

THREE-DIMENSIONAL SHAPES

A THREE-DIMENSIONAL SHAPES

A.1 IDENTIFYING FLAT OR SOLID SHAPES

MCQ 1: Is this shape flat or solid?



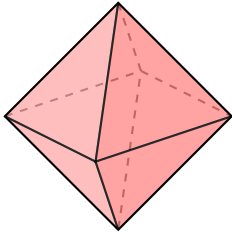
Pick the right answer:

☒ 2D shape

☐ 3D shape

Answer: It is a 2D shape because it's flat, with only length and width.

MCQ 2: Is this shape flat or solid?



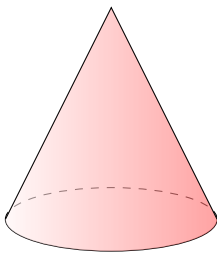
Pick the right answer:

☐ 2D shape

☒ 3D shape

Answer: It is a 3D shape because it's solid, with length, width, and depth.

MCQ 3: Is this shape flat or solid?



Pick the right answer:

☐ 2D shape

☒ 3D shape

Answer: It is a 3D shape because it's solid, with length, width, and depth.

MCQ 4: Is this shape flat or solid?



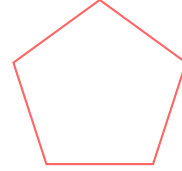
Pick the right answer:

☒ 2D shape

☐ 3D shape

Answer: It is a 2D shape because it's flat, with only length and width.

MCQ 5: Is this shape flat or solid?



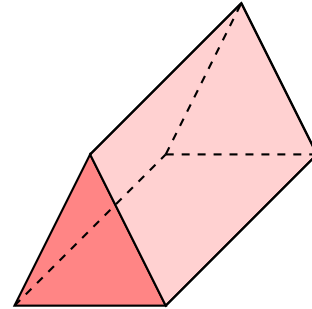
Pick the right answer:

☒ 2D shape

☐ 3D shape

Answer: It is a 2D shape because it's flat, with only length and width.

MCQ 6: Is this shape flat or solid?



Pick the right answer:

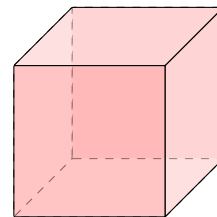
☐ 2D shape

☒ 3D shape

Answer: It is a 3D shape because it's solid, with length, width, and depth.

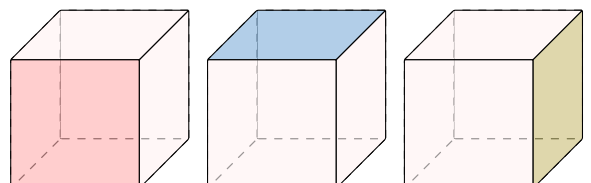
A.2 COUNTING FACES

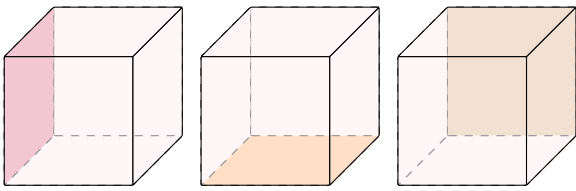
Ex 7: How many faces does this cube have?



6 faces

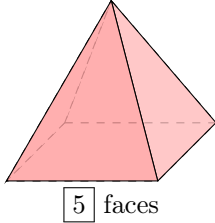
Answer: Count each flat surface to find the number of faces.





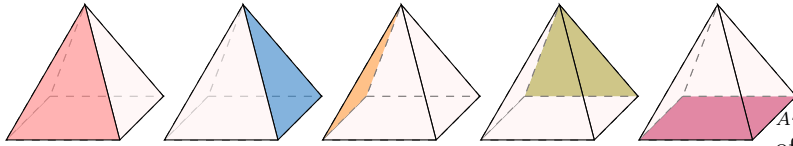
There 6 faces.

Ex 8: How many faces does this square Pyramid have?



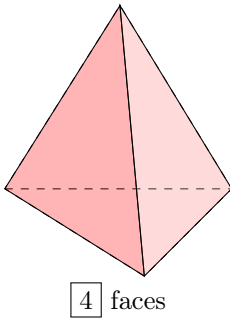
5 faces

Answer: Count each flat surface to find the number of faces



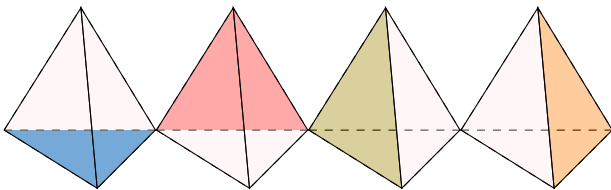
There are 5 faces.

Ex 9: How many faces does this triangular pyramid have?



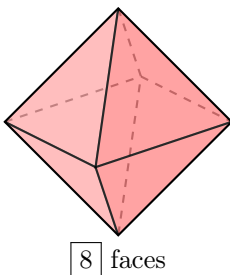
4 faces

Answer: Count each flat surface to find the number of faces.



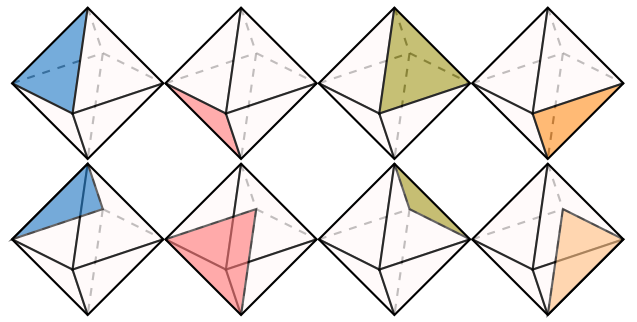
There are 4 faces.

Ex 10: How many faces does this eight-faced die have?



8 faces

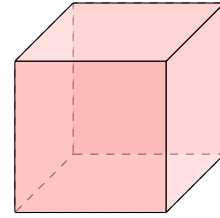
Answer: Count each flat surface to find the number of faces.



There are 8 faces.

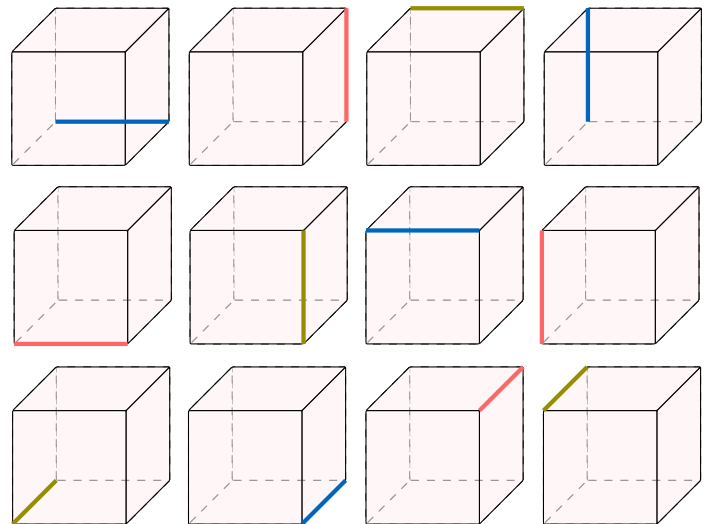
A.3 COUNTING EDGES

Ex 11: How many edges does this cube have?



