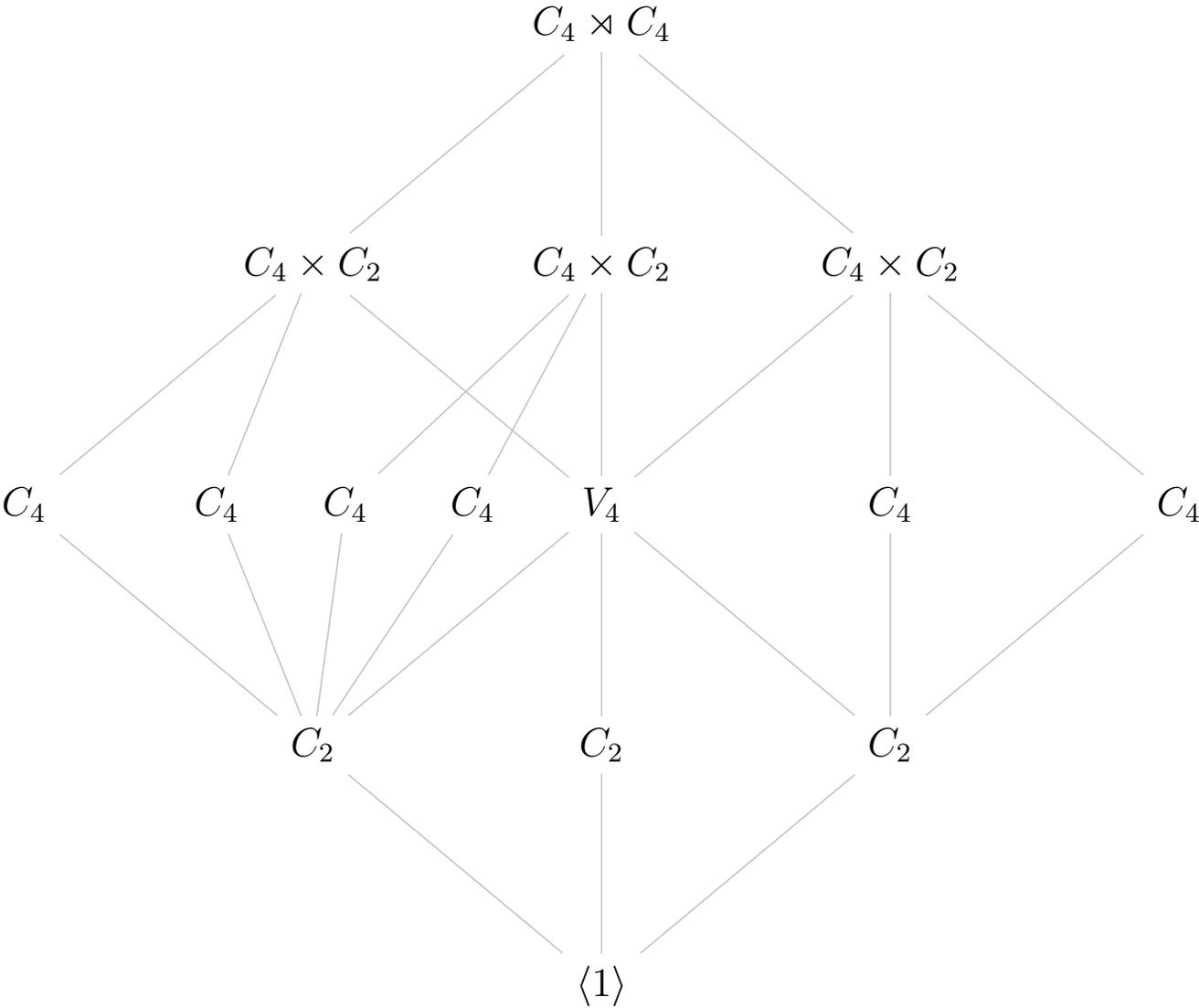# Scratch paper for Math 8510, HW 7
