IMKH California

GRADE 7

Teacher Resource Copy Masters

UNITS 7-9

Illustrative Mathematics LEARN MATH FOR LIFE | Kendall Hunt

Book 3

Certified by Illustrative Mathematics®

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GRADE 7

UNIT

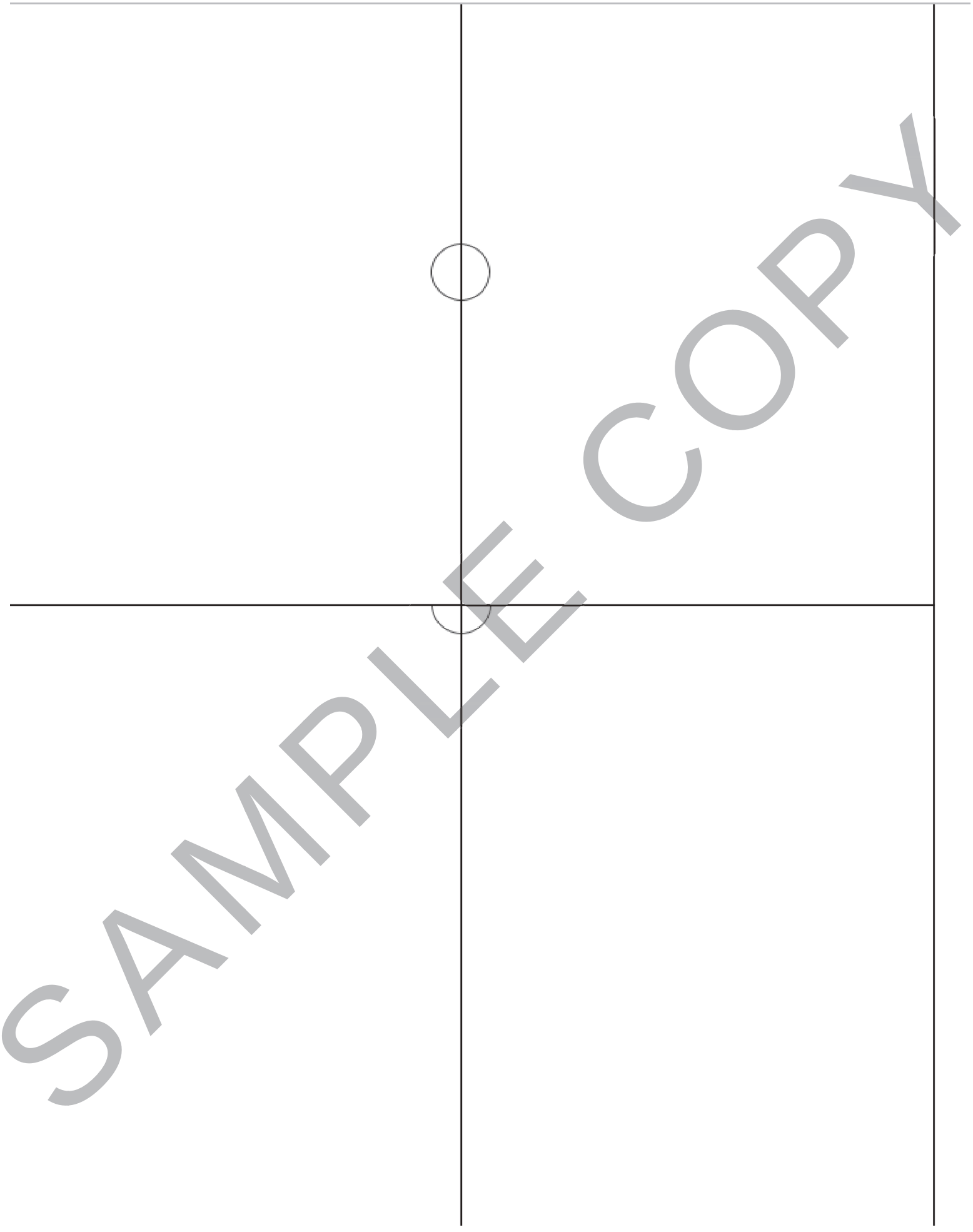
7

Teacher Resource Copy Masters

LESSON BLACKLINE MASTERS

address	title	students per copy	written on?	requires cutting?	card stock recommended?	color paper recommended?	used multiple times?	used as a center material?
Activity Grade7.7.2.2	Cutting Rectangles Cutouts	2	yes	yes	no	no	no	no
Activity Grade7.7.4.2	Angle Finding Cards	2	no	yes	no	no	no	no
Activity Grade7.7.6.2	What Can You Build? Cutouts	2	no	yes	no	yes	no	no
Activity Grade7.7.6.3	What Can You Build? Cutouts	2	no	yes	no	yes	no	no
Activity Grade7.7.6.4	What Can You Build? Cutouts	2	no	yes	no	yes	no	no
Activity Grade7.7.7.3	Swinging the Sides Around Handout	1	yes	no	no	no	no	no
Activity Grade7.7.10.2	Revisiting How Many Can You Draw? Handout	1	no	no	no	no	no	no
Activity Grade7.7.11.3	Cross Sections Cards	3	no	yes	no	no	no	no

