FOUNDATION & HIGHER

SAME AT BOTH TIERS

Name ..... Class .....

G12: 3D shapes

Faces, surfaces, edges and vertices of 3D solids

20 marks · 25 minutes · Non-calculator

1) Fill in the table.

Solid	Faces	Edges	Vertices
Cube			
Triangular prism			
Square-based pyramid			
Tetrahedron			

[Question 1: 4 marks]

2) Name the solid.

(a) It has one flat circular face, one curved surface and one vertex.

.....

(1)

(b) It has two flat circular faces and one curved surface.

.....

(1)

(c) It has one curved surface and no edges.

.....

(1)

[Question 2: 3 marks]

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3) Find the number of faces, edges and vertices of a pentagonal prism.

..... faces ..... edges ..... vertices

[Question 3: 3 marks]

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4) For any solid with flat faces, $F + V - E = 2$. A solid has 8 faces and 12 vertices. How many edges does it have?

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[Question 4: 2 marks]

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5) Find the number of faces, edges and vertices of a hexagonal pyramid.

..... faces ..... edges ..... vertices

[Question 5: 3 marks]

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6) Name the solid with six rectangular faces.

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[Question 6: 1 marks]

7) How many edges does an octagonal prism have?

.....

[Question 7: 1 marks]

8) A prism has 18 edges. How many sides does its cross-section have?

.....

[Question 8: 2 marks]

9) How many vertices does a cone have?

.....

[Question 9: 1 marks]

End of paper – 20 marks in total

Answers and brief mark scheme

Q	Answer	Method / notes
1	Cube 6, 12, 8; triangular prism 5, 9, 6; square-based pyramid 5, 8, 5; tetrahedron 4, 6, 4	B1 for each correct row.
2	(a) cone (b) cylinder (c) sphere	B1 each.
3	7 faces, 15 edges, 10 vertices	B1 each.
4	18	$8 + 12 - E = 2$ (M1); A1.
5	7 faces, 12 edges, 7 vertices	B1 each.
6	cuboid	B1.
7	24	B1.
8	6	$3n = 18$ (M1); A1.
9	1	B1.