Math 8

Module 1 Blackline Masters

This blackline master package, which includes all section assignments, as well as selected worksheets, activities, and other materials for teachers to make their own overhead transparencies or photocopies, is designed to accompany Open School BC's Math 8 course. BC teachers, instructional designers, graphic artists, and multimedia experts developed the course and blackline masters .

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Mathematics 8

Module 1

Section 1
Nets and Views

- Lesson A: Visualizing in Three Dimensions
- Lesson B: Prisms and Cylinders and their Nets
- Lesson C: Top View, Side View, and Front View
- **Section Assignment 1.1**

Section 2
Calculations in 2-D and 3-D

- Lesson A: Total Area of the Net
- Lesson B: More about Area in 2-D and 3-D
- Lesson C: The Amount of Space
- **Section Assignment 1.2**

Section 3
Shapes and Design

- Lesson A: What is a Tessellation Anyways?
- Lesson B: Transformations in Tessellations
- Lesson C: Creating a Tessellation
- **Section Assignment 1.3**

Module 1 Test or Project

Module 2

Section 1
Multiplying and Dividing Integers

- Lesson A: Should I Multiply or Divide?
- Lesson B: Mult. and Div. with Negative Numbers
- Lesson C: Expressions–More than one Operation
- **Section Assignment 2.1**

Section 2
Squares and Square Roots

- Lesson A: Perfect Squares
- Lesson B: Square Roots of Perfect Squares
- Lesson C: Estimating Square Roots
- Lesson D: Calculating Square Roots
- **Section Assignment 2.2**

Section 3
The Pythagorean Theorem

- Lesson A: The Pythagorean Theorem
- Lesson B: Pythagorean Triples
- Lesson C: Using the Pythagorean Theorem
- **Section Assignment 2.3**

Module 2 Test or Project

Module 3

Section 1
Analyzing statistical graphs

- Lesson A: Types of Graphs and Data
- Lesson B: Adv. and Dis. of Graph Types
- Lesson C: Misleading Graphs
- **Section Assignment 3.1**

Section 2
Graphing on the Coordinate Plane

- Lesson A: Ordered Pairs and Linear Equations
- Lesson B: Tables of Values
- Lesson C: Relationships and Missing Values
- **Section Assignment 3.2**

Section 3
Linear Equations

- Lesson A: Algebra Tiles
- Lesson B: Solving Linear Equations Symbolically
- Lesson C: More Linear Equations
- **Section Assignment 3.3**

Module 3 Test or Project

Module 4

Section 1
Multiplying and Dividing Fractions

- Lesson A: Proper, Improper Fractions, Mixed Numbers
- Lesson B: Multiplying Fractions
- Lesson C: Dividing Fractions
- Lesson D: Estimating and Solving Problems
- **Section Assignment 4.1**

Section 2
Ratios, Rates and Percents

- Lesson A: Ratios and Rates in Everyday Life
- Lesson B: Making Sense of Percents
- Lesson C: Solving Problems with Percents
- **Section Assignment 4.2**

Section 3
Probability

- Lesson A: The Probability of Independent Events
- Lesson B: Problem Solving with Probability
- **Section Assignment 4.3**

Module 4 Test or Project

Lesson 1.1C Try It!
Activity 2

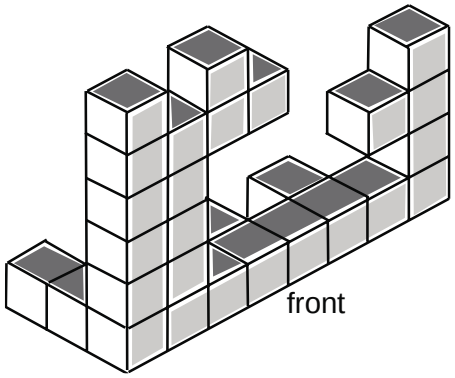
3. Draw all of the following views of this house on graph paper.

    - top view
    - front view
    - side view

    Include windows and doors in your different views.

Section Assignment 1.1 Part 1:
Multiple Choice and Short Answer

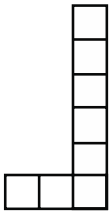
1. How many cubes are there in the stack? (2 marks)



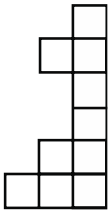
a. 26
b. 27
c. 28
d. 29

2. Which is the side view of the stack in question 2? (2 marks)

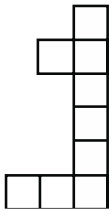
a.



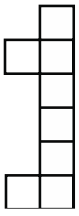
c.



b.

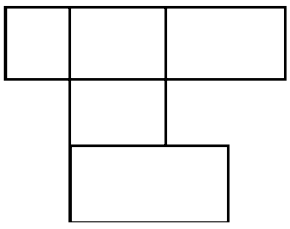


d.

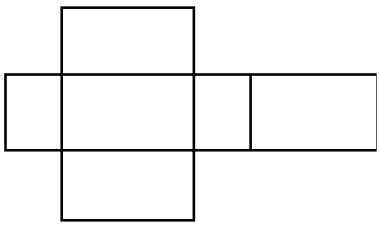


3. Which of these nets will not form a rectangular prism? (2 marks)

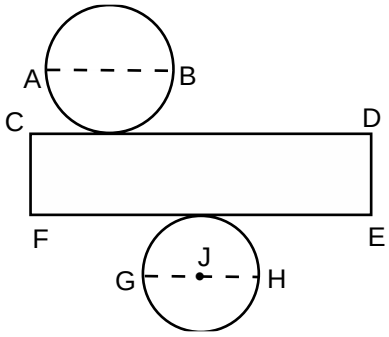
a.



b.



4. A cylinder has a diameter of 12 cm and a height of 4 cm. The net for this cylinder is drawn. Fill in the blanks. (8 marks)



a. length of AB _____

b. length of CD _____

c. length of CF _____

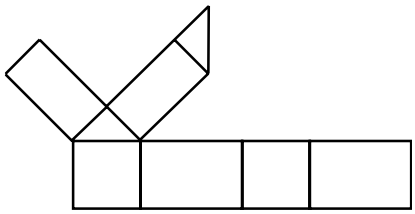
d. length of JH _____

5. You are holding a circle and a sphere. Which is the 2-D shape, and which is the 3-D shape? Explain your answer. (2 marks)

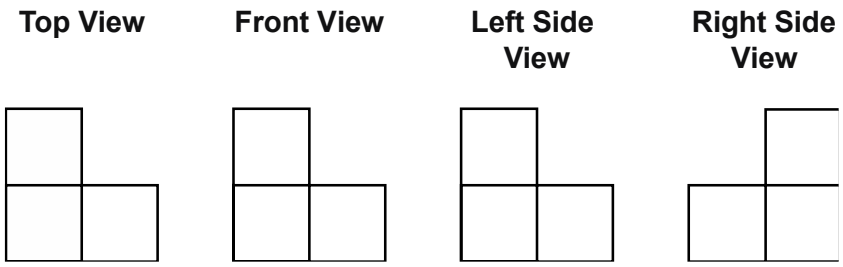
_____

_____

6. On isometric dot paper, sketch the 3-D structure that would have the following net. (5 marks)



7. From these views sketch the 3D shape. (5 marks)



Section Assignment 1.1 Part 2:
Design a 3-D Structure

Design a 3-D structure.

For example, you could design a skateboard ramp, tree fort, or bird house.

Your 3-D structure should contain both a rectangular prism and a triangular prism.