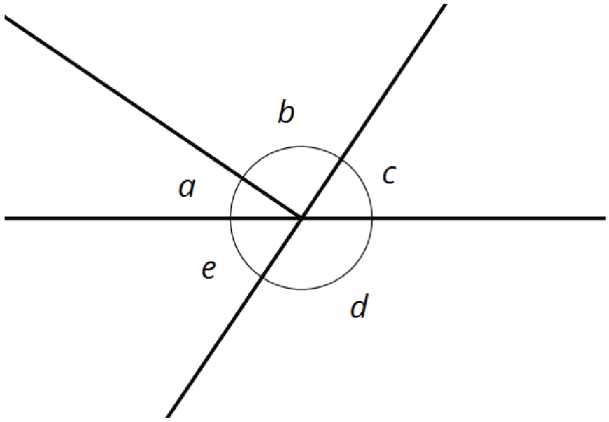
address	title	students per copy	written on?	requires cutting?	card stock recommended?	color paper recommended?	used multiple times?	used as a center material?
Activity Grade7.7.12.2	Finding Volume with Cubes Handout	6	no	yes	no	no	no	no
Activity Grade7.7.12.3	Can You Find the Volume Cutouts	18	no	yes	yes	no	no	no
Activity Grade7.7.14.1	Multifaceted Cutouts	30	no	yes	no	no	no	no
Activity Grade7.7.14.2	Multifaceted Cutouts	30	no	yes	no	no	no	no
Activity Grade7.7.15.3	Surface Area or Volume Cards	2	no	yes	no	no	no	no
Activity Grade7.7.17.3	Making the Prism Handout	1	yes	no	no	no	no	no



Info Gap: Angle Finding

Problem Card 1

Find the measure of angle *b*.



Info Gap: Angle Finding

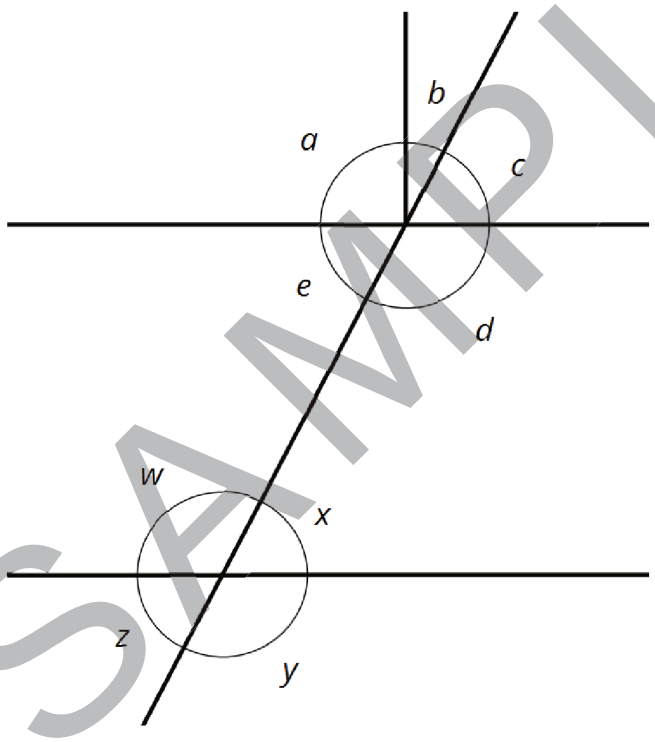
Data Card 1

- Angles c and e are vertical angles.
- Angles a and c are complementary angles.
- The measure of angle d = 124°.
- The measure of angle c = 56°.

Info Gap: Angle Finding

Problem Card 2

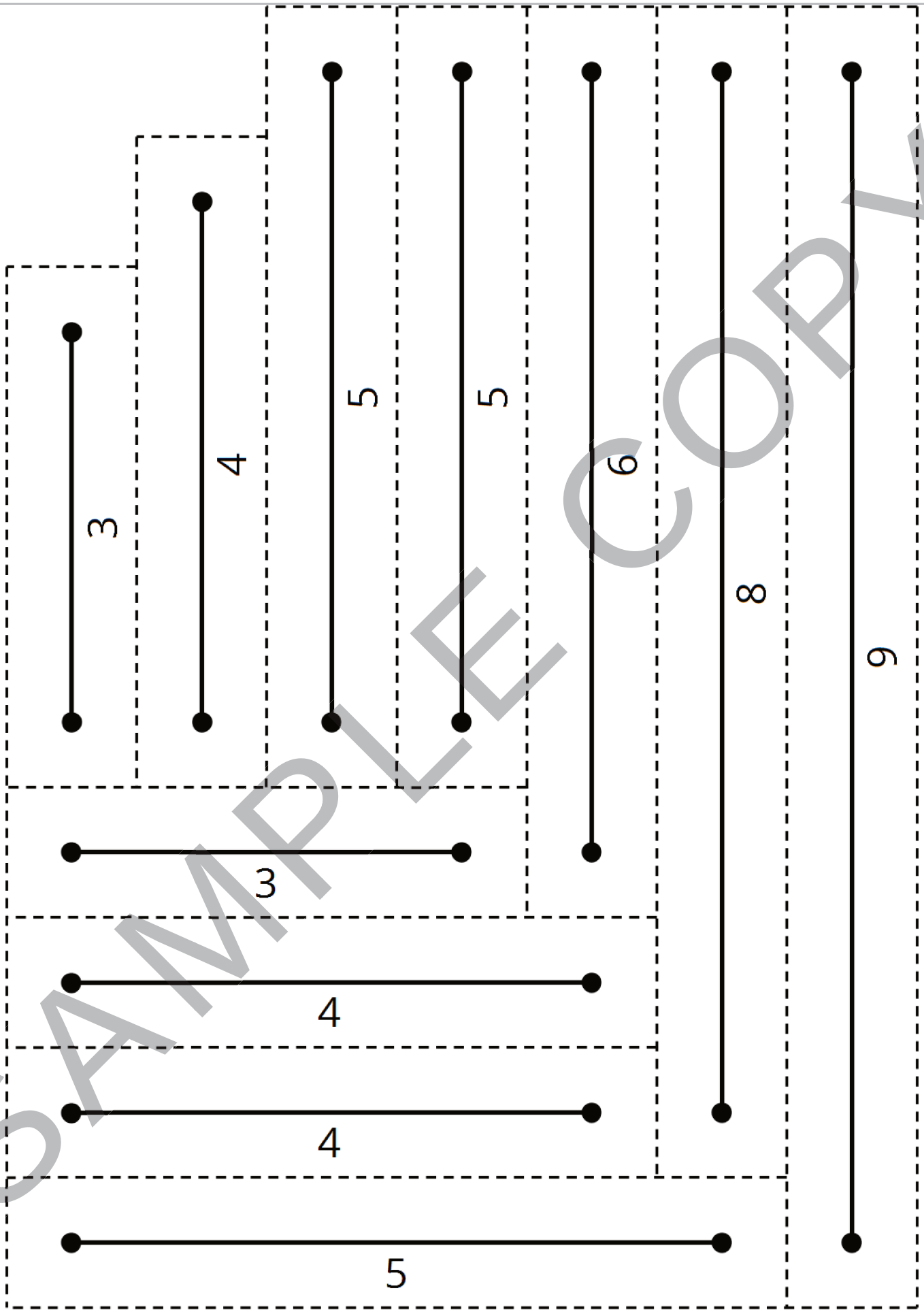
Find the measure of angle *b*.