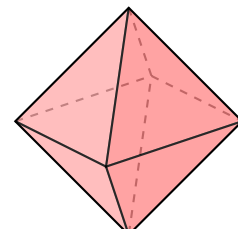
12 edges

Answer: Count each line where two faces meet to find the number of edges.



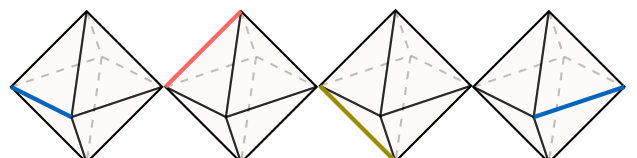
There are 12 edges.

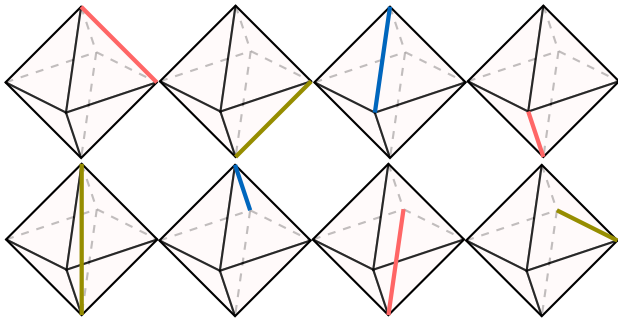
Ex 12: How many edges does this eight-faced die have?



12 edges

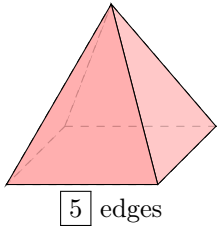
Answer: Count each line where two faces meet to find the number of edges.





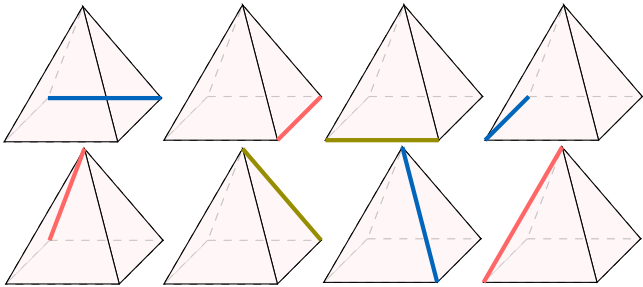
There are **12 edges**.

Ex 13: How many edges does this square Pyramid have?



5 edges

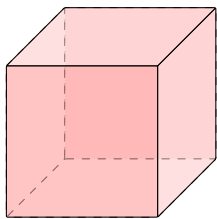
Answer: Count each line where two faces meet to find the number of edges.



There are **8 edges**.

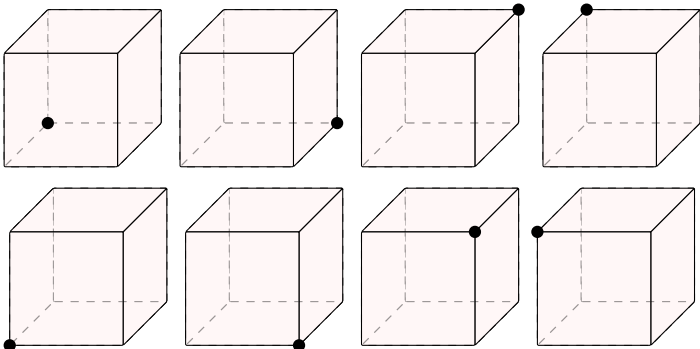
A.4 COUNTING VERTICES

Ex 14: How many vertices does this cube have?



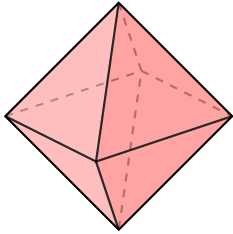
8 vertices

Answer: Count each corner where the lines meet to find the number of vertices.



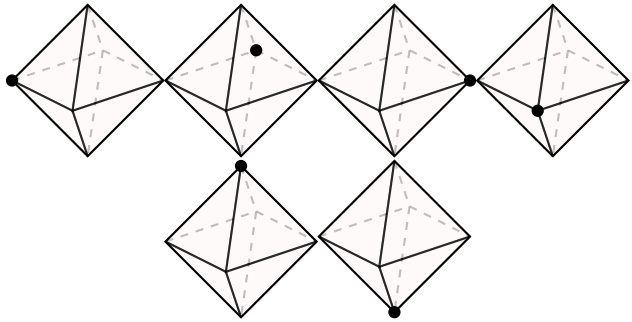
There are **8 vertices**.

Ex 15: How many vertices does this eight-faced die have?



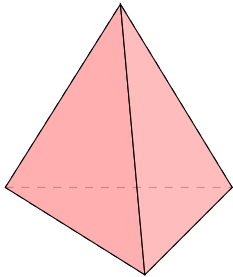
6 vertices

Answer: Count each corner where the lines meet to find the number of vertices.



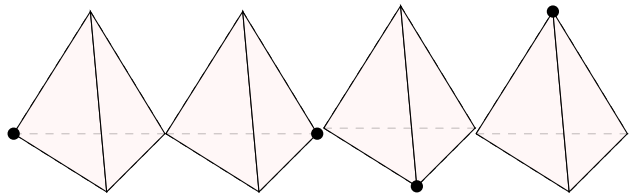
There are **6 vertices**.

Ex 16: How many vertices does this triangular pyramid have?



4 vertices

Answer: Count each corner where the lines meet to find the number of vertices.

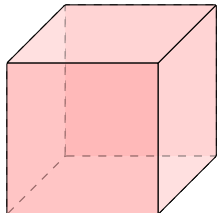


There are **4 vertices**.

B DRAWING THREE-DIMENSIONAL SHAPES

B.1 COUNTING VISIBLE AND HIDDEN EDGES

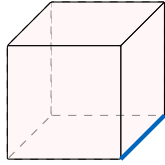
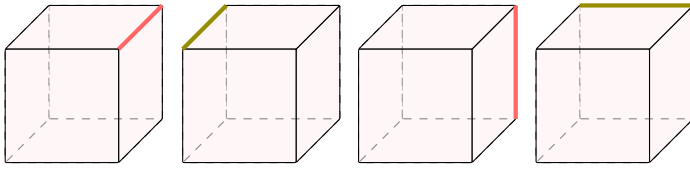
Ex 17: Count the number of visible and hidden edges on this cube



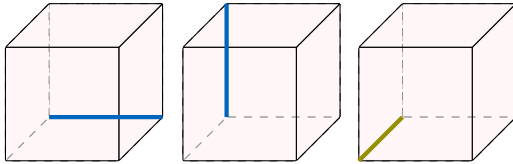
9 visible edges
3 hidden edges

Answer:

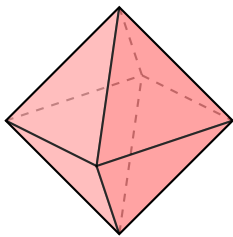
- 9 visible edges:



- 3 hidden edges:



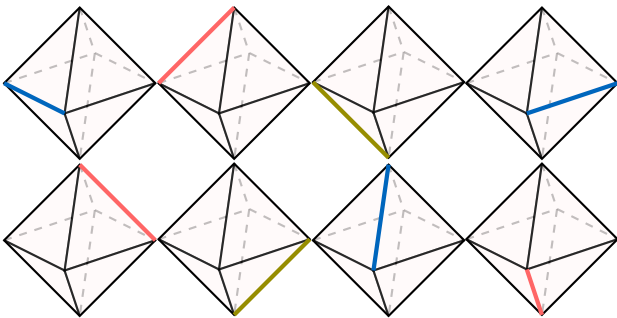
Ex 18: Count the number of visible and hidden edges on this eight-faced die.