1. On isometric dot paper, draw your structure in 3-D.

2. On graph paper, draw the three views (top, front, and side) of your structure and include measurements.

3. Create the net of your 3-D structure.

4. Add design, colour, and detail to the net.

   In your assignment:

   - the net should build into your 3-D shape
   - the 3-D shape should match your isometric drawing
   - include titles for each of your drawings
   - use a ruler for all straight lines
   - use a pen or marker to go over all lines or use a computer to do the drawings

The following rubric will be used to mark your assignment:

Unsatisfactory	Satisfactory	Good	Excellent
Instructions followed (8 marks)			
Many instructions not followed 0–3	Some instructions followed 4	Most instructions followed 5–6	All instructions followed 7–8
Visual presentation (4 marks)			
• Little impact • Pages are unbalanced 0–1	• Small impact • Pages are somewhat balanced 2	• Positive impact • Pages are mostly balanced 3	• Striking and memorable project • Care with page balance greatly enhances project 4
Neatness (4 marks)			
Messy or sloppy work 0–1	Somewhat neat 2	Neat 3	Very neat 4
Accuracy of information (8 marks			
Many inaccuracies 0–3	Somewhat accurate 4	Mostly accurate 5–6	Highly accurate 7–8

Evaluation Guidelines	Marks
Part 1: Multiple Choice and Short Answer	/26
Part 2: Design a 3-D Structure	/24
Total Marks	/50

Lesson 1.2A
Warm-up

1. Of the following 3-D shapes—cube, rectangular prism, triangular prism, and cylinder—which have:

   a. rectangles in the net? _____

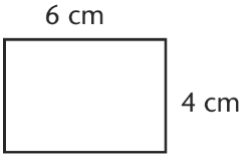
   _____

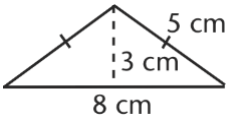
   b. triangles as faces? _____

   c. circles as a surface? _____

   d. only squares in the net? _____

2. Match each shape to each area. You can use your formula sheet.

_____ 

_____ 

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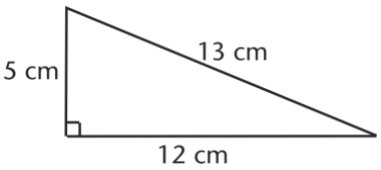
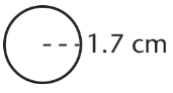
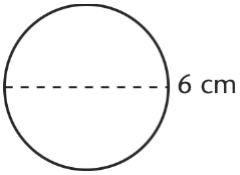
_____ 

_____ 

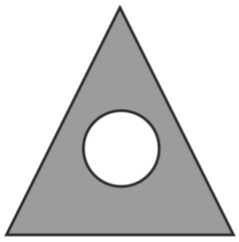
_____ 

a. 9.1 cm^2
b. 113 cm^2
c. 9.6 cm^2
d. 30 cm^2
e. 60 cm^2
f. 28.3 cm^2
g. 12 cm^2
h. 24 cm^2

Lesson 1.2B
Warm-up

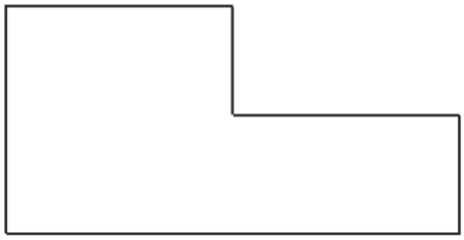
1. Describe each of the following shapes.

a.



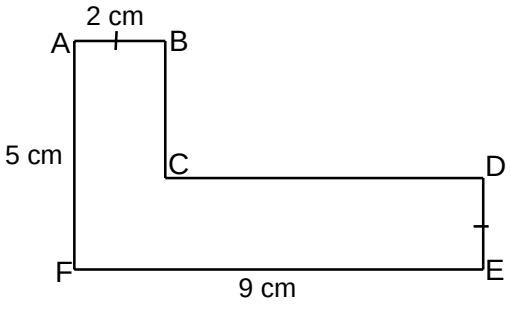
b.

c.



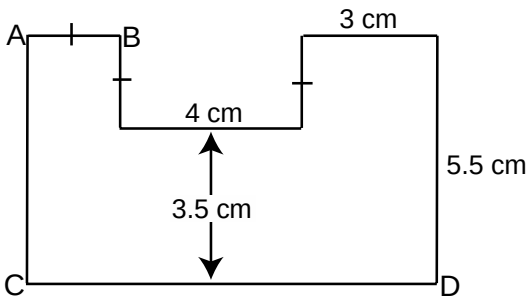
2. Find the missing lengths in each diagram.

a.



BC = _____
CD = _____
DE = _____

b.



AB = _____
AC = _____
CD = _____

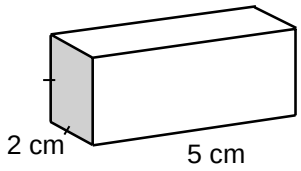
Lesson 1.2C
Warm-up

1. Which words and units match? Write the correct letter in each blank.

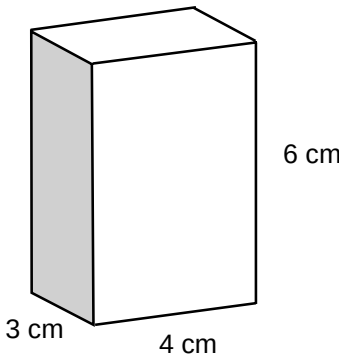
_____	surface area	a. cm
		b. m^2
_____	volume	c. mm^3
_____	length	

2. Find the volume of each rectangular prism. Include units in your answer.

a.

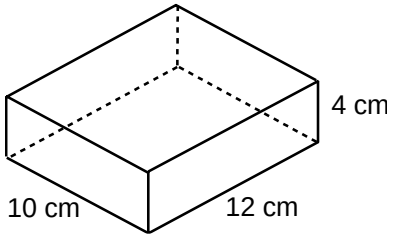


b.



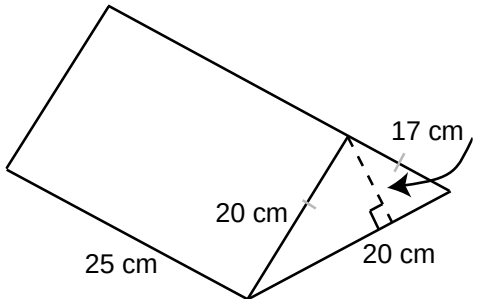
Section Assignment 1.2 Part 1:
Multiple Choice and Short Answer

1. What is the surface area of this box? (2 marks)



   a. 208 cm²
   b. 296 cm²
   c. 416 cm²
   d. 832 cm²

2. What is the surface area of this prism? (2 marks)



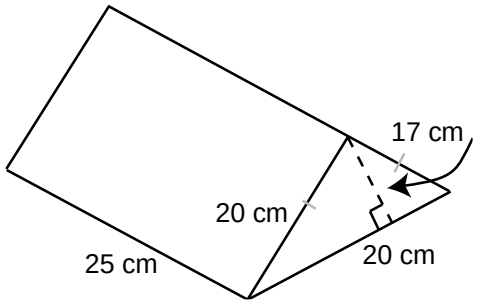
   a. 74 cm²
   b. 1670 cm²
   c. 1765 cm²
   d. 1840 cm²

3. The diameter and height of a cylinder are each 2 cm. What is the surface area of the cylinder to the nearest hundredth of a square centimetre? (2 marks)
   a. 15.70 cm²
   b. 18.84 cm²
   c. 31.40 cm²
   d. 37.68 cm²

4. What is the volume of a cube with an edge length of 2.3 m? (2 marks)

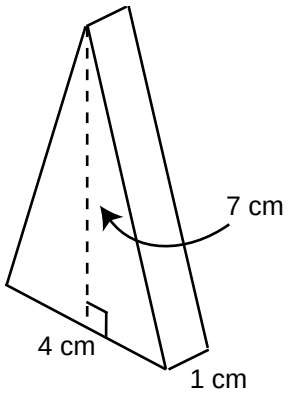
   a. 12.2 m^3
   b. 24.3 m^3
   c. 36.5 m^3
   d. 48.7 m^3