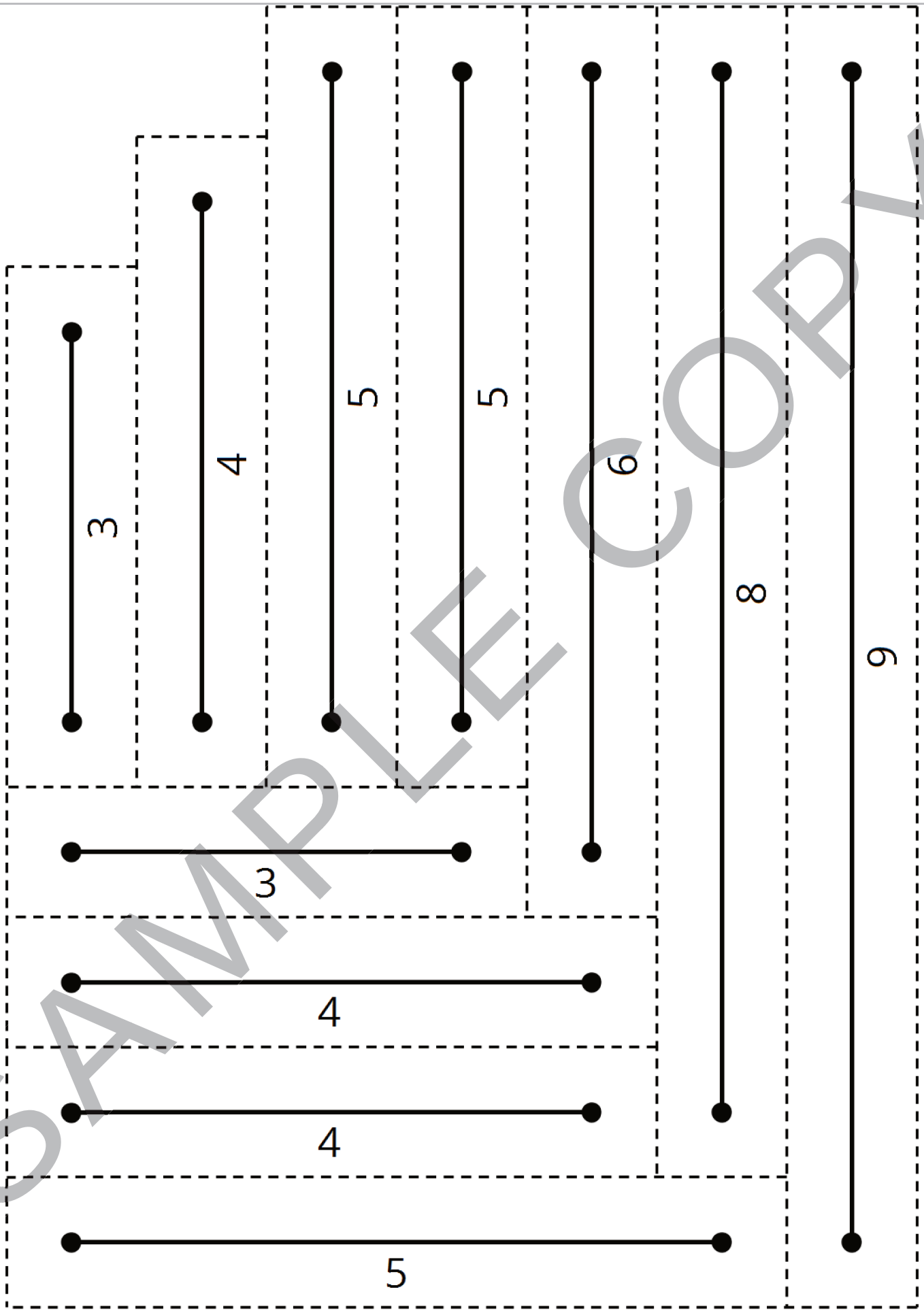


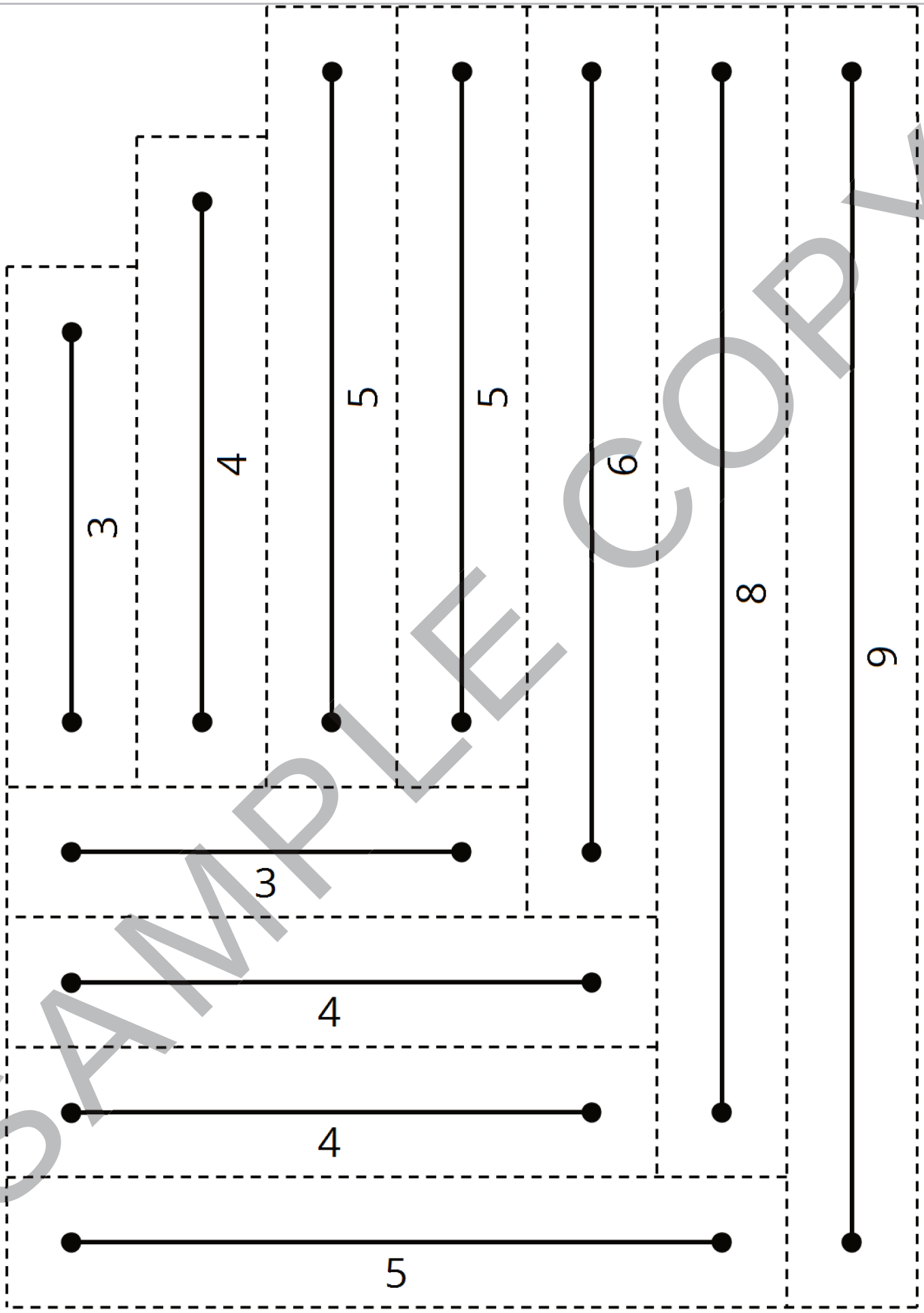
Info Gap: Angle Finding

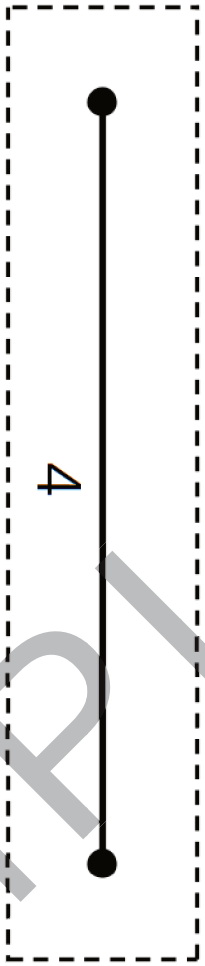
Data Card 2

- The measure of angle a = 90°.
- The measure of angle z = 63°.