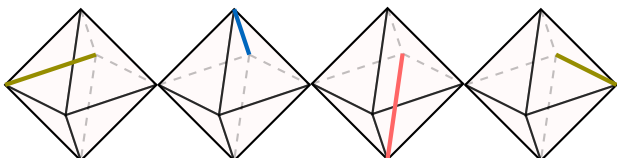
8 visible edges
4 hidden edges

Answer:

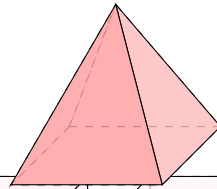
- 8 visible edges



- 4 hidden edges

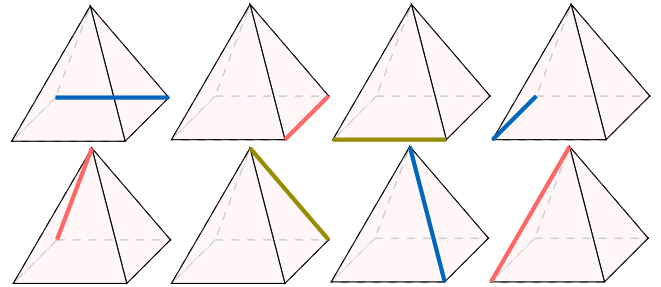


Ex 19: Count the number of visible and hidden edges on this square Pyramid.



5 visible edges
3 hidden edges

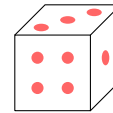
Answer: Count each line where two faces meet to find the number of edges.



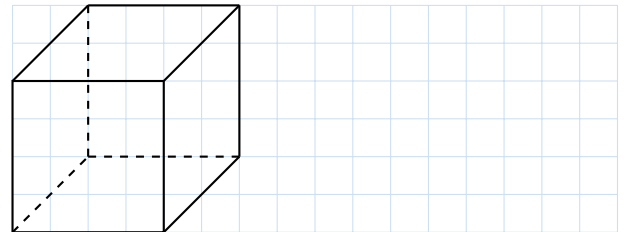
There are 8 edges.

B.2 DRAWING THREE-DIMENSIONAL SHAPES

Ex 20:

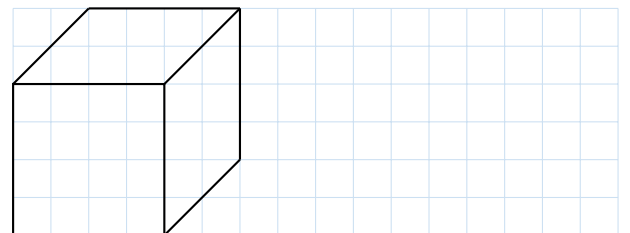


Draw this cube on your graph paper.

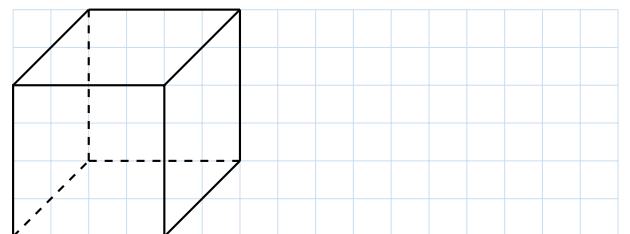


Answer:

1. Draw the visible edges with solid lines:



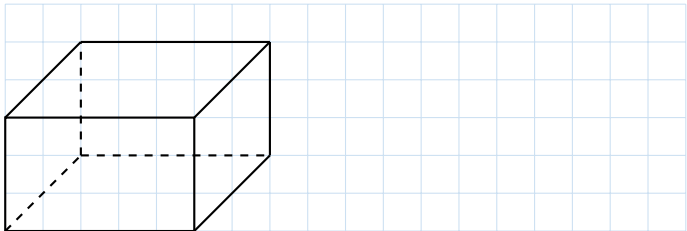
2. Draw the hidden edges with dotted lines:



Ex 21:

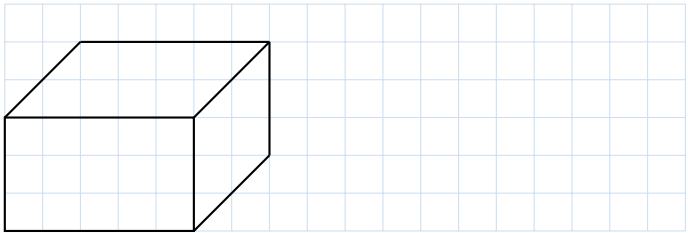


Draw this cube on your graph paper.

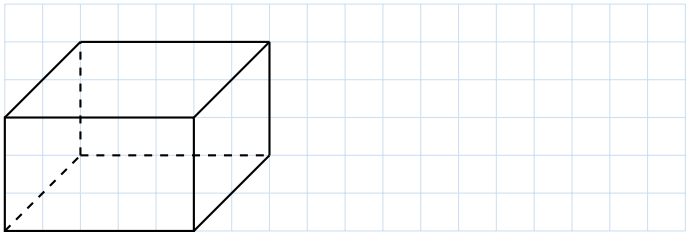


Answer:

1. Draw the visible edges with solid lines:



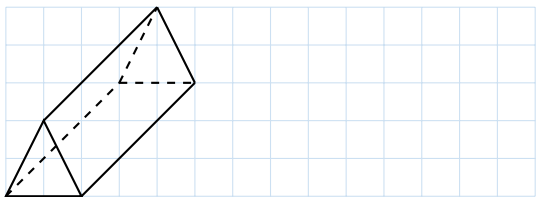
2. Draw the hidden edges with dotted lines:



Ex 22:

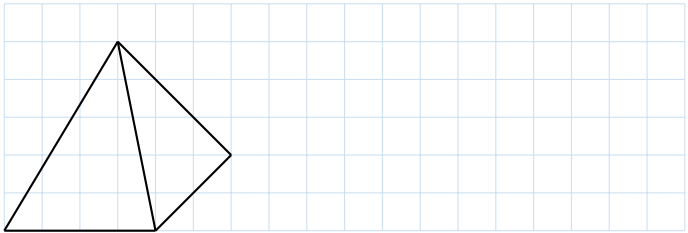


Draw this triangular prism on your graph paper.