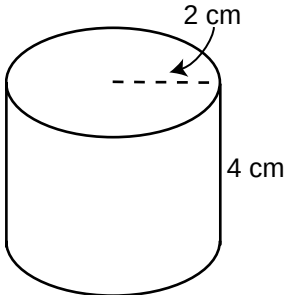
5. What is the volume of this prism? (2 marks)



   a. 4250 cm^3
   b. 5000 cm^3
   c. 8500 cm^3
   d. 10 000 cm^3

6.





   a. Simply by looking, guess which of the prisms above has the largest volume. Name your choice here: (1 mark)

   _____

   Explain your choice. (2 marks)

   _____

   _____

b. Find the volume of each prism. (4 marks)

c. Which one is larger? (1 mark)

Section Assignment 1.2 Part 2:
Design a Dog House

You will be designing a dog house for the dog of your choice and figuring out the cost of lumber to make it. (32 marks)

Research the dog of your choice. (4 marks)

Write the type here: _____

Write the overall dimensions of your dog using metres or centimetres.

How long is it? _____

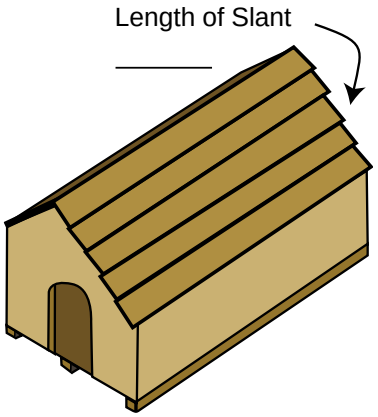
How wide is it? _____

How tall is it? _____

Step 2: Decide on the dimensions of your doghouse. (4 marks)

Remember, your dog needs to be able to fit through the opening and be comfortable inside.

Label the dimensions on this drawing.



Height of Triangular Prism: _____

Height of Rectangular Prism: _____

Width of Rectangular Prism: _____

Width of Opening: _____

Height of Opening: _____

Step 3: Decide if the dog will fit in the doghouse. (4 marks)

a. What is the approximate volume of your dog?

b. What is the volume of your dog house, to the nearest tenth?

Show your work below, then write your final answer here:

c. Will your dog live comfortably in your dog house? Explain why, or why not.

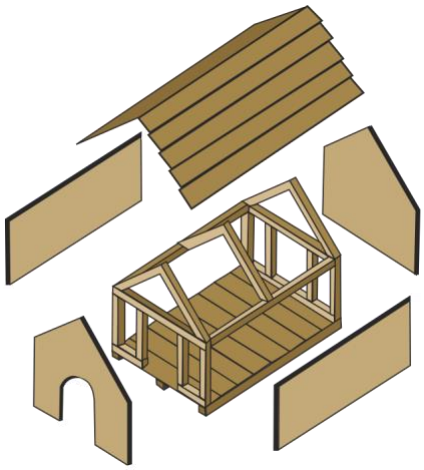
_____

_____

Step 4: Calculate the cost of the plywood. (12 marks)

The plywood you will be using for the outside surfaces of your dog house costs \$3.50/m^2. This plywood is coated so that it is water resistant to prevent rotting.

a. Find the area of each surface to the nearest tenth of a square metre.



front view: _____

back view: _____

side view: _____

top view: _____

bottom view: _____

b. What is the total surface area? _____

c. The plywood is sold as one complete m^2. How many full pieces of plywood will you need? _____

d. How much will the plywood cost? _____

Step 5: Calculate the cost of the frame. (4 marks)

To hold up the sides of the doghouse you will need to build a frame inside. The drawing in Step 4 shows all the beams you will need to build the frame.

The beams cost $2.00 for every metre of length.

a. Using the drawing, figure out how many metres of beam you will need.
Show your work below, then write your answer here:

b. How much will the beams cost you? _____

Step 6: Calculate the total cost of the project and summarize your learning. (4 marks)

a. What is the total cost of this project? _____

b. What did you learn that you did not already know by completing Steps 1–5?

_____

_____

Evaluation Guidelines	Marks
Part 1: Multiple Choice and Short Answer	/18
Part 2: Design a 3-D Structure	/32
Total Marks	/50

Section Assignment 1.3 Part 1:
Multiple Choice and Short Answer

Multiple Choice (2 marks each)

1. Which of the following polygons cannot tessellate an entire plane?

    a. equilateral triangle
    b. square
    c. regular pentagon
    d. regular hexagon

2. Polygons can tessellate an entire plane when the vertices are joined at a point and they add up to ____°.

    a. 90°
    b. 180°
    c. 270°
    d. 360°

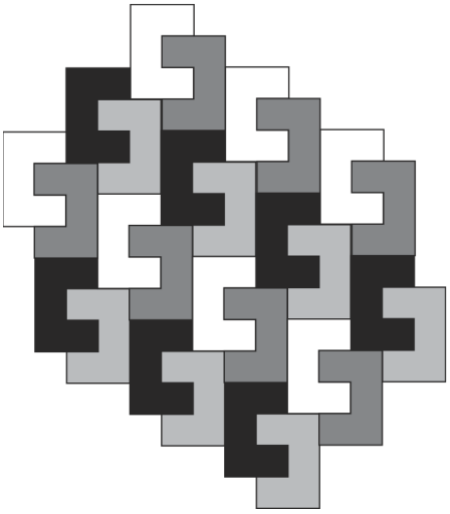
3. A rhombus has a pattern cut out of one edge. The pattern is lifted out of the rhombus and is slid to the other side without turning or flipping the rhombus. The shape is taped to that edge. Which statement is correct?

    a. The area of the rhombus = the area of the irregular shape
    b. The area of the rhombus > the area of the irregular shape
    c. The area of the rhombus < the area of the irregular shape
    d. Not enough information is given

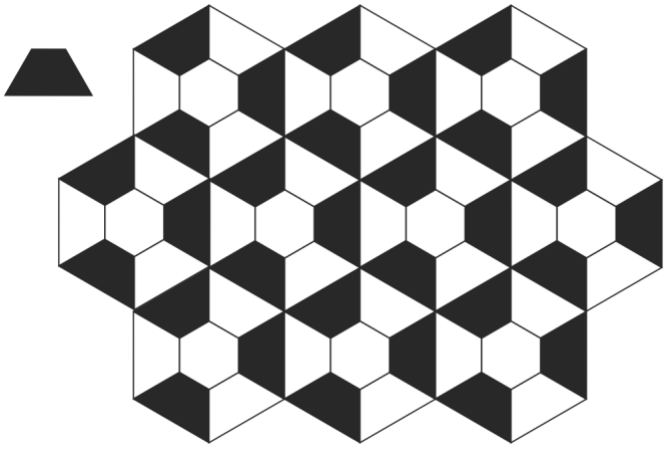
Decide what type of transformation(s) you see in each of the following tessellations. Choose from these choices for each tessellation. Each tessellation can have more than one answer.

a. translation
b. reflection
c. rotation
d. translation, reflection
e. translation, rotation
f. all three transformations

4.



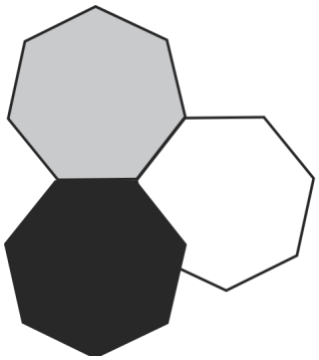
5.