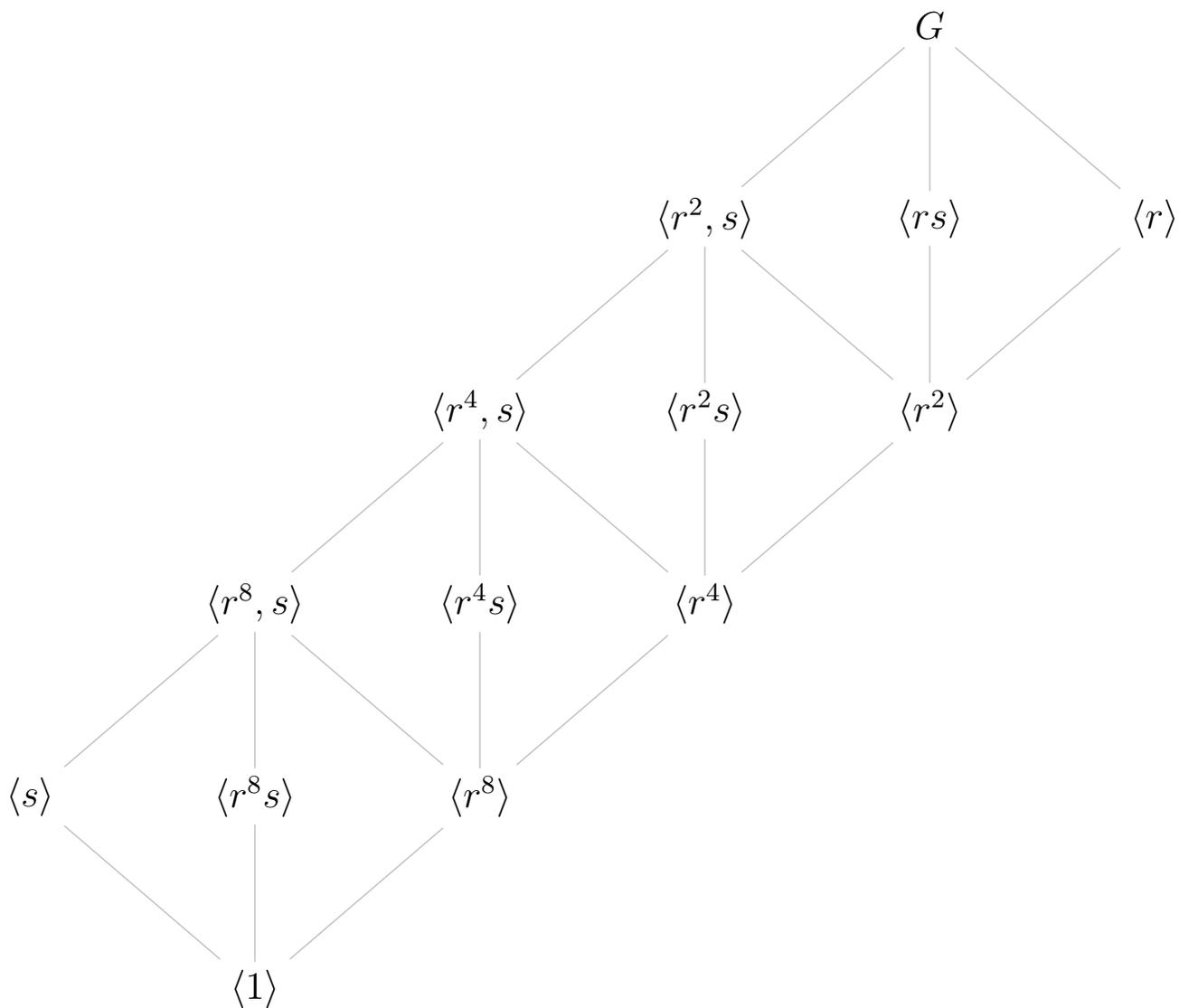
#1(a): The chutes and ladders diagram of the group $C_4 \rtimes C_4$.