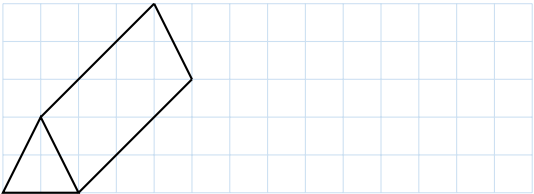
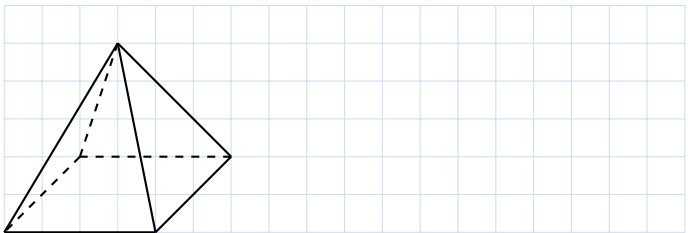


Answer:

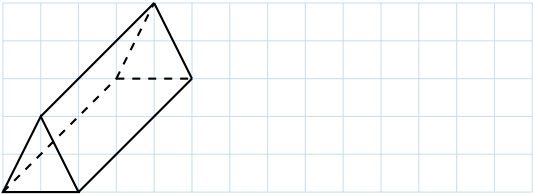
1. Draw the visible edges with solid lines:



2. Draw the hidden edges with dotted lines:



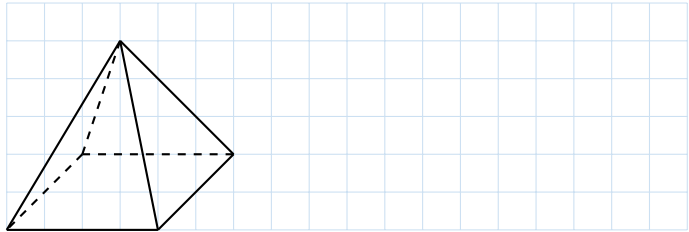
2. Draw the hidden edges with dotted lines:



Ex 23:

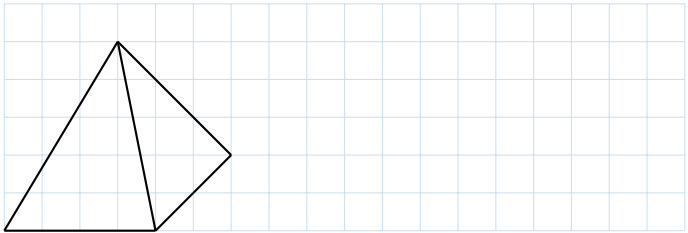


Draw this pyramid on your graph paper.

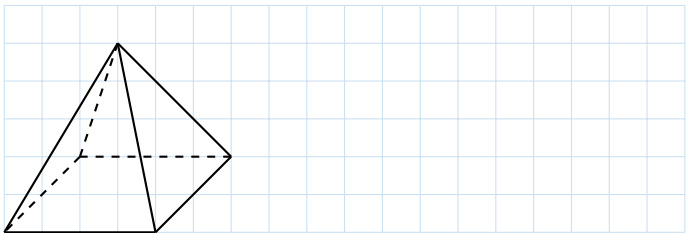


Answer:

1. Draw the visible edges with solid lines:



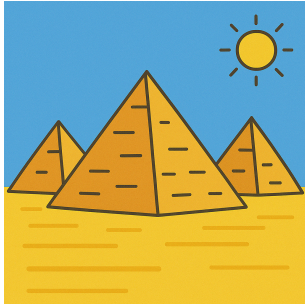
2. Draw the hidden edges with dotted lines:



C CLASSIFICATION

C.1 FINDING THE SHAPES

Ex 24: Can you find all the pyramids in the picture?



pyramids

Answer: The picture shows 3 pyramids.

Ex 25: Can you find all the cubes in the picture?



cubes

Answer: A cube is a 3D shape with six equal square faces. Count each cube in the picture. The picture shows boys playing with two cubes. There are **2 cubes**.



Ex 26: Can you find all the spheres in the picture?



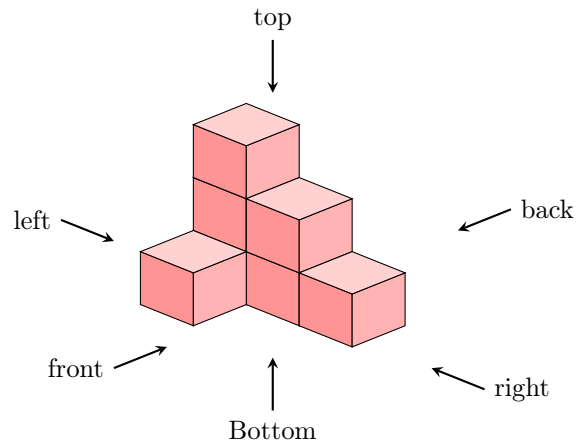
spheres

Answer: A sphere is a round 3D shape, like a marble. Count each sphere in the picture. The picture shows a girl playing with 3 marbles, which are 3 spheres. There are **3 spheres**.

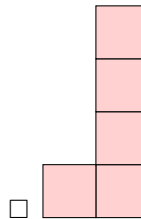
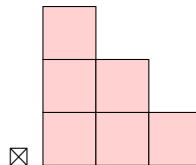
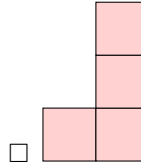
D MULTI-VIEW PROJECTION

D.1 FINDING THE PROJECTION

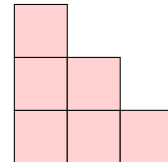
MCQ 27: Identify the front view of this solid.



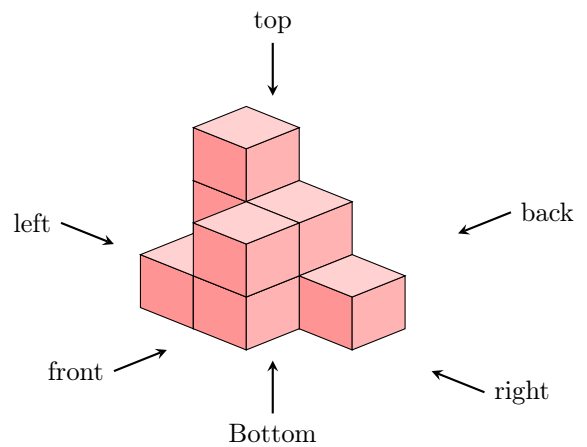
Choose one answer:



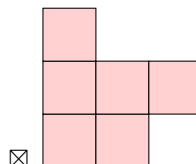
Answer: The correct front view is the second option:

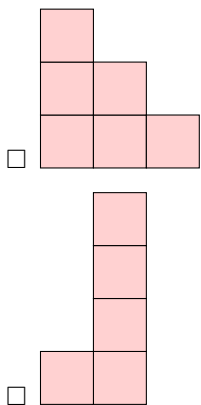


MCQ 28: Identify the top view of this solid.