- Angles c and z are not vertical angles.
- Angles d and x are supplementary angles.



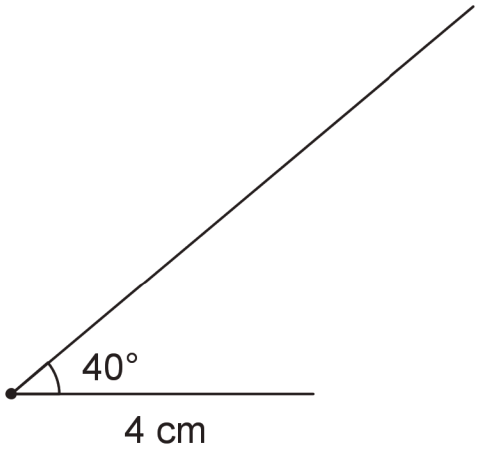




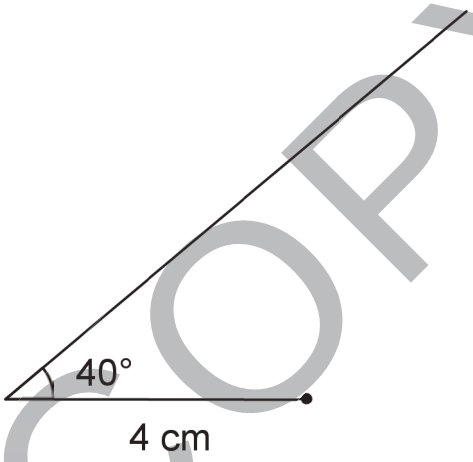


Set your compass to 5 cm and then draw an arc:

