2.96 Nets and 3D Shape Reasoning: 30-minute Pack

GL ASSESSMENT GL-11PLUS-MATHS · Calculators not allowed · about 30 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 A polyhedron has 8 vertices and 12 edges. Use Euler's formula to work out how many faces it has.

(3)

---

2 How many faces does a octagonal-based pyramid have?

- ☐ A) 9
- ☐ B) 8
- ☐ C) 16
- ☐ D) 10
- ☐ E) 90

---

3 How many edges does a heptagonal-based prism have?

- ☐ A) 9
- ☐ B) 7
- ☐ C) 14
- ☐ D) 20
- ☐ E) 21

---

4 How many edges does a pentagonal-based pyramid have?

- ☐ A) 6
- ☐ B) 11
- ☐ C) 9
- ☐ D) 5
- ☐ E) 10

© Revision Library | revisionlibrary.co.uk

5 How many vertices does a heptagonal-based pyramid have?

- [ ] A) 8
- [ ] B) 80
- [ ] C) 9
- [ ] D) 7
- [ ] E) 14

---

6 How many vertices does a hexagonal-based pyramid have?

- [ ] A) 70
- [ ] B) 6
- [ ] C) 12
- [ ] D) 8
- [ ] E) 7

---

7 How many vertices does a pentagonal-based pyramid have?

- [ ] A) 5
- [ ] B) 60
- [ ] C) 6
- [ ] D) 7
- [ ] E) 10

---

8 How many edges does a hexagonal-based prism have?

- [ ] A) 12
- [ ] B) 17
- [ ] C) 6
- [ ] D) 18
- [ ] E) 8

---

9 How many faces does a hexagonal-based pyramid have?

- [ ] A) 7
- [ ] B) 8
- [ ] C) 6
- [ ] D) 70
- [ ] E) 12

© Revision Library | revisionlibrary.co.uk

10 How many edges does a triangular-based prism have?

- [ ] A) 8
- [ ] B) 6
- [ ] C) 9
- [ ] D) 5
- [ ] E) 4

---

11 How many vertices does a pentagonal-based prism have?

- [ ] A) 10
- [ ] B) 6
- [ ] C) 15
- [ ] D) 7
- [ ] E) 11

---

12 How many edges does a octagonal-based prism have?

- [ ] A) 16
- [ ] B) 24
- [ ] C) 23
- [ ] D) 8
- [ ] E) 10

---

13 How many faces does a pentagonal-based prism have?

- [ ] A) 8
- [ ] B) 5
- [ ] C) 15
- [ ] D) 7
- [ ] E) 10

---

14 How many edges does a square-based pyramid have?

- [ ] A) 4
- [ ] B) 9
- [ ] C) 7
- [ ] D) 5
- [ ] E) 8

© Revision Library | revisionlibrary.co.uk

15 How many edges does a octagonal-based pyramid have?

- ☐ A) 17
- ☐ B) 16
- ☐ C) 15
- ☐ D) 8
- ☐ E) 9

---

16 How many faces does a square-based prism have?

- ☐ A) 4
- ☐ B) 7
- ☐ C) 8
- ☐ D) 6
- ☐ E) 12

---

17 How many faces does a square-based pyramid have?

- ☐ A) 4
- ☐ B) 6
- ☐ C) 5
- ☐ D) 8
- ☐ E) 50

---

18 How many edges does a hexagonal-based pyramid have?

- ☐ A) 12
- ☐ B) 6
- ☐ C) 7
- ☐ D) 11
- ☐ E) 13

---

19 How many vertices does a heptagonal-based prism have?

- ☐ A) 13
- ☐ B) 8
- ☐ C) 21
- ☐ D) 9
- ☐ E) 14

© Revision Library | revisionlibrary.co.uk

20 How many vertices does a triangular-based pyramid have?

- ☐ A) 3
- ☐ B) 40
- ☐ C) 6
- ☐ D) 4
- ☐ E) 5

---

21 How many faces does a triangular-based prism have?

- ☐ A) 9
- ☐ B) 4
- ☐ C) 5
- ☐ D) 3
- ☐ E) 6

---

22 How many edges does a triangular-based pyramid have?

- ☐ A) 7
- ☐ B) 5
- ☐ C) 4
- ☐ D) 3
- ☐ E) 6

---

23 How many vertices does a triangular-based prism have?

- ☐ A) 6
- ☐ B) 7
- ☐ C) 9
- ☐ D) 5
- ☐ E) 3

---

24 How many vertices does a octagonal-based pyramid have?

- ☐ A) 90
- ☐ B) 9
- ☐ C) 10
