

## TB(3A) Ch. 5 More about 3-D Figures

### Multiple Choice Questions

1. [13-14 S6 Mock Exam # 4]

How many planes of reflection are there for a regular tetrahedron?

- A. 3
- B. 4
- C. 5
- D. 6

2. [13-14 S6 Mock Exam # 5]

A polyhedron has 6 vertices and 12 edges. Find the number of faces of the polyhedron.

- A. 7
- B. 8
- C. 9
- D. 10

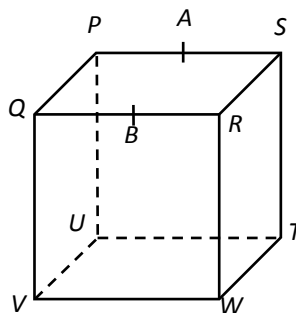
3. [13-14 Final Exam # 6]

Suppose letters  $E$ ,  $F$  and  $V$  represent the numbers of edges, faces and vertices of a polyhedron respectively. Which of the following forms a polyhedron?

- A.  $E = 18, F = 20, V = 36.$
- B.  $E = 18, F = 38, V = 22.$
- C.  $E = 40, F = 18, V = 22.$
- D.  $E = 44, F = 26, V = 20.$

4. [13-14 Final Exam # 7]

In the cube  $PQRSTU VW$ ,  $A$  and  $B$  are the mid-points of  $PS$  and  $QR$  respectively. Name the angle between the planes  $ABWT$  and  $TUVW$ .

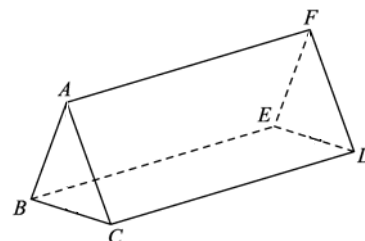


- A.  $\angle ATU$
- B.  $\angle ATV$
- C.  $\angle BWU$
- D.  $\angle BTV$

5. [14-15 Standardized Test #1]

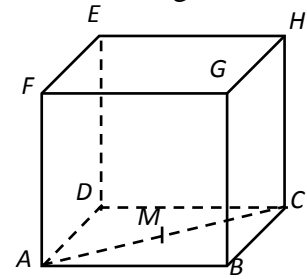
The figure shows a triangular prism, where  $\triangle ABC$  is an equilateral triangle. How many planes of reflection and axes of rotational symmetry are there for this prism?

|    | Planes of reflection | Axes of rotational symmetry |
|----|----------------------|-----------------------------|
| A. | 2                    | 1                           |
| B. | 3                    | 3                           |
| C. | 4                    | 1                           |
| D. | 4                    | 4                           |



6. [14-15 Standardized Test #6]

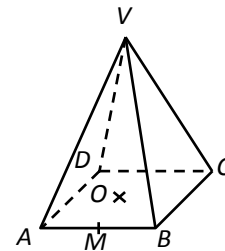
The figure shows a cube  $ABCDEFGH$ , where  $M$  is the mid-point of  $AC$ . Name the angle between the plane  $ACE$  and the plane  $ABCD$ .



- A.  $\angle EMB$
- B.  $\angle EMD$
- C.  $\angle EDM$
- D.  $\angle ECD$

7. [14-15 Final Exam #8]

In the figure,  $VABCD$  is a right pyramid with square base, where  $M$  and  $O$  are the mid-points of  $AB$  and  $AC$  respectively. Which of the following is the projection of  $VB$  on plane  $ABCD$  and angle between plane  $VAB$  and plane  $ABCD$ ?

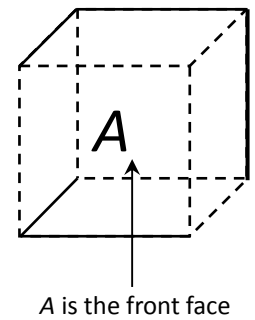


- |    | <u>Projection</u> | <u>Angle</u> |
|----|-------------------|--------------|
| A. | $AB$              | $\angle VBO$ |
| B. | $AB$              | $\angle VMO$ |
| C. | $OB$              | $\angle VBO$ |
| D. | $OB$              | $\angle VMO$ |

8. [14-15 Final Exam #27]

When the surface of a cube is cut along the dotted edges as shown in the figure, which of the following will be the net obtained.

- A.
- B.
- C.
- D.



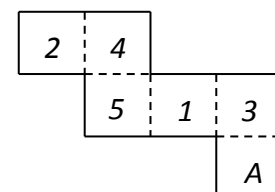
9. [15-16 Standardized Test #1]

If a polyhedron has 24 vertices and 20 faces, how many edges does it have?

- A. 4
- B. 6
- C. 42
- D. 46

10. [15-16 Standardized Test #2]

If a cube is formed from the following net, what will be the sum of the numbers which are adjacent to the letter  $A$ ?



