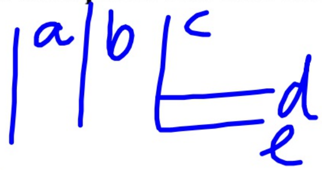
a, b, c, d, and e are distinct lines in the same plane. For each combination of relationships between the lines, how are a and e related?

1. $a \parallel b,\ b \parallel c,\ c \perp d,\ d \parallel e$

$a \perp e$



2. $a \perp b,\ b \parallel c,\ c \parallel d,\ d \perp e$

$a \parallel e$

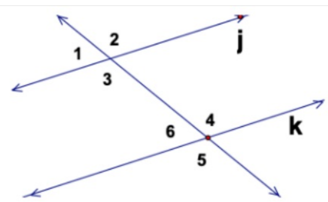
3. $a \parallel b,\ b \parallel c,\ c \perp d,\ d \perp e$

$a \parallel e$

4. $a \perp b,\ b \perp c,\ c \parallel d,\ d \perp e$

$a \perp e$

5. Use the diagram at the right:



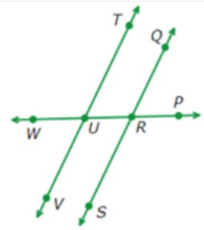
Given: $j \parallel k$

Prove: $\angle 3 \cong \angle 4$

Statements	Justifications
1. $j \parallel k$	Given
2. $\angle 3 \cong \angle 2$	2. Vert. Angles are $\cong$
3. $\angle 2 \cong \angle 4$	3. corresp. $\angle$'s are $\cong$.
4. $\angle 3 \cong \angle 4$.	4. Subst.

6. Use the diagram at the right:

Given: $\angle SRU$ and $\angle RUV$ are supplementary.
Prove: $\overleftrightarrow{QS} \parallel \overleftrightarrow{TV}$



Statements	Justifications
∠SRU and ∠RUV suppl.	Given
SRU + RUV = 180	Definition of supplementary angles
$m\angle PRS + m\angle SRU = 180°$	Adj angles = 180
SRU + RUV = PRS + SRU	Transitive Property
$m\angle RUV = m\angle PRS$	Algebra
QS ∥ TV	Corresponding angles are congruent