Short Answer (3 marks)

1. a. What is the regular polygon shown in this diagram. (1 mark)

_____



b. Can this shape tessellate an entire plane? Explain your answer by referring to the diagram. (2 marks)

_____

_____

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Section Assignment 1.3 Part 2:
Tessallations Booklet

You are going to create a tessellation using an irregular shape. Along with your creation, you will include descriptions of the steps you took to create the tessellation. You can create the tessellation by hand, or by using a graphics program. (37 marks)

Your tessellation must include:

- translation
- reflection
- rotation

You can create a design within the tile that uses rotation or reflection if you aren't able to use either of these transformations to make the tessellation.

Project requirements:

- Use two or more colours in your project.
- Use complete sentences, proper grammar and spelling for the descriptions.

Create a four-page booklet with the drawings and step-by-step descriptions together, in the following order:

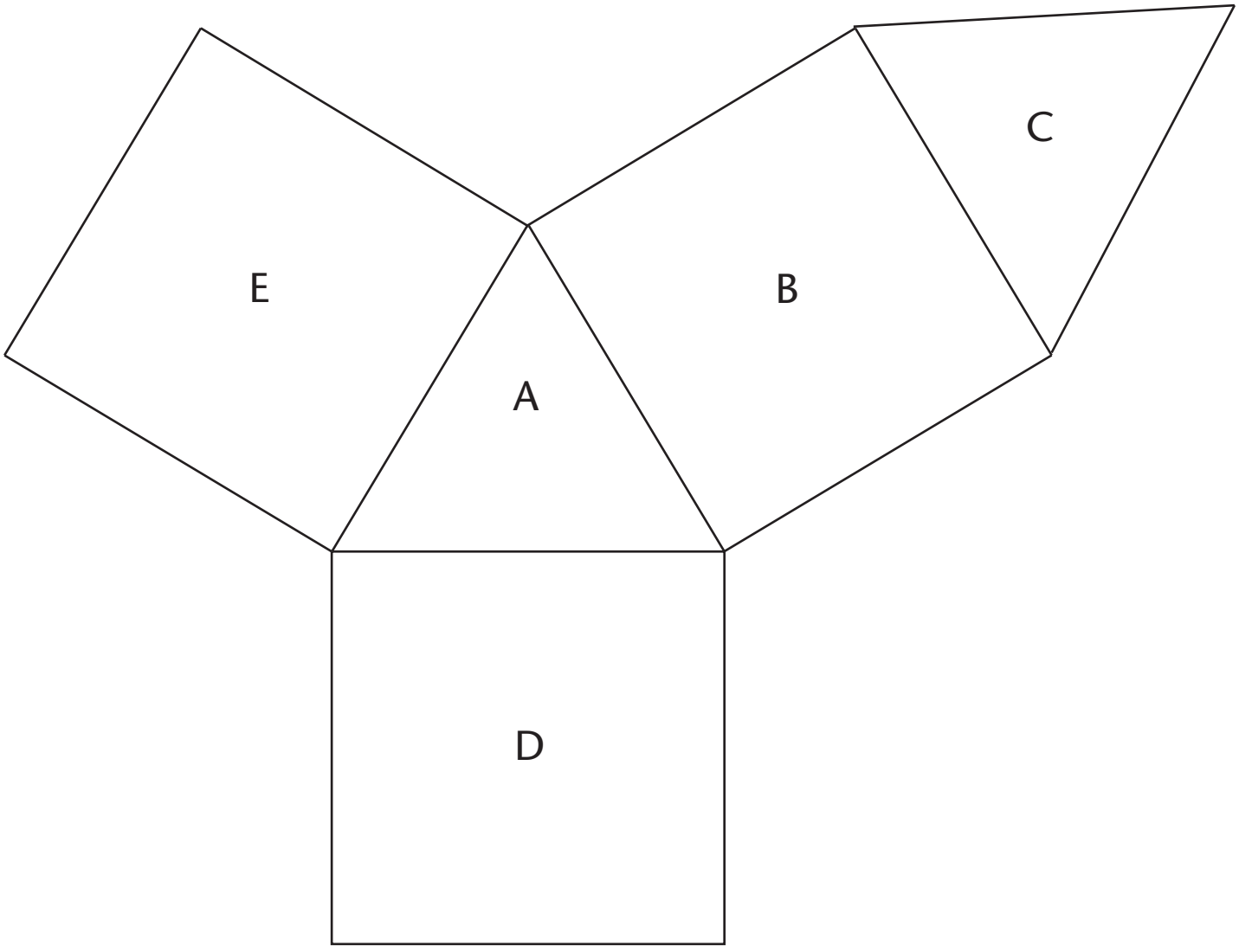
What to Write: (Use Complete Sentences)	What to Draw:
For all pages: include a descriptive title written in bold.	
Page 1 • the name of the polygon you started with	the polygon
Page 2 • a step-by-step description of how you changed the polygon to create your irregular polygon • an explanation of whether you used a translation, reflection, or rotation to create the tessellation tile	the tessellation tile
Page 3 • an explanation of why you chose those colours or drawings to decorate the tile Remember: you can create a design within the tile that uses rotation or reflection if you aren't able to use either of these transformations to make the tessellation	the tessellation tile with its design
Page 4 • an explanation of how you used rotation, reflection, and translation in your tessellation	your tessellation in full colour

Important: Before you start your project, read through the marking rubric carefully. After completing your project, check it against the marking rubric before you hand it in.

The following rubric will be used to mark your assignment:

Unsatisfactory	Satisfactory	Good	Excellent
Instructions followed (9 marks)			
Many instructions not followed 0–4	Some instructions followed 5–6	Most instructions followed 7–8	All instructions followed 9
Overall impact (3 marks)			
• Little impact • Bland looking 0	• Small impact 1	• Positive impact 2	• Striking and memorable project 3
Balance/layout (5 marks)			
• Pages are unbalanced • Layout is cluttered or haphazard 0–2	Pages are somewhat balanced and/or layout is inconsistent 3	Balance and positioning of project elements are consistent 4	Balance and positioning of project elements greatly enhance overall layout 5
Neatness (5 marks)			
Messy or sloppy work 0–1	Somewhat neat 2	Neat 3	Very neat 4
Accuracy of information (10 marks			
• Gaps or overlaps in the drawings • Other inaccuracies 0–3	Somewhat accurate 4	Mostly accurate 5–6	Highly accurate 7–8
Grammar and Spelling (5 marks)			
Several spelling or grammar errors 0–2	Some spelling or grammar errors 3	Few spelling or grammar errors 4	No spelling or grammar errors 5

