Quiz #8. A compound truss is loaded as shown. Determine the forces in members *EF*, *DE*, and *GJ*.

10.5 kN

4 m   4 m   4 m

C   D   42 kN

3 m
B
2.6 kN   H   J   E

5 m
G
A   F

10.5 kN

F_{CD}
K•   D   42 kN
F_{CI} I   4
                3
F_{BH}
H   J   E
F_{AB}
G F_{EF}
A F_{FG} F_{FJ}
A_y
②
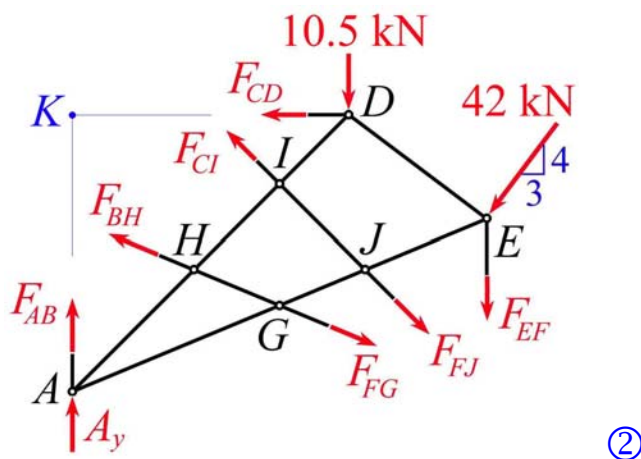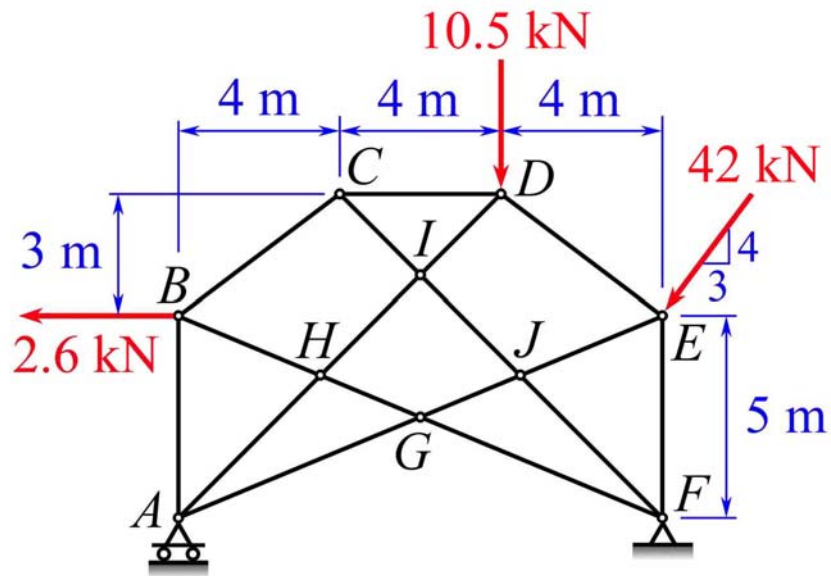
By *X-joint properties* and *rigid-body principle*, we may neglect the pair of forces F_{BH} and F_{FG},

as well as the pair of forces F_{CI} and F_{FJ}, in the *FBD*. ①

$F_{EF} = 46.9$ kN (C) ②

F_{DE} 42 kN
        4
3   3
        5   E
F_{EJ} 12
            ↑46.9 kN   ①
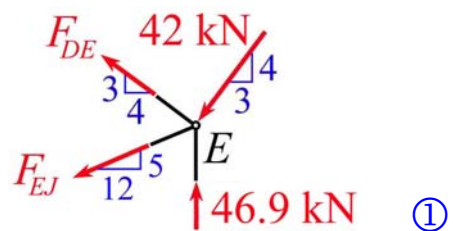
$F_{DE} = 25.5$ kN (C) ②

$F_{GJ} = F_{EJ}$

$F_{GJ} = 5.2$ kN (C) ②