from the left end of the 4 cm segment

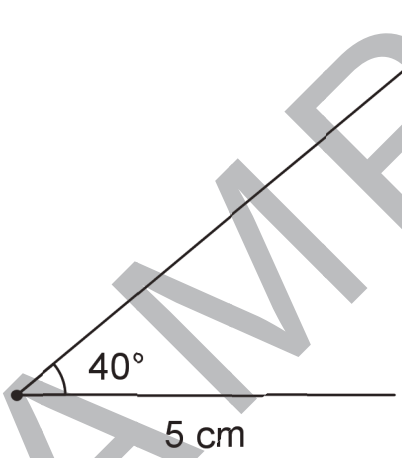


from the right end of the 4 cm segment

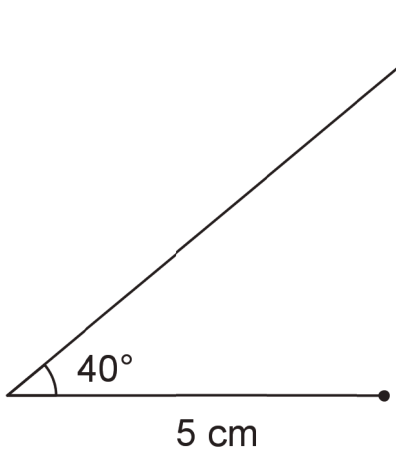


Set your compass to 4 cm and then draw an arc:

from the left end of the 5 cm segment



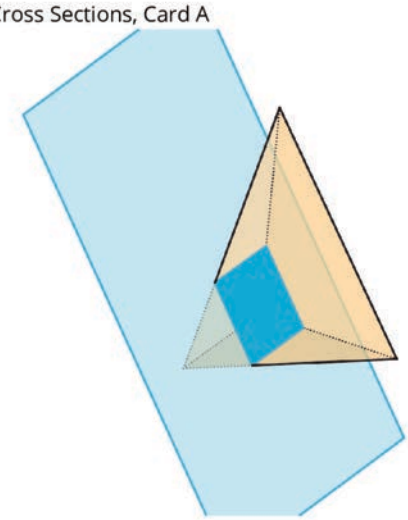
from the right end of the 5 cm segment



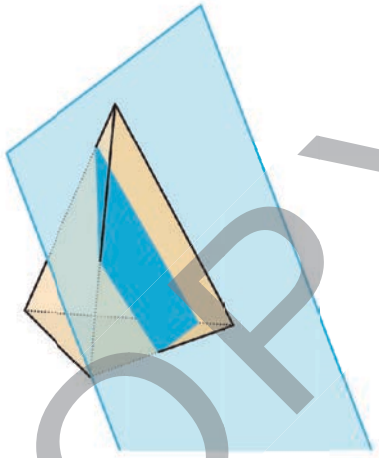
After you finish drawing and labeling each triangle, consider the following questions:

- Which two configurations made the same triangle?
- Which one configuration could make more than one triangle?