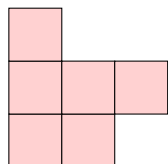


Choose one answer:

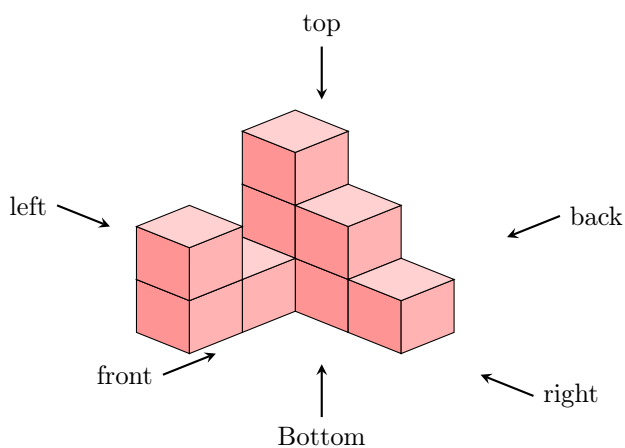




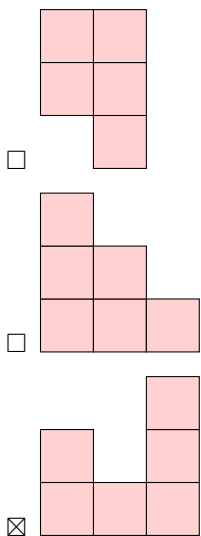
Answer: The correct top view is the first option:



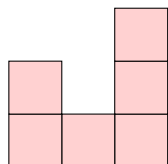
MCQ 29: Identify the right view of this solid.



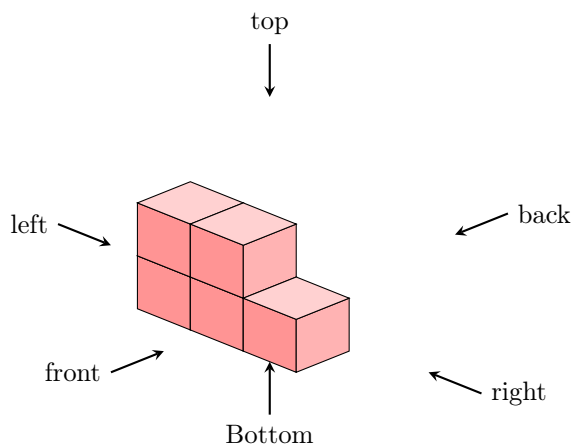
Choose one answer:



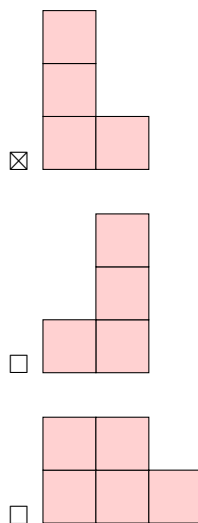
Answer: The correct right view is the third option:



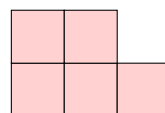
MCQ 30: Identify the front view of this solid.



Choose one answer:

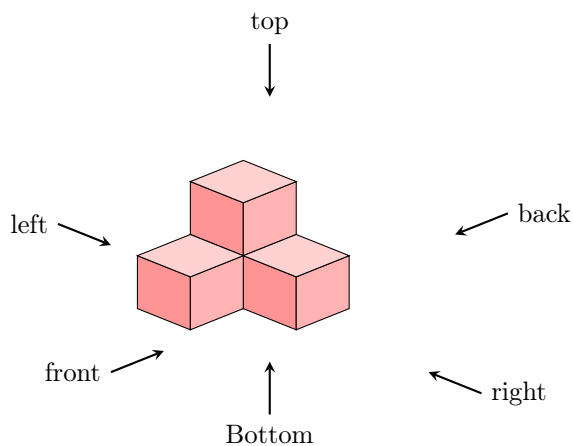


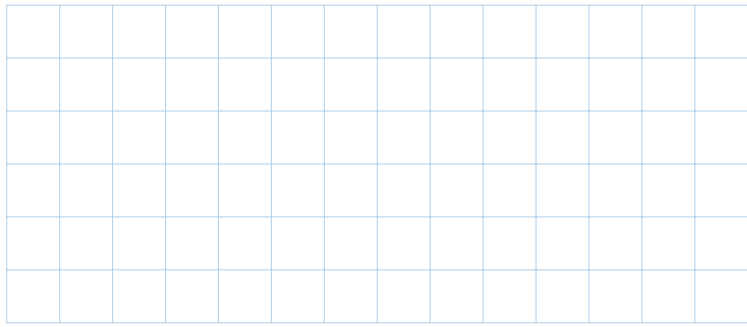
Answer: The correct front view is the third option:



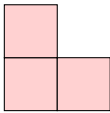
D.2 DRAWING THE PROJECTION

Ex 31: Draw the front view of this solid on your graph paper.

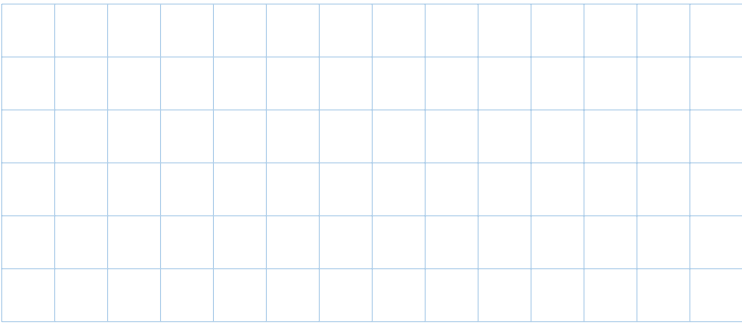
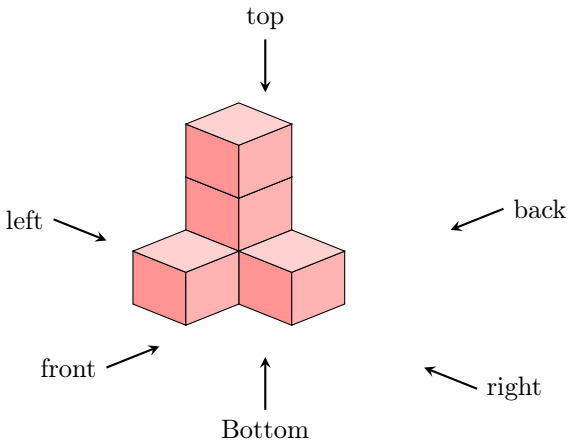




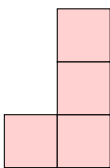
Answer: The front view is:



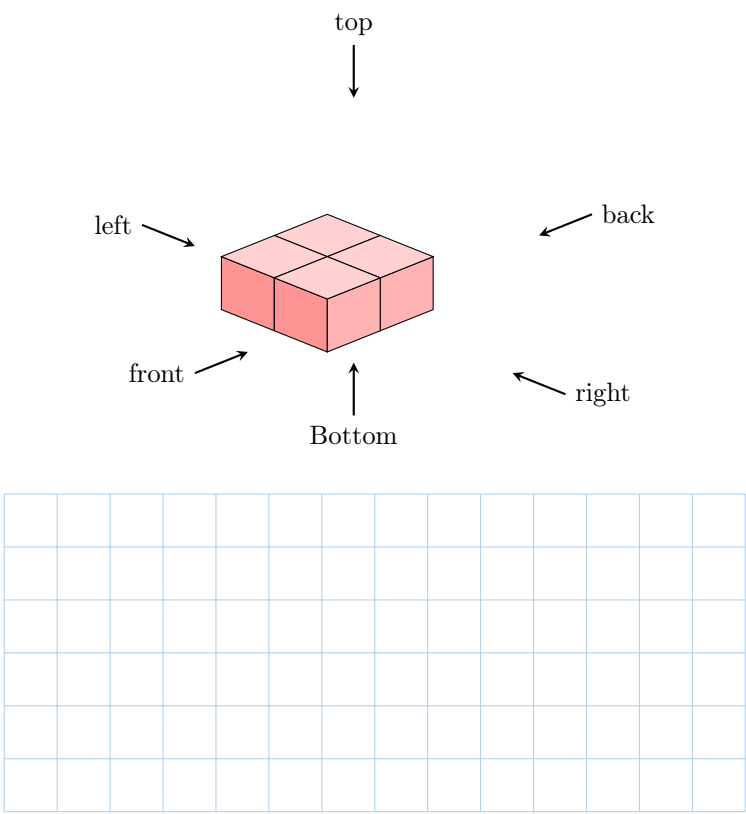
Ex 32: Draw the right view of this solid on your graph paper.



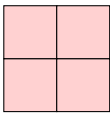
Answer: The right view is:



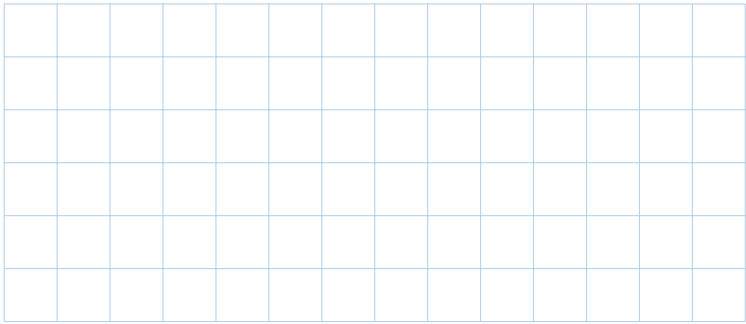
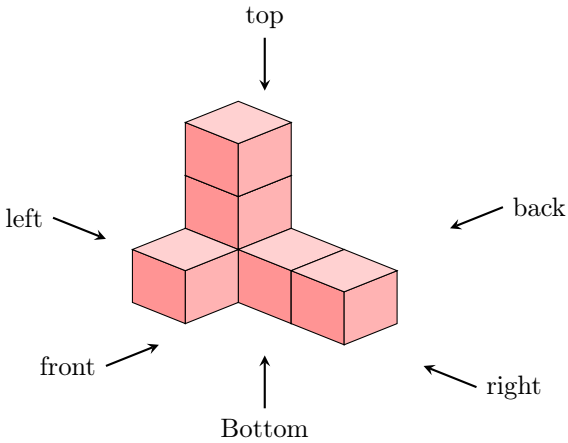
Ex 33: Draw the top view of this solid on your graph paper.



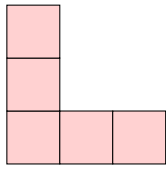
Answer: The top view is:



Ex 34: Draw the front view of this solid on your graph paper.



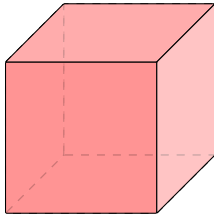
Answer: The front view is:



E SOLID CONSTRUCTIONS

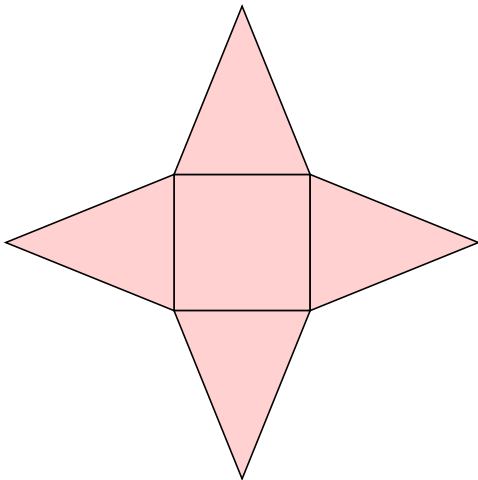
E.1 IDENTIFYING NETS

MCQ 35: Identify the net that can be folded to form this 3D shape.

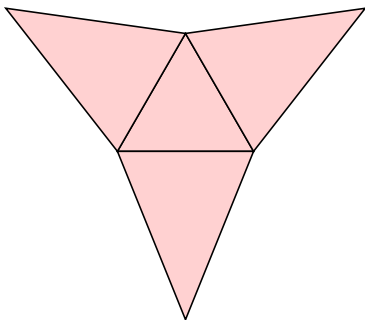


cube

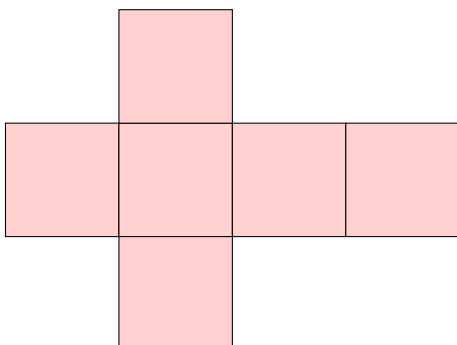
Choose one answer:



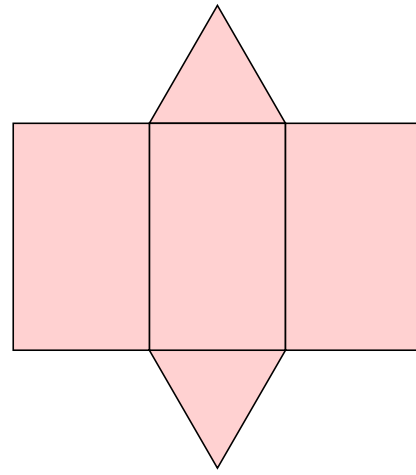
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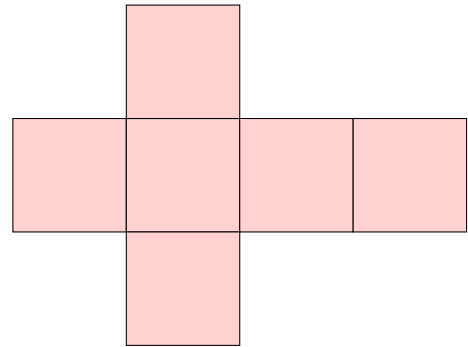