Evaluation Guidelines	Marks
Part 1: Multiple Choice and Short Answer	/13
Part 2: Design a 3-D Structure	/37
Total Marks	/50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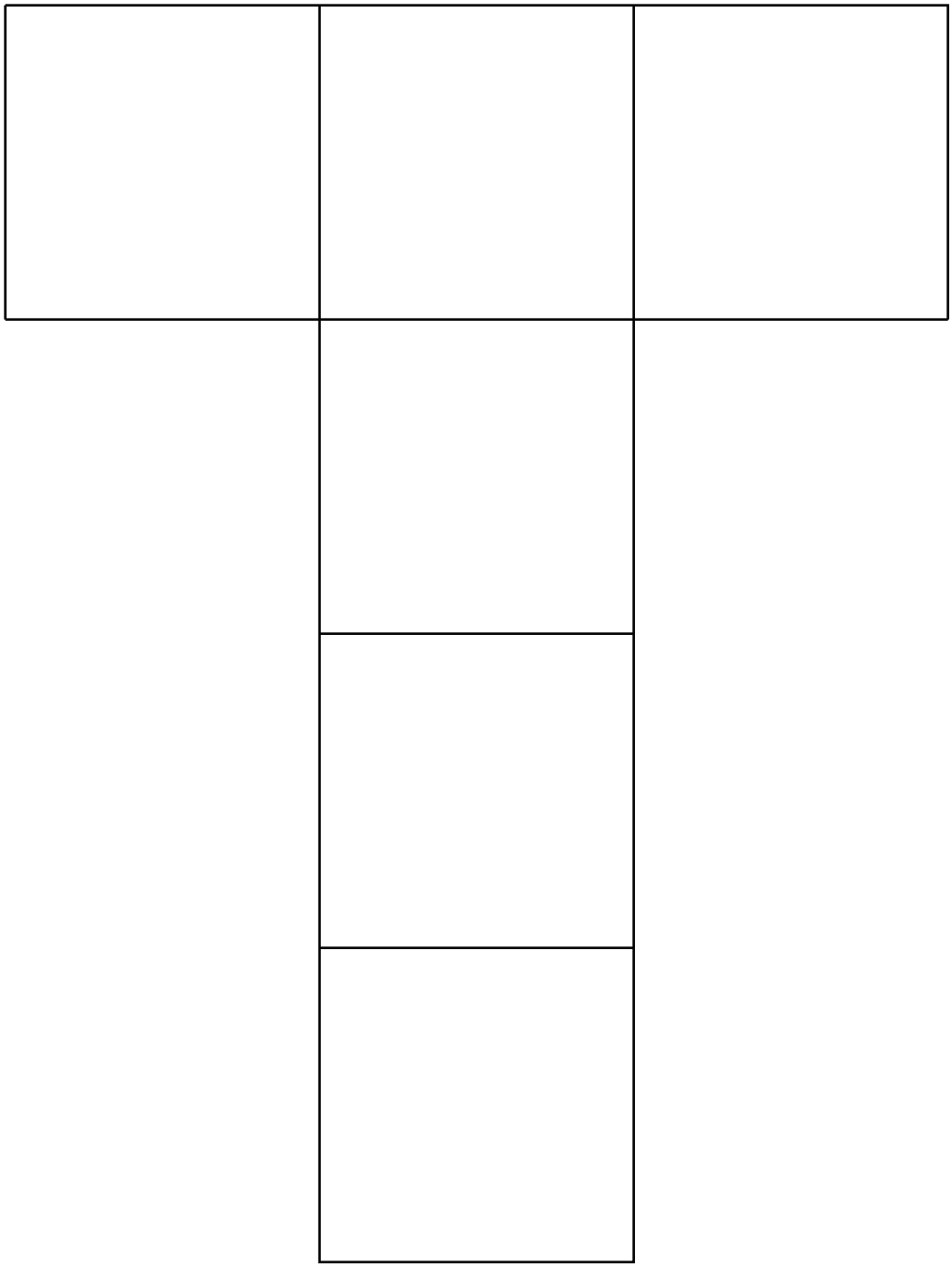