$$C_4 \rtimes C_4$$

$$C_4 \times C_2 \qquad C_4 \times C_2 \qquad C_4 \times C_2$$

$$C_4 \qquad C_4 \qquad C_4 \qquad C_4 \qquad V_4 \qquad C_4 \qquad C_4$$

$$C_2 \qquad C_2 \qquad C_2$$

$$\langle 1 \rangle$$

#1(a): The chutes and ladders diagram of the diquaternion group DQ_8.

$$DQ_8$$

$$C_4 \times C_2 \qquad D_4 \qquad C_4 \times C_2 \qquad D_4 \qquad C_4 \times C_2 \qquad D_4 \qquad Q_8$$

$$V_4 \qquad V_4 \qquad V_4 \qquad C_4 \qquad C_4 \qquad C_4 \qquad C_4$$

$$C_2 \quad C_2 \quad C_2 \quad C_2 \quad C_2 \quad C_2 \qquad\qquad C_2$$

$$C_1$$
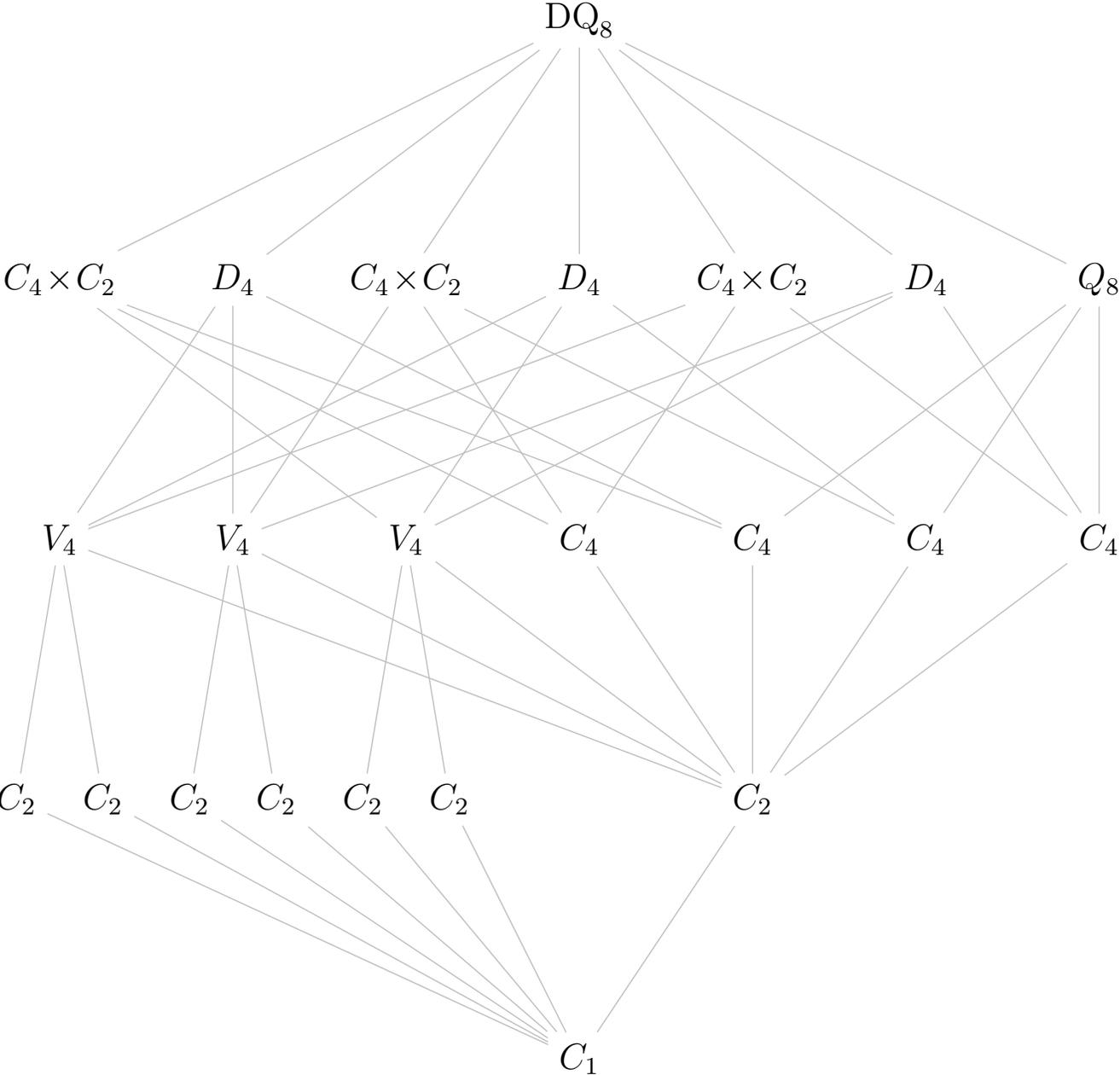
#1(a): The chutes and ladders diagram of the semiabelian group SA_{16}.

G

$\langle r^2, s \rangle$ $\langle rs \rangle$ $\langle r \rangle$

$\langle r^4, s \rangle$ $\langle r^2 s \rangle$ $\langle r^2 \rangle$

$\langle r^8, s \rangle$ $\langle r^4 s \rangle$ $\langle r^4 \rangle$

$\langle s \rangle$ $\langle r^8 s \rangle$ $\langle r^8 \rangle$

$\langle 1 \rangle$

#1(a): Chutes and ladders diagram of the generalized quaternion group Q_{32}.

$$Q_{32}$$

$$\langle r^2, s\rangle \qquad \langle r\rangle \qquad \langle r^2, rs\rangle$$

$$\langle r^4, s\rangle \qquad \langle r^4, r^2s\rangle \qquad \langle r^2\rangle \qquad \langle r^4, rs\rangle \qquad \langle r^4, r^3s\rangle$$

$$\langle s\rangle \quad \langle r^4s\rangle \quad \langle r^2s\rangle \quad \langle r^6s\rangle \quad \langle r^4\rangle \quad \langle rs\rangle \quad \langle r^5s\rangle \quad \langle r^3s\rangle \quad \langle r^7s\rangle$$

$$\langle r^8\rangle$$

$$\langle 1\rangle$$

#1(a): Chutes and ladders diagram of the generalized quaternion group Q_{64}.

Q_{64}

Q_{32} C_{32} Q_{32}

$_2Q_{16}$ C_{16} $_2Q_{16}$

$_4Q_8$ C_8 $_4Q_8$

$_8C_4$ C_4 $_8C_4$

C_2

C_1