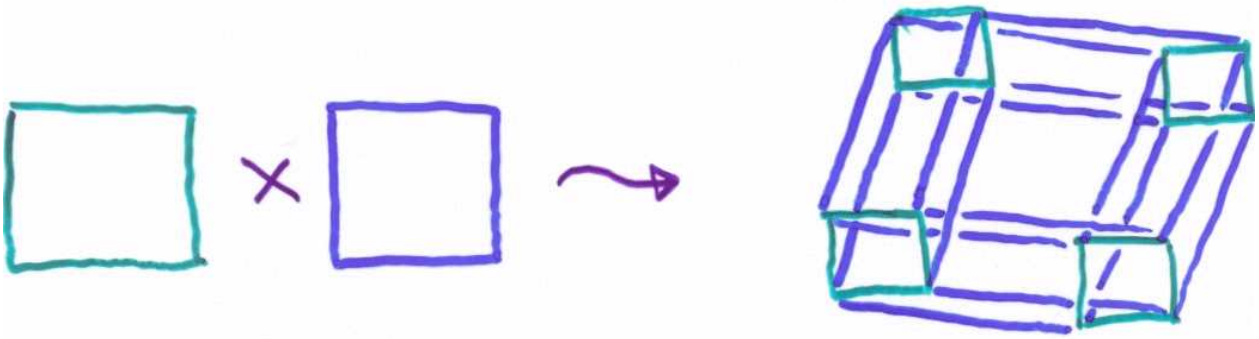
	Q_1	Q_2	Q_3	Q_4	Q_n
f_0	2	4	8		
f_1	1	4	12		
f_2		1	6		
f_3			1		
f_4					

PROBLEM

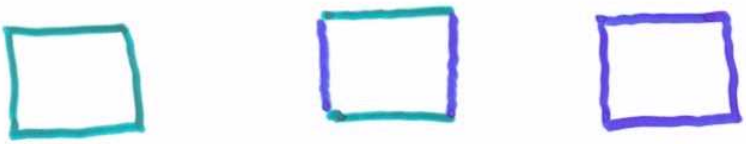
- FIND THE f-VECTOR FOR Q_4
- GENERALIZE TO Q_n ?

PRODUCTS OF GRAPHS





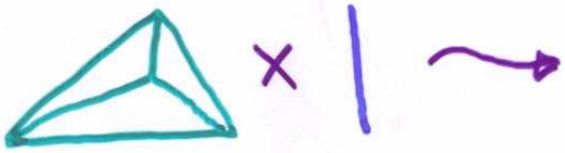
TYPES OF Q_2's IN Q_4



4 16 4

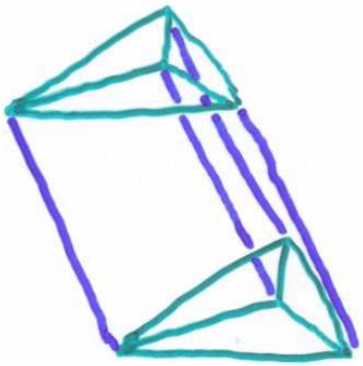
$f_2 \cdot f_0$ $f_1 \cdot f_1$ $f_0 \cdot f_2$

Q: True for other Products?



$f_0 = 4$
$f_1 = 6$
$f_2 = 4$
$f_3 = 1$

$f_0 = 2$
$f_1 = 1$



$$\text{2-FACES} = f_1 \cdot f_1 + f_2 \cdot f_0$$
$$= 6 \cdot 1 + 4 \cdot 2$$
$$= 14$$

- Given G and its f-vector, let $g(x) = f_0 + f_1 x + f_2 x^2 + \ldots$

Claim

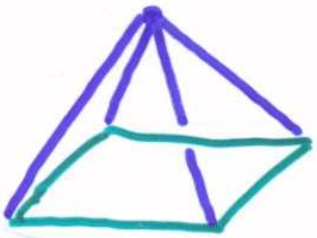
Let G, H be graphs with associated generating functions $g(x)$ and $h(x)$. Then $G \times H$ has associated generating function $g(x) \cdot h(x)$.

Extensions / Questions

- What if graphs are non-planar?

Ex K_5

- Variations on combining graphs?



$f_0 = 4$ $f_1 = 4$ $f_2 = 1$

$f_0 = 5$ $f_1 = 8$ $f_2 = 5$ $f_3 = 1$

$$h(x) = (1+x)g(x) + 1$$

- Are f-vectors of product graphs unimodal?