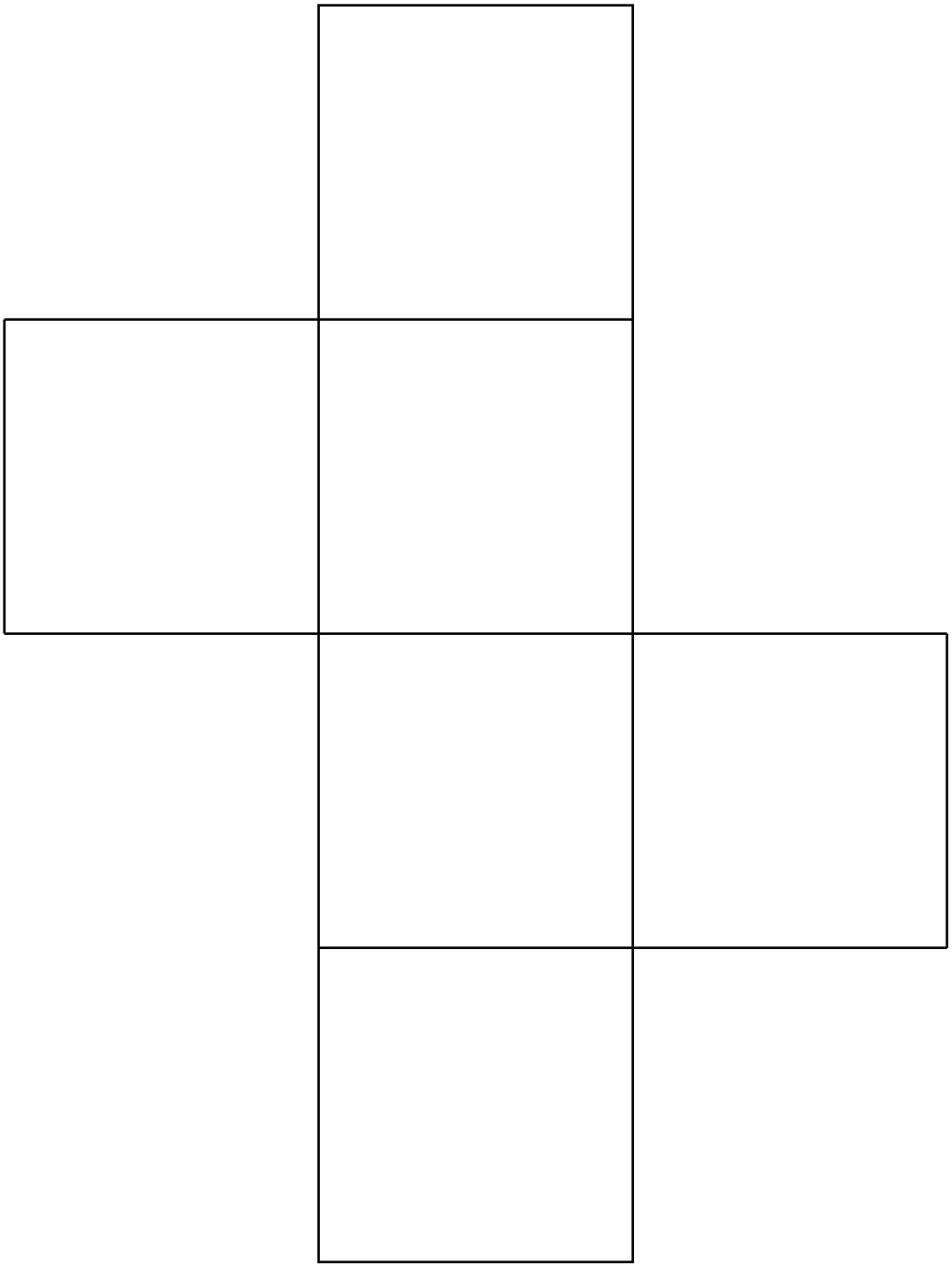

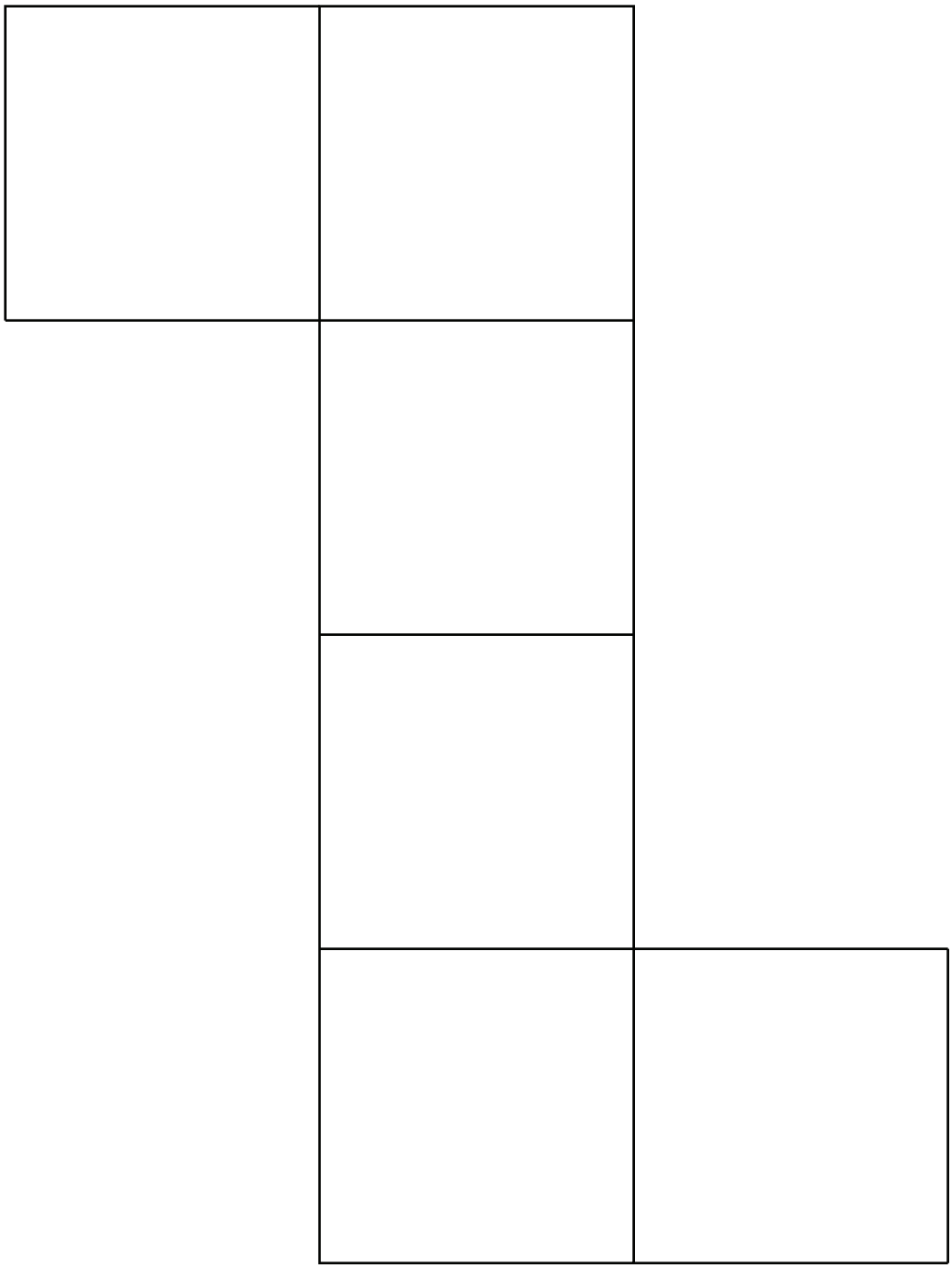

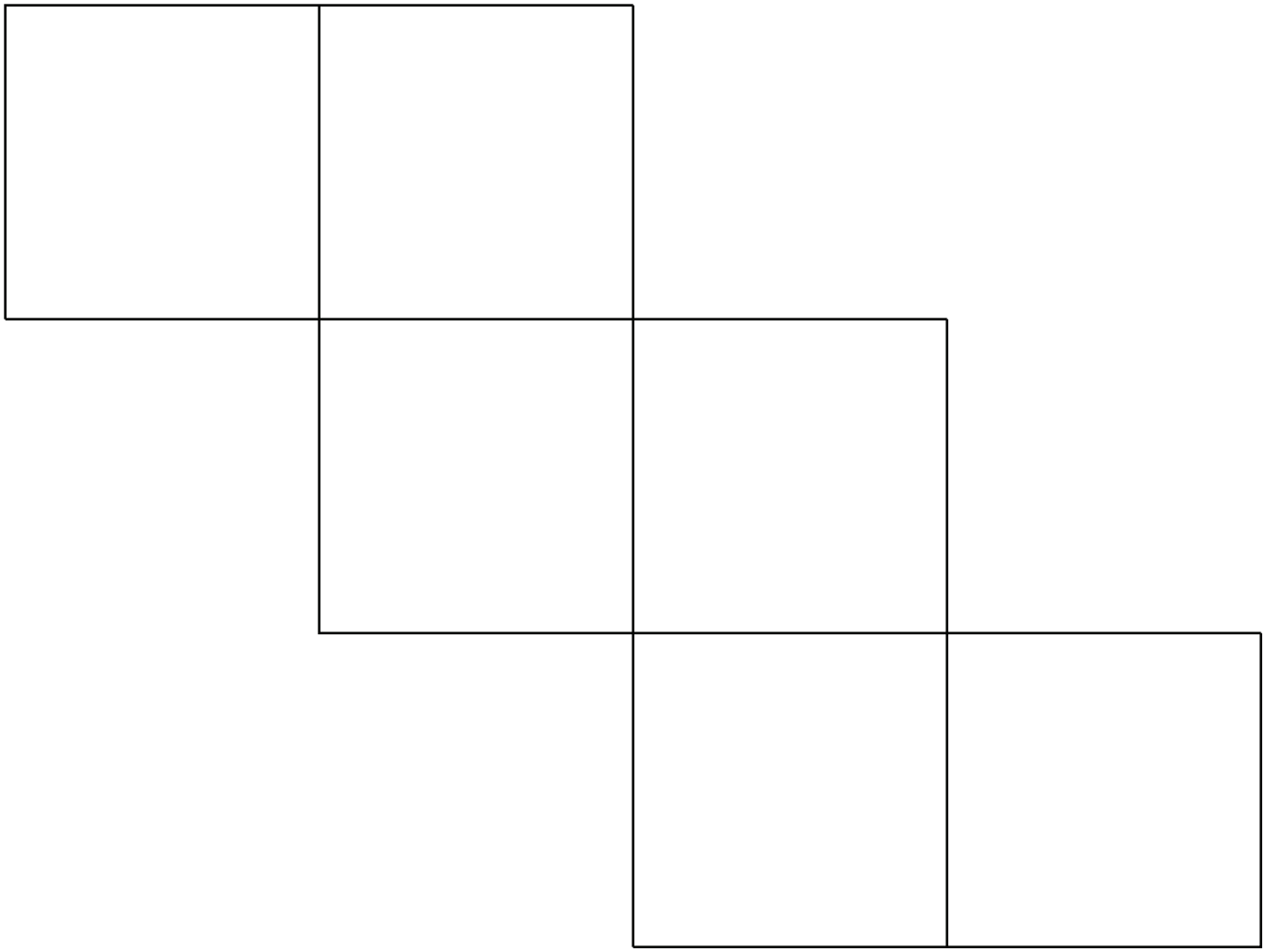

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