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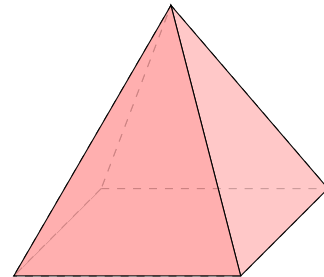
☐

Answer: The correct net is the third option:



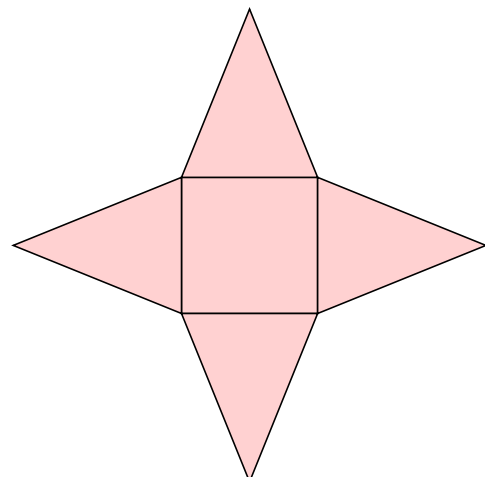
A cube has 6 square faces. The third net has 6 squares arranged in a cross pattern, which can be folded to form a cube.

MCQ 36: Identify the net that can be folded to form this 3D shape.

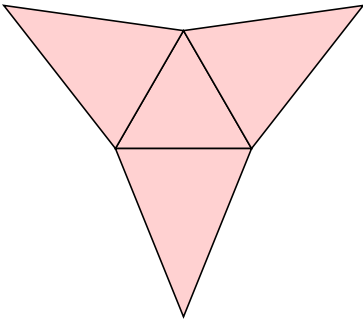
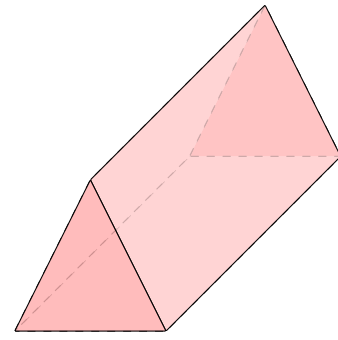


square-based pyramid

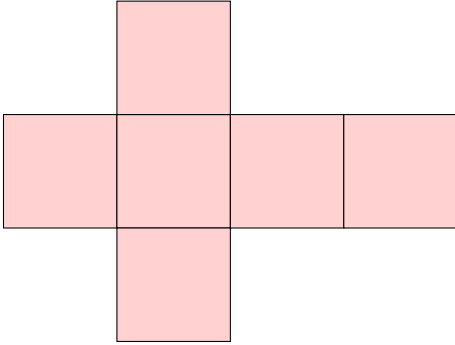
Choose one answer:



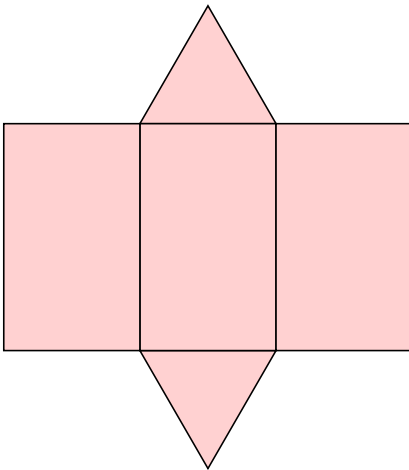
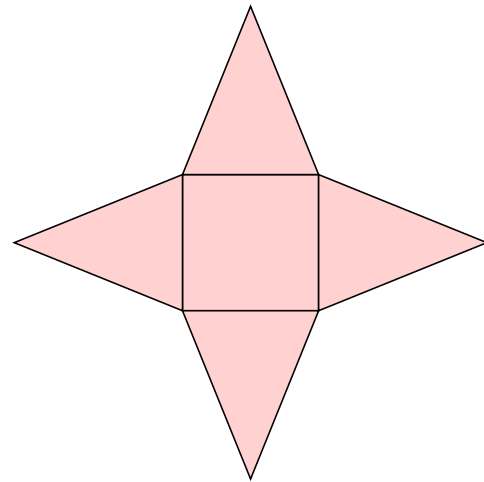
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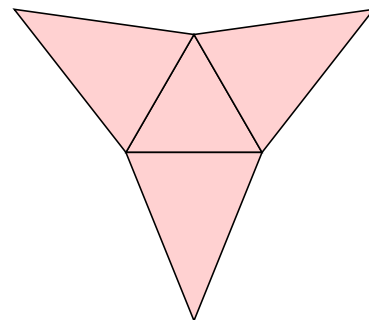
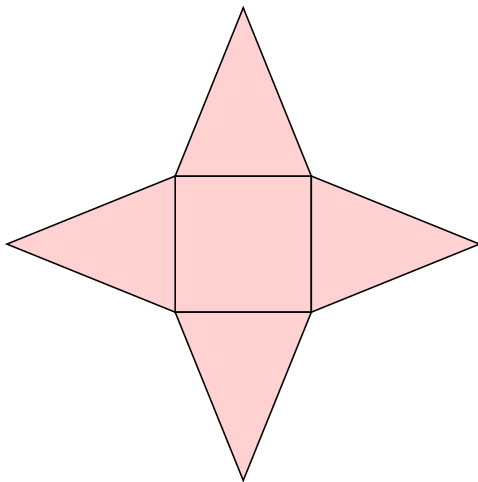
triangular prism


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Choose one answer:

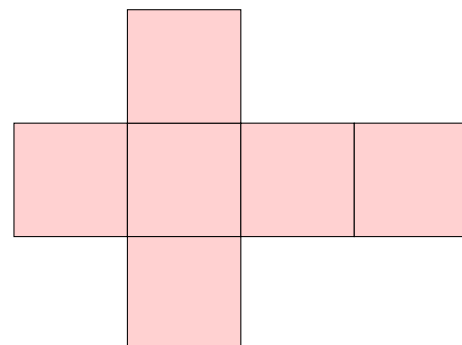

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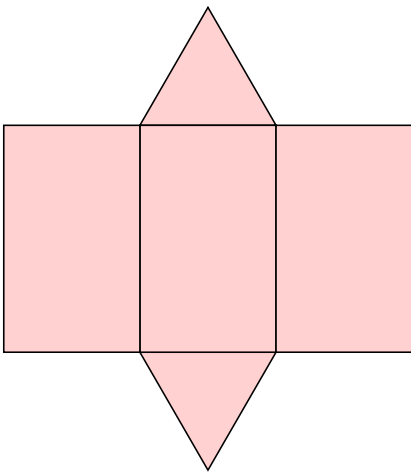
Answer: The correct net is the first option:


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A square-based pyramid has 1 square base and 4 triangular faces. The first net has 1 square and 4 triangles arranged around it, which can be folded to form a square-based pyramid.