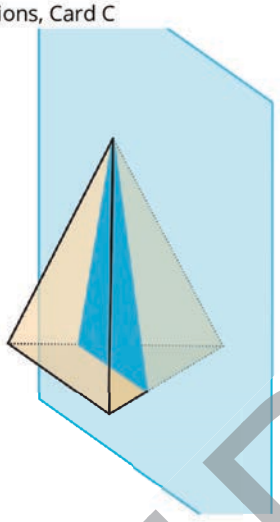
Card Sort: Cross Sections, Card A



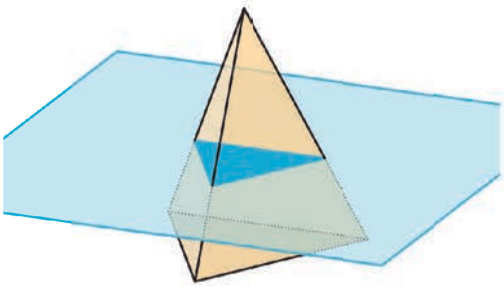
Card Sort: Cross Sections, Card B



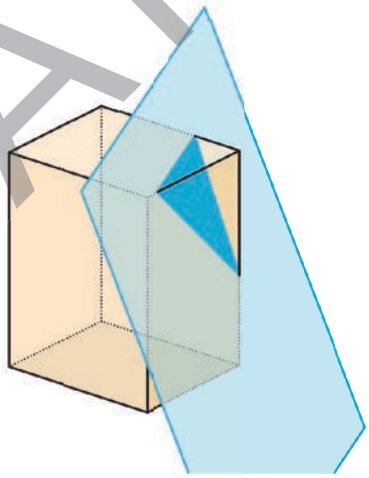
Card Sort: Cross Sections, Card C



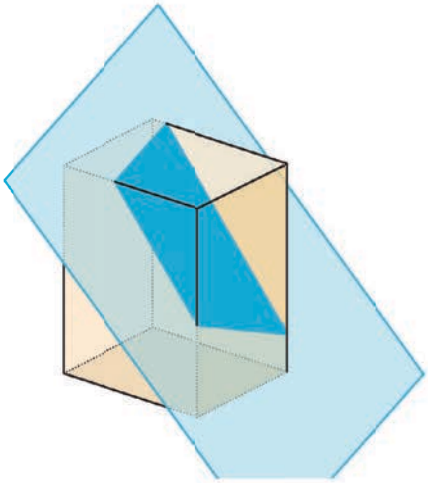
Card Sort: Cross Sections, Card D



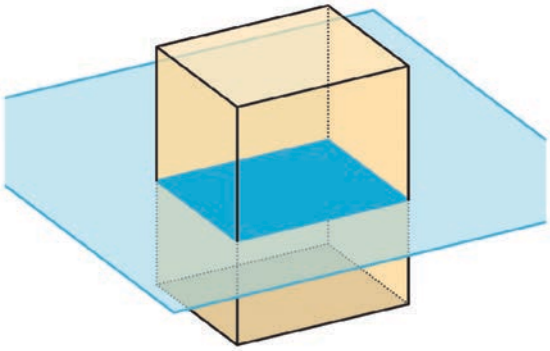