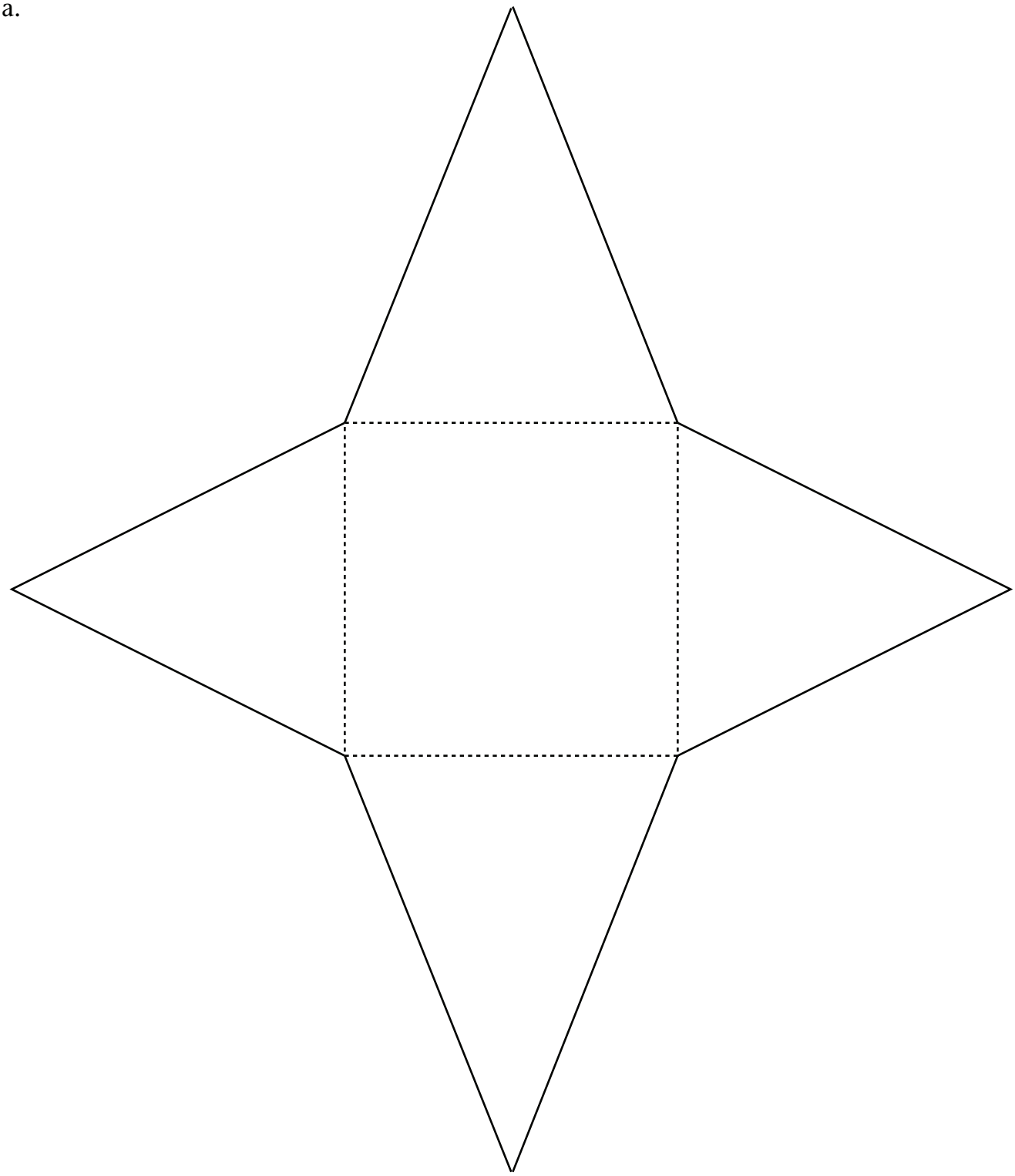

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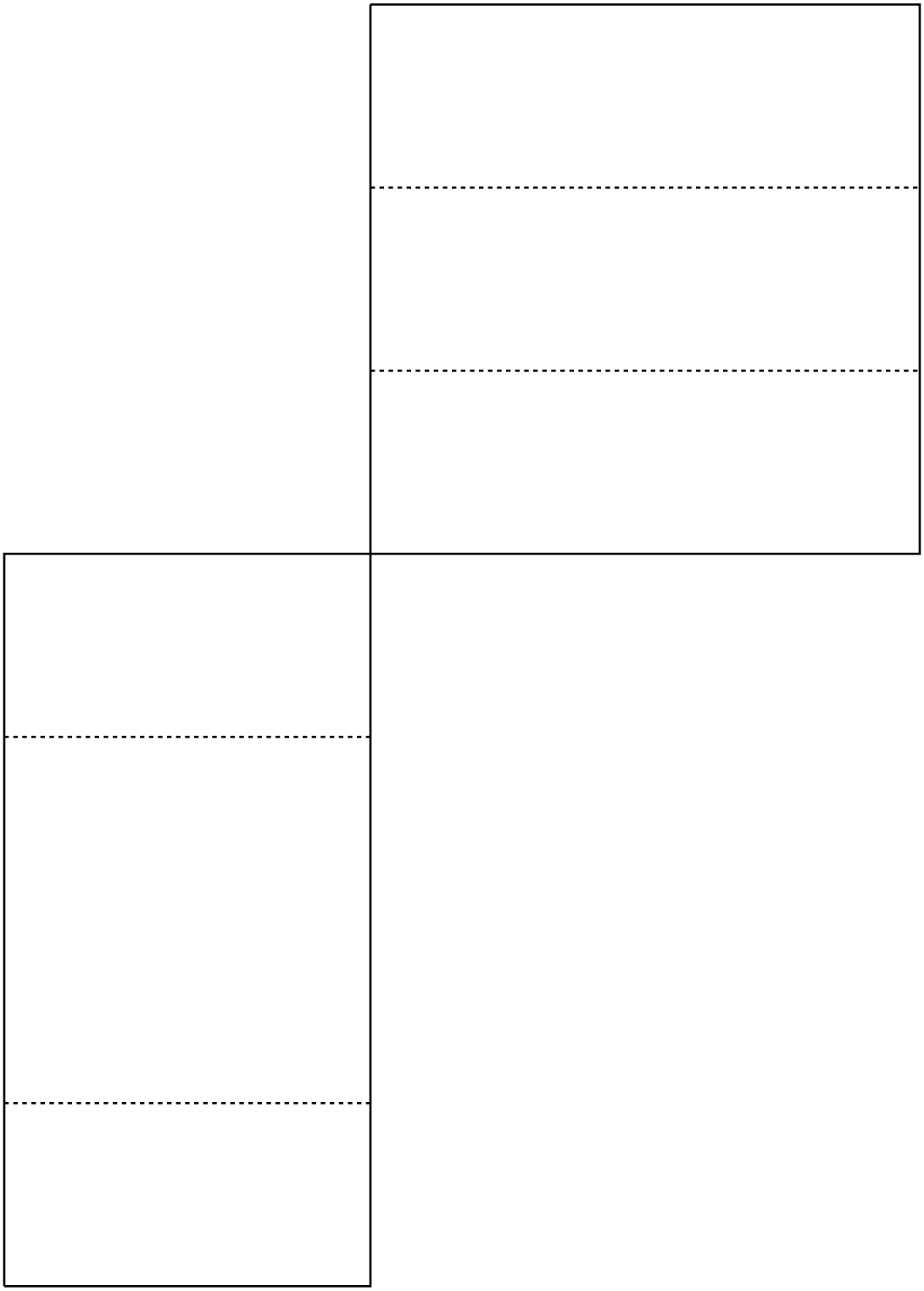