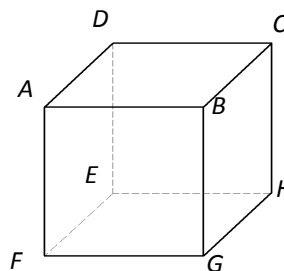
- A. 11
- B. 12
- C. 13
- D. 14

**11. [15-16 Standardized Test #6]**

The figure shows a cube. Which of the following is/are true?

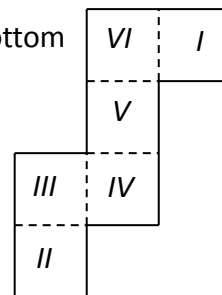
- I.  $AH$  is an axis of rotation symmetry of order 2.
- II. The number of planes of reflection is 9.
- III.  $\angle AGC = \angle FEH$ .

- A. I only
- B. II only
- C. I and II only
- D. I and III only

**12. [15-16 Final Exam #4]**

If a cube is formed from the following net, what will be the letter on the bottom face if 'I' is facing up?

- A. I
- B. IV
- C. V
- D. VI

**13. [15-16 Final Exam #5]**

If a polyhedron has 22 edges and 10 faces, how many vertices does it have?

- A. 20
- B. 18
- C. 14
- D. 12

**14. [15-16 Final Exam #28]**

For  $n > 3$ , which of the following statements about a right pyramid with a regular  $n$ -sided polygonal base must be true?

- I. It has  $n$  axes of rotational symmetry.
- II. It has  $n$  planes of reflection.
- III. The order of any axis of rotational symmetry is  $n$ .

- A. III only
- B. I and II only
- C. II and III only
- D. None of the above

**15. [16-17 Final Exam #6]**

If a cube is made by folding up the following net, what is the letter on the opposite side of A?

- A. C
- B. D
- C. E
- D. F

16. [16-17 Final Exam #7]

If a polyhedron has 7 vertices and 13 edges, how many faces does it have?

- A. 4
- B. 8
- C. 18
- D. 20

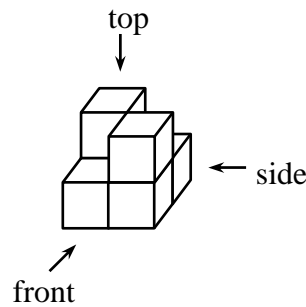
17. [17-18 S Test 2 #2]

How many planes of reflection and axes of rotational symmetry are there for a regular tetrahedron?

|    | Planes of reflection | Axes of rotational symmetry |
|----|----------------------|-----------------------------|
| A. | 4                    | 6                           |
| B. | 4                    | 7                           |
| C. | 6                    | 6                           |
| D. | 6                    | 7                           |

18. [17-18 S Test 2 #3]

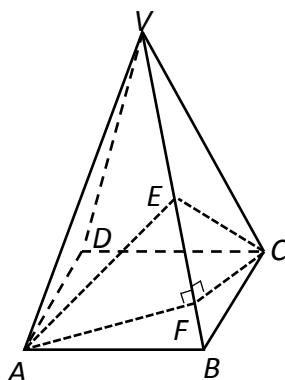
The following solid is made up of small identical cubes. Assume that there are no hidden parts in the figure, which of the following is the side view of the given solid?



- |           |           |
|-----------|-----------|
| <p>A.</p> | <p>B.</p> |
| <p>C.</p> | <p>D.</p> |

19. [17-18 S Test 2 #8]

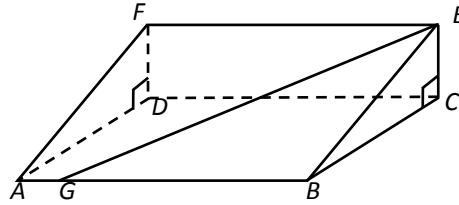
In the figure,  $VABCD$  is a right pyramid with the square base  $ABCD$ .  $E$  is the mid-point of  $VB$ .  $F$  is a point lying on  $VB$  such that  $AF$  and  $CF$  are perpendicular to  $VB$ . The angle between the plane  $VAB$  and the plane  $VBC$  is



- A.  $\angle AFC$ .
- B.  $\angle ABC$ .
- C.  $\angle AEC$ .
- D.  $\angle AVC$ .

20. [17-18 Final Exam #4]

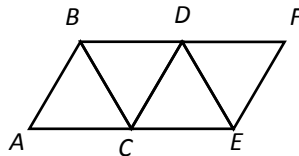
The figure shows a prism  $ABCDFE$  with base of a right-angled triangle. What is the projection of  $GE$  on plane  $ABCD$ ?



- A.  $BC$
- B.  $BE$
- C.  $GB$
- D.  $GC$

21. [17-18 Final Exam #15]

It is given that  $\triangle ABC$ ,  $\triangle BCD$ ,  $\triangle CDE$  and  $\triangle DEF$  are equilateral triangles. If the following net is folded into a solid, which of the followings are true?



- I. Point  $B$  will coincide with point  $F$ .
- II. Edge  $AB$  will coincide with edge  $EF$ .
- III. The solid has 7 axes of rotational symmetry.

- A. I and II only
- B. I and III only
- C. II and III only
- D. I, II and III

~ End ~