

Congruent triangle proofs

1

LN is common

$KL = MN$ (Opposites sides of a parallelogram)

$\angle KLN = \angle LNM$ (Alternate angles in parallel lines)

$\triangle NKL \equiv \triangle LMN$ (SAS)

2

a No solution provided

c No solution provided

e No solution provided

g No solution provided

b No solution provided

d No solution provided

f No solution provided

h No solution provided

3

a No solution provided

b

i DF

ii CB

4

a No solution provided

b

i PN

ii LM

5

a No solution provided

b

i $\angle CDB$

ii $\angle DAB$

6

a No solution provided

b

i $\angle RQS$

ii $\angle SQP$

7

a No solution provided

b

i $\angle CDB$

ii $\angle BAD$

8

a No solution provided

b

i $\angle POQ$

ii $\angle ONM$

9

a No solution provided

b

i BE

ii DE

- c** **i** $\angle ADE$ **ii** $\angle CBE$ **d** Vertically opposite angles are equal.

10

- a** No solution provided **b** Yes, they satisfy SSS.

11

- a** No solution provided
b $\angle GFE = \angle DHE$ and $\angle FGE = \angle HDE$ so alternate angles are equal, which means $FG \parallel HD$.

12

- a** No solution provided
b $PQ = PS$ so two sides of $\triangle PQS$ are equal.