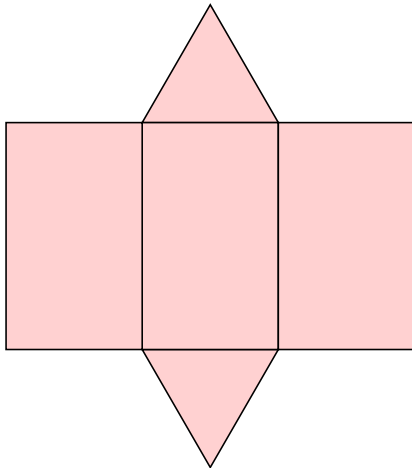
MCQ 37: Identify the net that can be folded to form this 3D shape.


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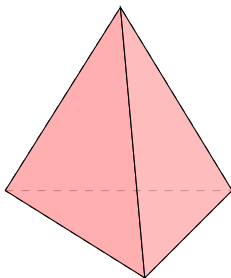
☒

Answer: The correct net is the fourth option:



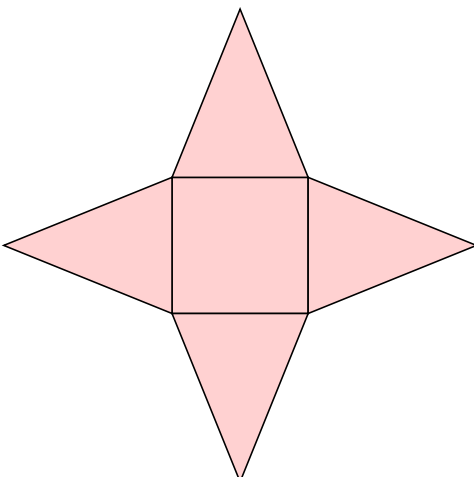
A triangular prism has 2 triangular bases and 3 rectangular faces. The fourth net has 2 triangles and 3 rectangles arranged in a pattern that can be folded to form a triangular prism.

MCQ 38: Identify the net that can be folded to form this 3D shape.

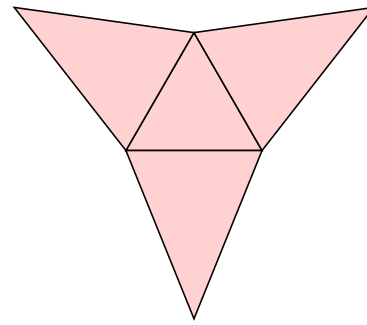


tetrahedron

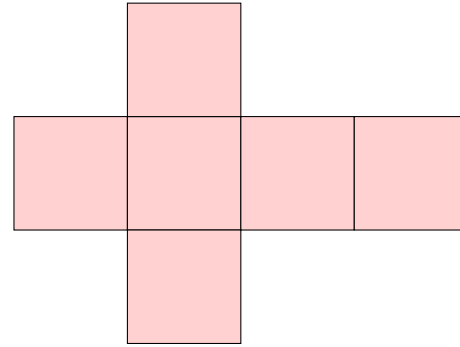
Choose one answer:



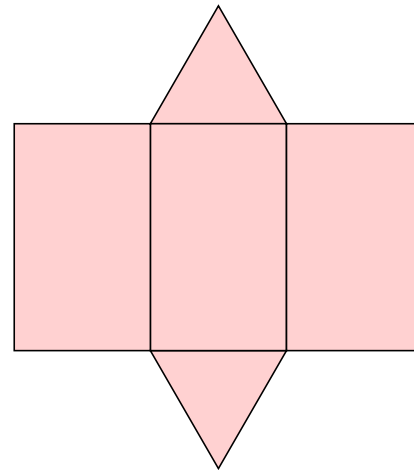
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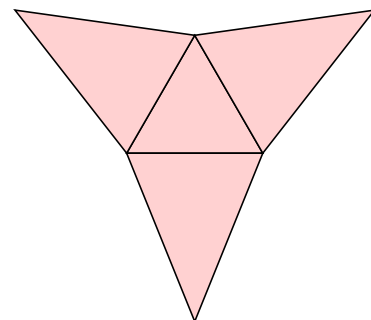


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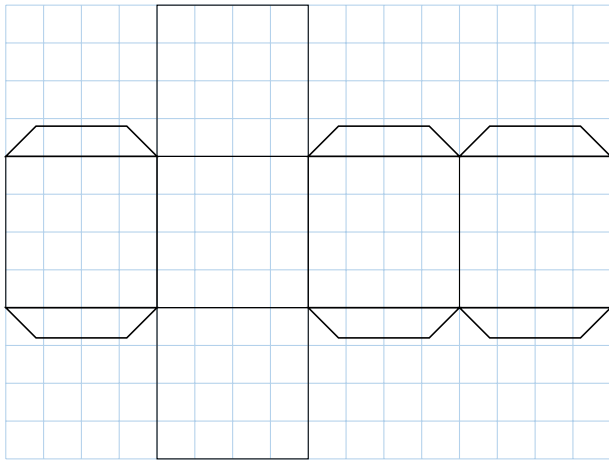
Answer: The correct net is the second option:



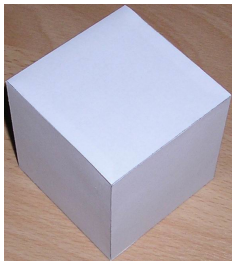
A tetrahedron has 4 triangular faces. The second net has 4 triangles arranged in a pattern that can be folded to form a tetrahedron.

E.2 CONSTRUCTING 3D SOLIDS FROM PAPER

Ex 39: Draw this net on graph paper. Cut it out (keeping the tabs), fold it, and glue the tabs to form a cube. You can decorate its different faces. I look forward to seeing your photographs.

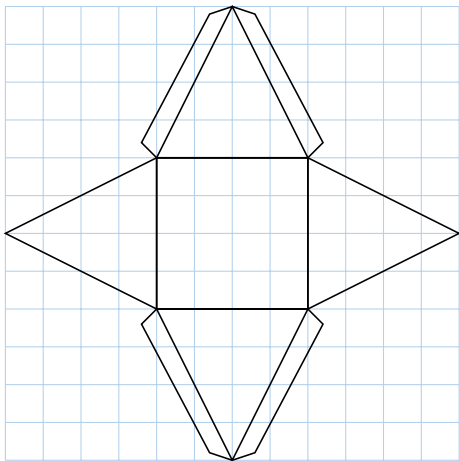


Answer: Your cube should look like this:



Follow these steps: Draw the net on graph paper, cut it out with the tabs, fold along the edges of the squares, and glue the tabs to the corresponding faces to form the cube.

Ex 40: Draw this net on graph paper. Cut it out (keeping the tabs), fold it, and glue the tabs to form a square-based pyramid. You can decorate its different faces. I look forward to seeing your photographs.



Answer: Your square-based pyramid should look like this:

Follow these steps: Draw the net on graph paper, cut it out with the tabs, fold along the edges of the square base and triangles, and glue the tabs to the corresponding faces to form the pyramid.