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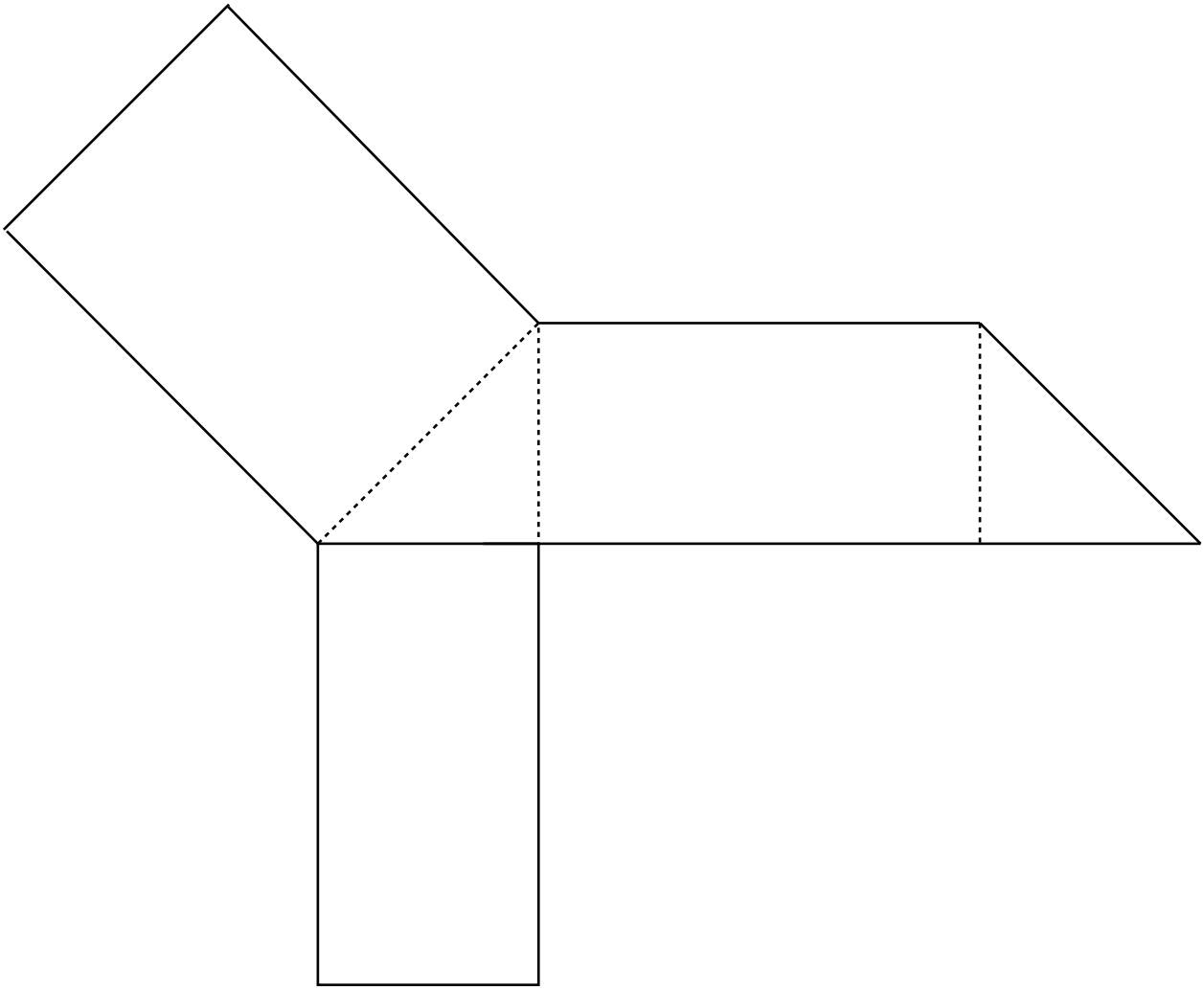

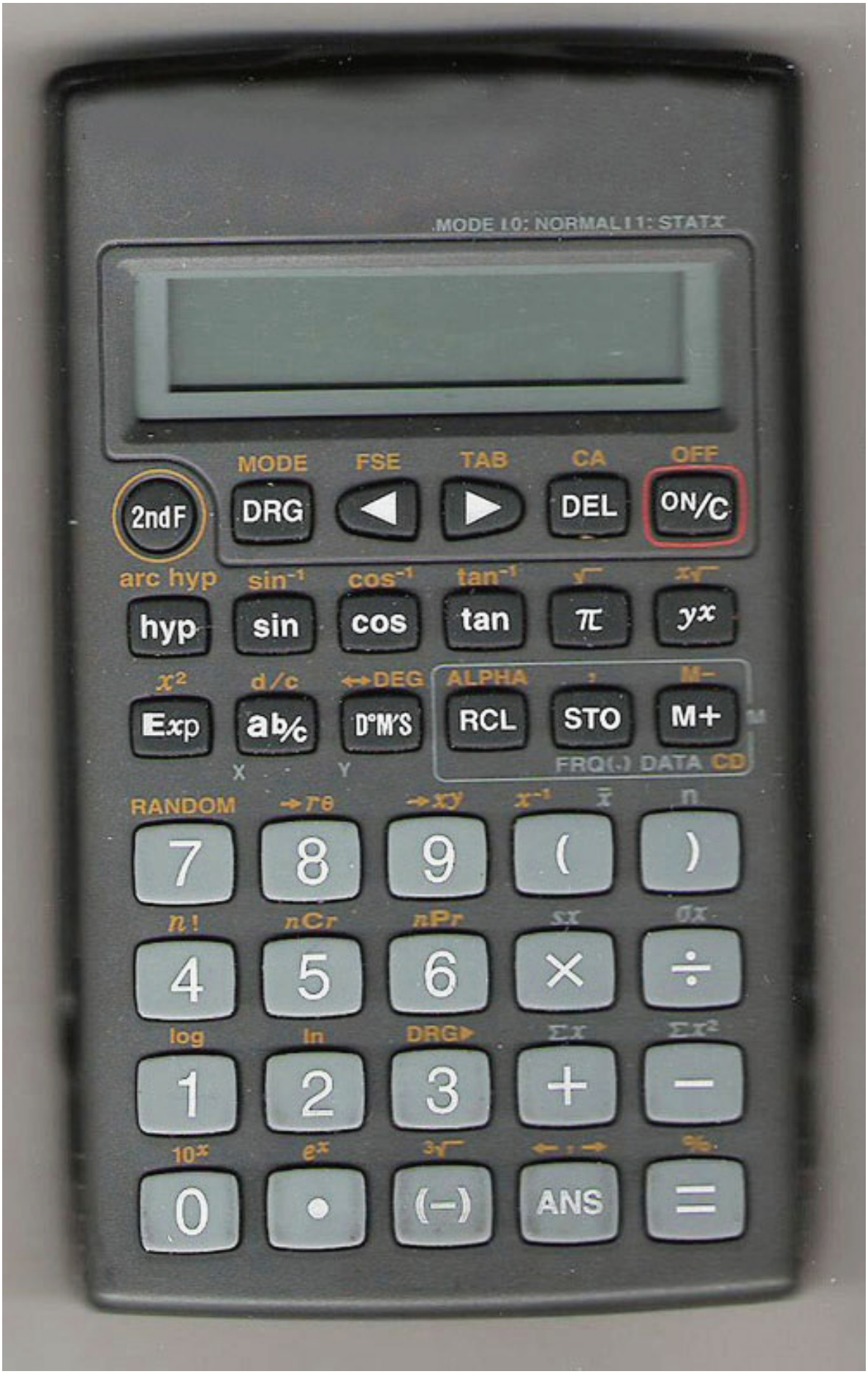
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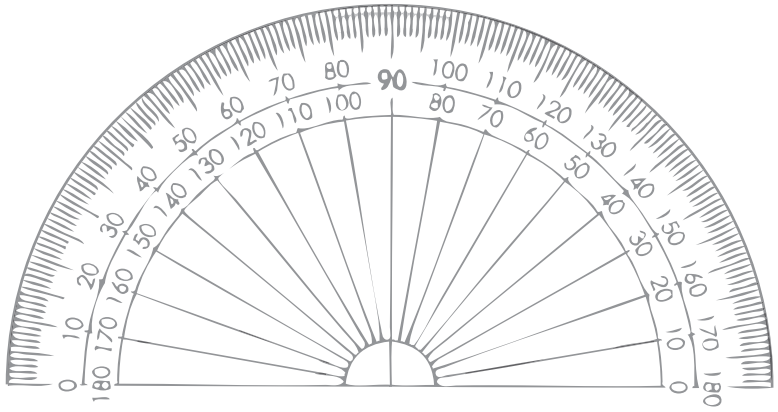
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