Card Sort: Cross Sections, Card E



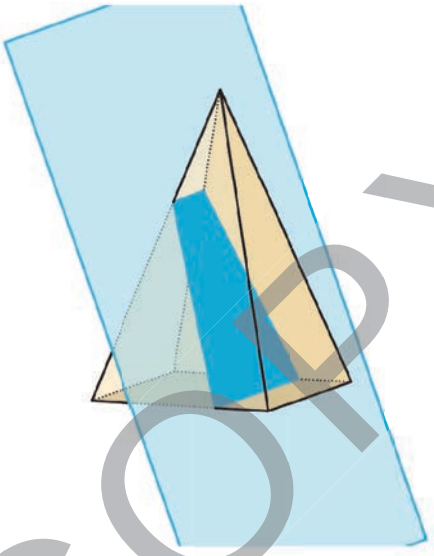
Card Sort: Cross Sections, Card F



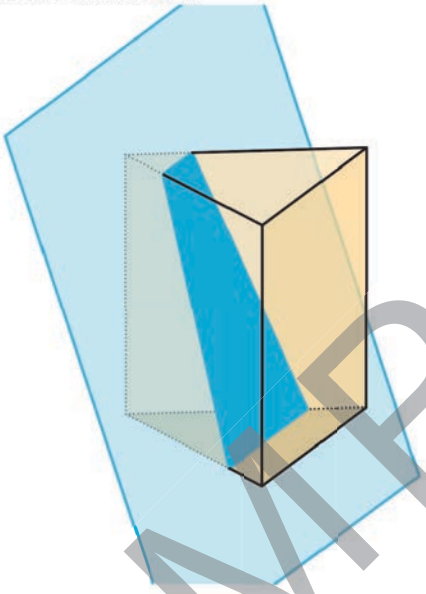
Card Sort: Cross Sections, Card G



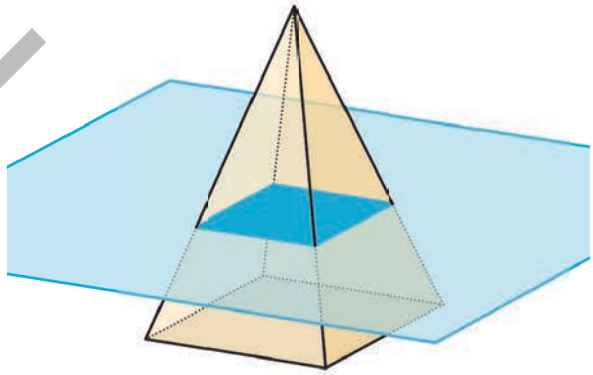
Card Sort: Cross Sections, Card H



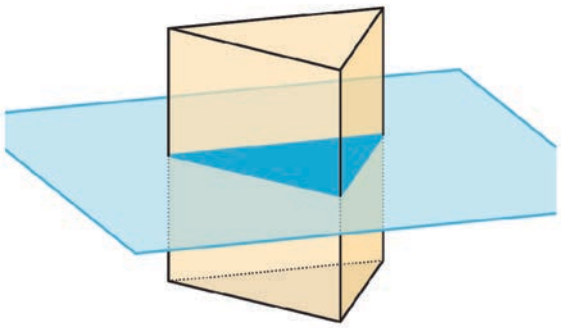
Card Sort: Cross Sections, Card I



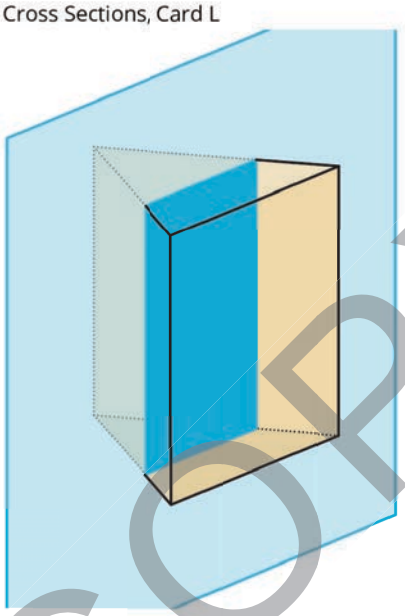
