$\qquad$
PART A: Multiple choice. Place the letter of the best answer in the box below. (1 mark each)

| 1. | 2. | 3. | 4. | 5. |
| :--- | :--- | :--- | :--- | :--- |
| 6. | 7. | 8. | 9. | 10. |

1. What is the top view of the object?


Front View
2. Which represents the top view of the object?

3. Which would be the top view of the structure shown below?

4. Which represents the right side view of the object shown?

5. What is the front view after the object is rotated horizontally $90^{\circ}$ clockwise about the axis shown?

6. Which is the left side view of the object after it has been rotated $180^{\circ}$ horizontally about the vertical axis shown?

7. Which is the right side view of the object in \#6 after it has been rotated $90^{\circ} \mathrm{ccw}$ horizontally about the vertical axis shown?

D.

8. What transformation forms this tessellation?
A. Dilatation
B. Reflection

C Rotation
D. Translation

9. Jenny got a chart from her teacher that listed the interior angles for some regular polygons.

| Regular polygon | Size of interior angles |
| :--- | :--- |
| Equilateral triangle (3) | $60^{\circ}$ |
| Square (4) | $90^{\circ}$ |
| Pentagon (5) | $108^{\circ}$ |
| Hexagon (6) | $120^{\circ}$ |
| Octagon (8) | $135^{\circ}$ |
| Dodecagon (12) | $150^{\circ}$ |

Jenny wanted to use a dodecagon in a tessellation, and wondered which of the other polygons listed she could use (in any combination) to make this possible.
A) The square only
B) The equilateraltriangle only
(C) The square with the hexagon $150+90+120=360^{\circ}$
10. Which statement is true?
A) There can be gaps in a tessellation, as long as there is a pattern in the gaps.
B) You can only use reflections to create a tessellation.
C) The sum of the angles at a vertices must be $360^{\circ}$
D) Regular octagons can tessellate.

PART B Constructed Response.

1. Match the front, right, left and top views to the lettered views below. [4 marks]

2. Draw the front, left, right, and top views of the object. [5 marks]

3. Draw the front, left, right, and top views of the object after a $180^{\circ}$ rotation about the axis shown. [5 marks]


Front View

4. In the design below, describe each transformation. [4 marks]

Shape $D$ is the image of Shape $C$ reflection or rotation
Shape 6 is the image of Shape $A$ translation

Shape $c$ is the image of Shape $E$ rotation
Shape $A$ is the image of Shape $B$ reflection or rotation

5. Use the four views to determine how many linking cubes it will take to create the object. [2 marks]


Number of Cubes:

## 8

6. Use two of the shapes below to form a composite shape that will tessellate. Create a tessellation using this composite shape that nearly fills the grid below. [3 marks]

7. Which of the flowing diagrams will tessellate? Circle yes or no and show your workings on the table below. [6 marks]