- ☐ D) 16
- ☐ E) 8

© Revision Library | revisionlibrary.co.uk

25 How many faces does a triangular-based pyramid have?

- [ ] A) 4
- [ ] B) 3
- [ ] C) 6
- [ ] D) 40
- [ ] E) 5

---

26 How many vertices does a octagonal-based prism have?

- [ ] A) 10
- [ ] B) 17
- [ ] C) 16
- [ ] D) 9
- [ ] E) 24

---

27 How many faces does a pentagonal-based pyramid have?

- [ ] A) 10
- [ ] B) 7
- [ ] C) 5
- [ ] D) 6
- [ ] E) 60

---

28 How many faces does a heptagonal-based pyramid have?

- [ ] A) 7
- [ ] B) 9
- [ ] C) 14
- [ ] D) 80
- [ ] E) 8

© Revision Library | revisionlibrary.co.uk

29 How many edges does a pentagonal-based prism have?

- ☐ A) 14
- ☐ B) 15
- ☐ C) 7
- ☐ D) 10
- ☐ E) 16

---

30 How many edges does a square-based prism have?

- ☐ A) 5
- ☐ B) 6
- ☐ C) 8
- ☐ D) 12
- ☐ E) 4

© Revision Library | revisionlibrary.co.uk

Mark scheme · 2.96 Nets and 3D Shape Reasoning: 30-minute Pack

A correct answer earns full marks unless the question asks for working, a method, proof or explanation.

Question 1

Euler's formula used: V - E + F = 2 seen	**M1**
Substitution 8 - 12 + F = 2 or equivalent seen	**M1**
F = 6 cao	**A1**

Answer: 6 faces. (8 - 12 + F = 2 so F = 6.)

Question 2

correct option A (9) cao **B1**

Answer: A) 9

Question 3

correct option E (21) cao **B1**

Answer: E) 21

Question 4

correct option E (10) cao **B1**

Answer: E) 10

Question 5

correct option A (8) cao **B1**

Answer: A) 8

Question 6

correct option E (7) cao **B1**

Answer: E) 7

Question 7

correct option C (6) cao **B1**

Answer: C) 6

Question 8

correct option D (18) cao **B1**

Answer: D) 18

Question 9

correct option A (7) cao **B1**

Answer: A) 7

Question 10

correct option C (9) cao **B1**

Answer: C) 9

Question 11

correct option A (10) cao **B1**

Answer: A) 10

Question 12

correct option B (24) cao **B1**

Answer: B) 24

Question 13

correct option D (7) cao **B1**

Answer: D) 7

Question 14

correct option E (8) cao **B1**

Answer: E) 8

Question 15

correct option B (16) cao **B1**

Answer: B) 16

Question 16

correct option D (6) cao **B1**

Answer: D) 6

Question 17

correct option C (5) cao **B1**

Answer: C) 5

Question 18

correct option A (12) cao **B1**

Answer: A) 12

Question 19

correct option E (14) cao **B1**

Answer: E) 14

Question 20

correct option D (4) cao **B1**

Answer: D) 4

Question 21

correct option C (5) cao **B1**

Answer: C) 5

Question 22

correct option E (6) cao **B1**

Answer: E) 6

Question 23

correct option A (6) cao **B1**

Answer: A) 6

Question 24

correct option B (9) cao **B1**

Answer: B) 9

Question 25

correct option A (4) cao **B1**

Answer: A) 4

Question 26

correct option C (16) cao **B1**

Answer: C) 16

© Revision Library | revisionlibrary.co.uk

Question 27

correct option D (6) cao **B1**

Answer: D) 6

Question 28

correct option E (8) cao **B1**

Answer: E) 8

Question 29

correct option B (15) cao **B1**

Answer: B) 15

Question 30

correct option D (12) cao **B1**

Answer: D) 12

© Revision Library | revisionlibrary.co.uk