

Sample Questions on Stairs

Read sheet fully and answer each question in order of choice.

Remember to show all that you know when answering each question. Sketches may be used to support your answer.

Q1. Briefly describe any **three** of the of the following stair terms:

Newel Post	The post at the junction of a flight of stairs with a landing or at the lower end of a string. Typically used to support the handrails.
Balustrade	The guarding to the side of a stairs – this is a combination of the balusters/spindles, together with handrail and newels.
Pitch	The angle formed by the stairs from the horizontal.
Tread	The horizontal member of the step. (Where the foot is placed)

Q2. State **five** of the Building Regulations as they apply to a private stairs.

Regulation	Private
Pitch (degrees)	42 degrees max
Headroom	2 metres min.
Rise	220 mm max
Going	220 mm min.
Twice rise plus going (2R + G)	550 – 700 mm
Width (unobstructed)	800 mm min.
Handrail height(wall)	900 – 1000 mm
Handrail height(flight)	900 – 1000 mm
Handrail height(landing)	900 – 1100 mm

The rises and goings should all be the same in any one flight.

There should be no more than 16 risers in any one flight.

A sphere of 100mm diameter should not be able to pass through any point of the stairs.

If the width of the stairs exceeds 1m a second handrail is required.

Landing should be at least as great as the width of the stairs.

Top and bottom of stairs should be at least 400mm clear of door openings.

Q3. Select a suitable going to comply with the $2R + G$ formula of a private stairs with a total rise of 2450mm. An optimum rise of 175mm is supplied. Show all calculations.

Model Answer, correct method should prove whatever figures used.

2450 divided by 175 = 14 (14 risers needed 13 threads formula $2R + G = 550 - 700\text{mm}$)

$175 + 175 = 350\text{mm}$ Mid point 625

$625 - 350 = 275$ going

(Recheck formula $175 + 175 + 275 = 625\text{mm}$ within regulations)

(Also check the pitch is less than 42°)

Tan A = $\frac{\text{Rise}}{\text{Going}}$

Tan A = $\frac{175}{275}$

Tan A = 0.6363

A = $\tan^{-1} 0.6363$

A = 32.47°

Q4. What is the minimum distance for the top/bottom of stairs to be clear of any openings?

400mm

Q5. A sphere of xxxx mm diameter should not be able to pass through any point of the stairs.

100mm

Q6. What is the Maximum amount of risers allowed in any one flight?

16 Risers

Q7. Select a suitable going to comply with the $2R + G$ formula of a private stairs with a total rise of 2340mm. An optimum rise of 180mm is supplied.

Model Answer, correct method should prove whatever figures used.

2340 divided by 180 = 13

(13 risers needed 12 threads formula $2R + G = 550 - 700\text{mm}$)

$180 + 180 = 360\text{mm}$ Mid point = 625mm

$625 - 360 = 265$ going

(Recheck formula $180 + 180 + 265 = 625\text{mm}$ within regulations)

(Also check the pitch is less than 42°)

Tan A = $\frac{\text{Rise}}{\text{Going}}$

Tan A = $\frac{180}{265}$

Tan A = 0.6792

A = $\tan^{-1} 0.6792$

A = 34.18°

Q8. Briefly describe any **three** of the of the following stair terms:

Pitch Line	A line connecting the junctions (at the nosing) of all the risers and treads in any one flight
Strings	Wall or outer string, the ends of the steps are housed or fixed into them.
Headroom	The distance, measured vertically above the nosing line, between the nosing line and any ceiling or bulkhead above it.
Flight	A series of steps without a landing.

Q8. What figure is given for the Maximum Pitch allowed on a Domestic Stairs.

42 Degrees Max.

Q9. What figure is given for the handrail height on a Private Stairs.

900- 1000mm