Card Sort: Cross Sections, Card J



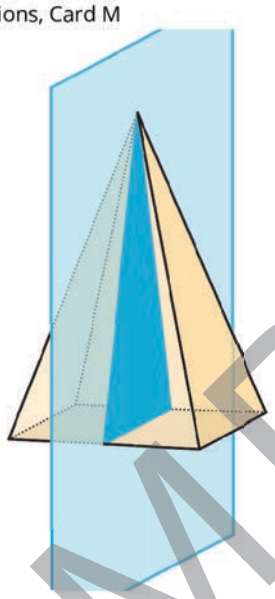
Card Sort: Cross Sections, Card K

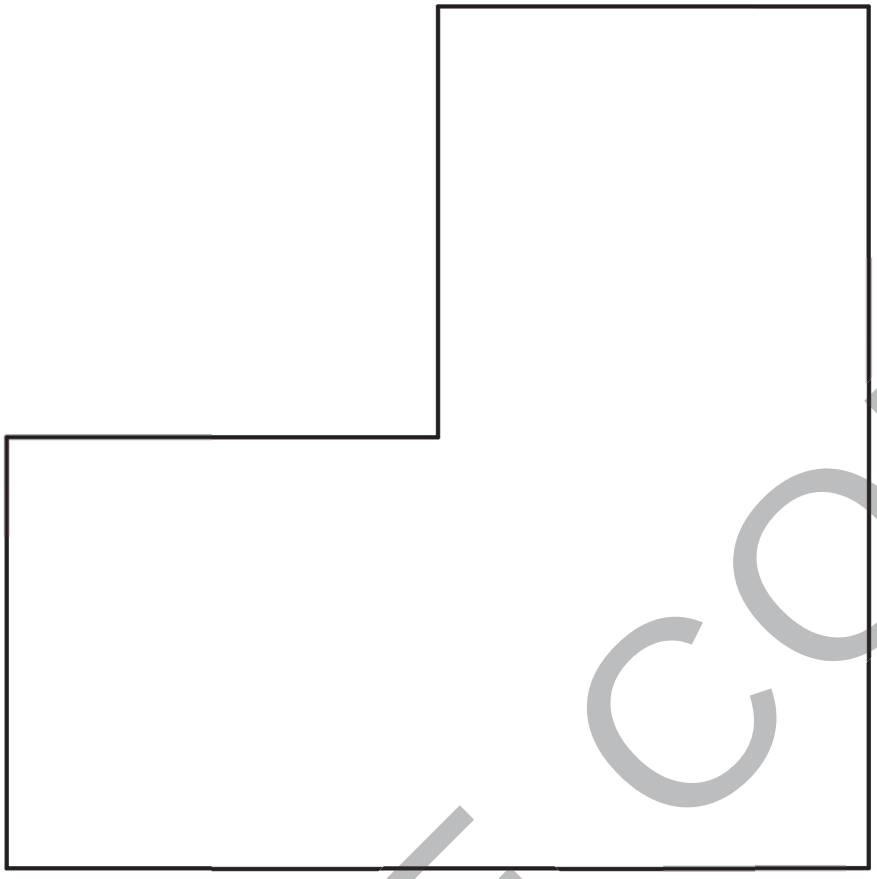


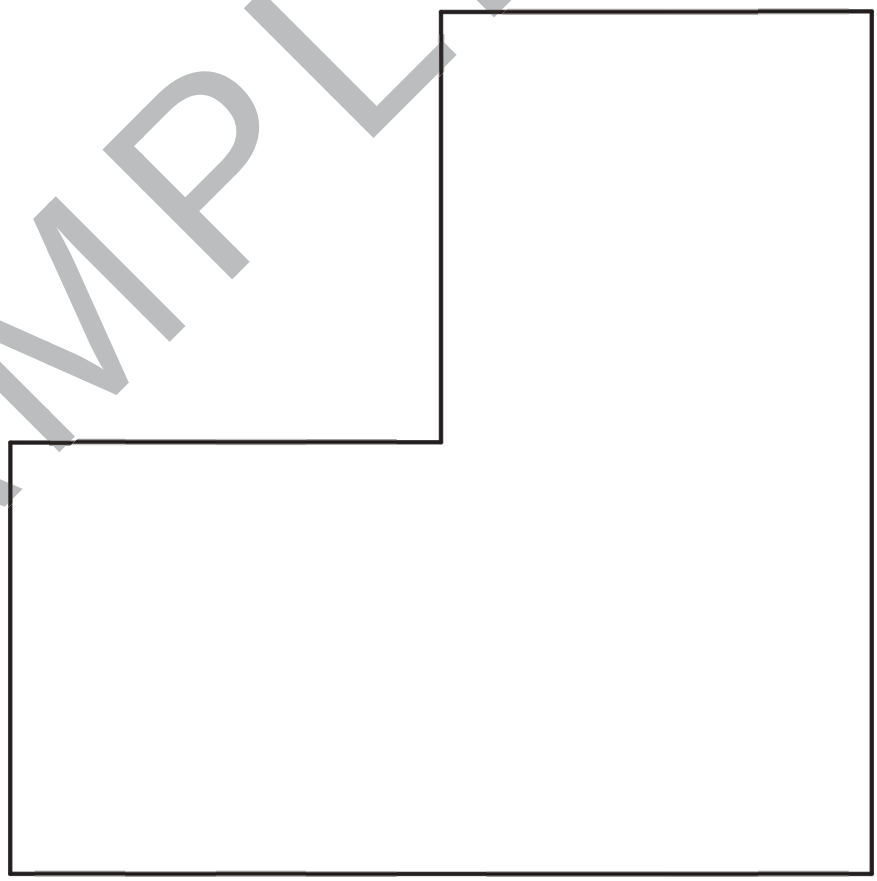
Card Sort: Cross Sections, Card L

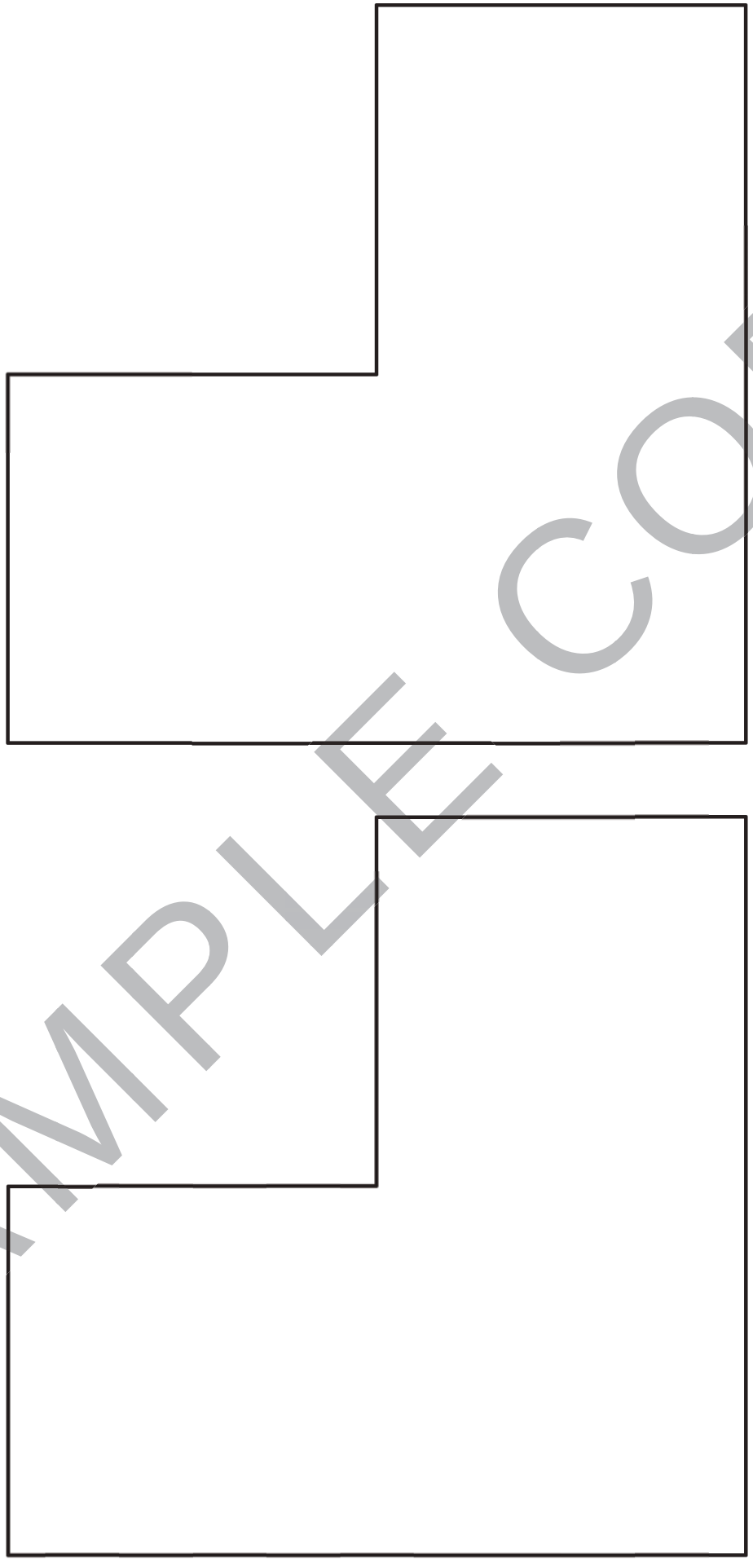


Card Sort: Cross Sections, Card M









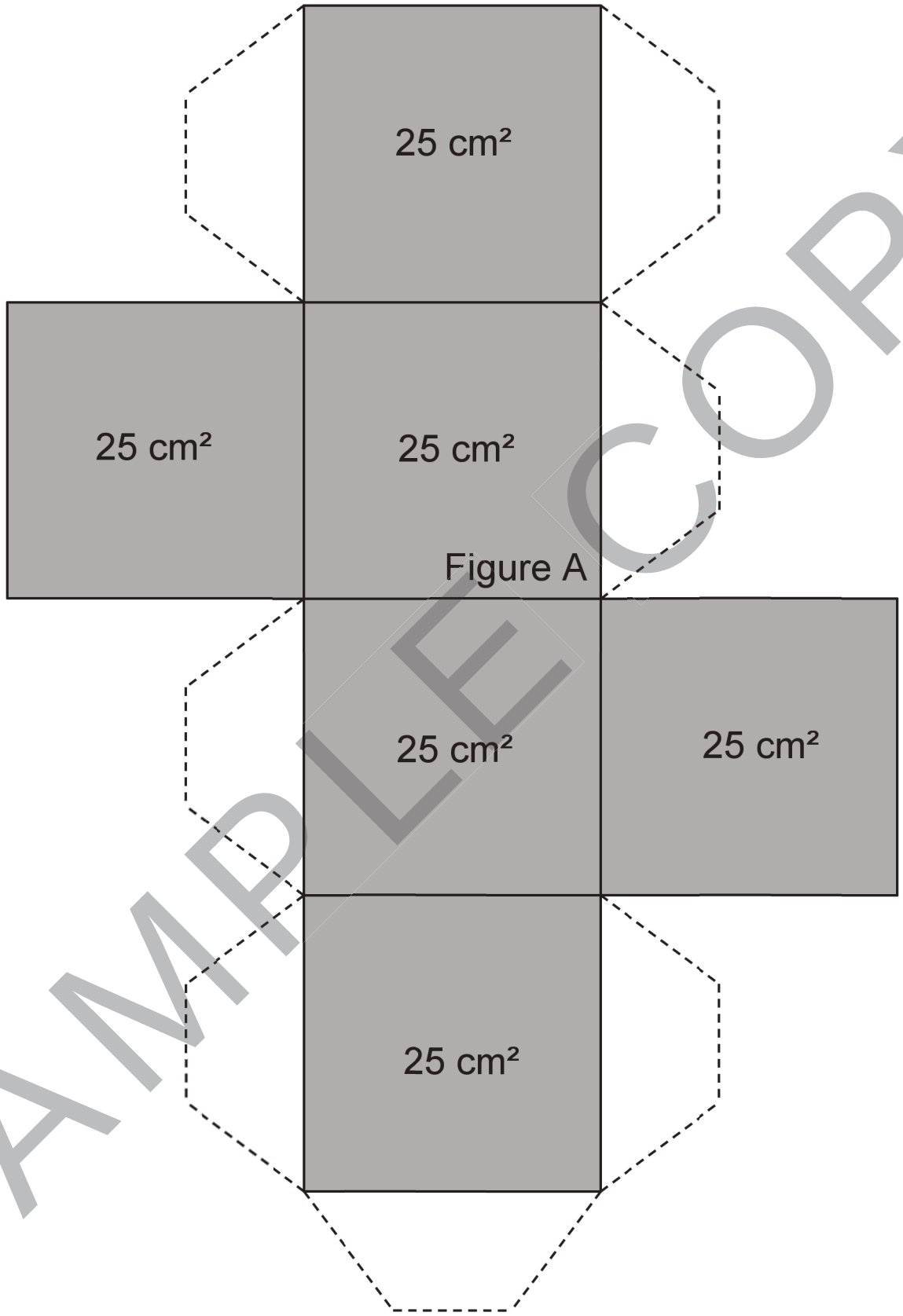
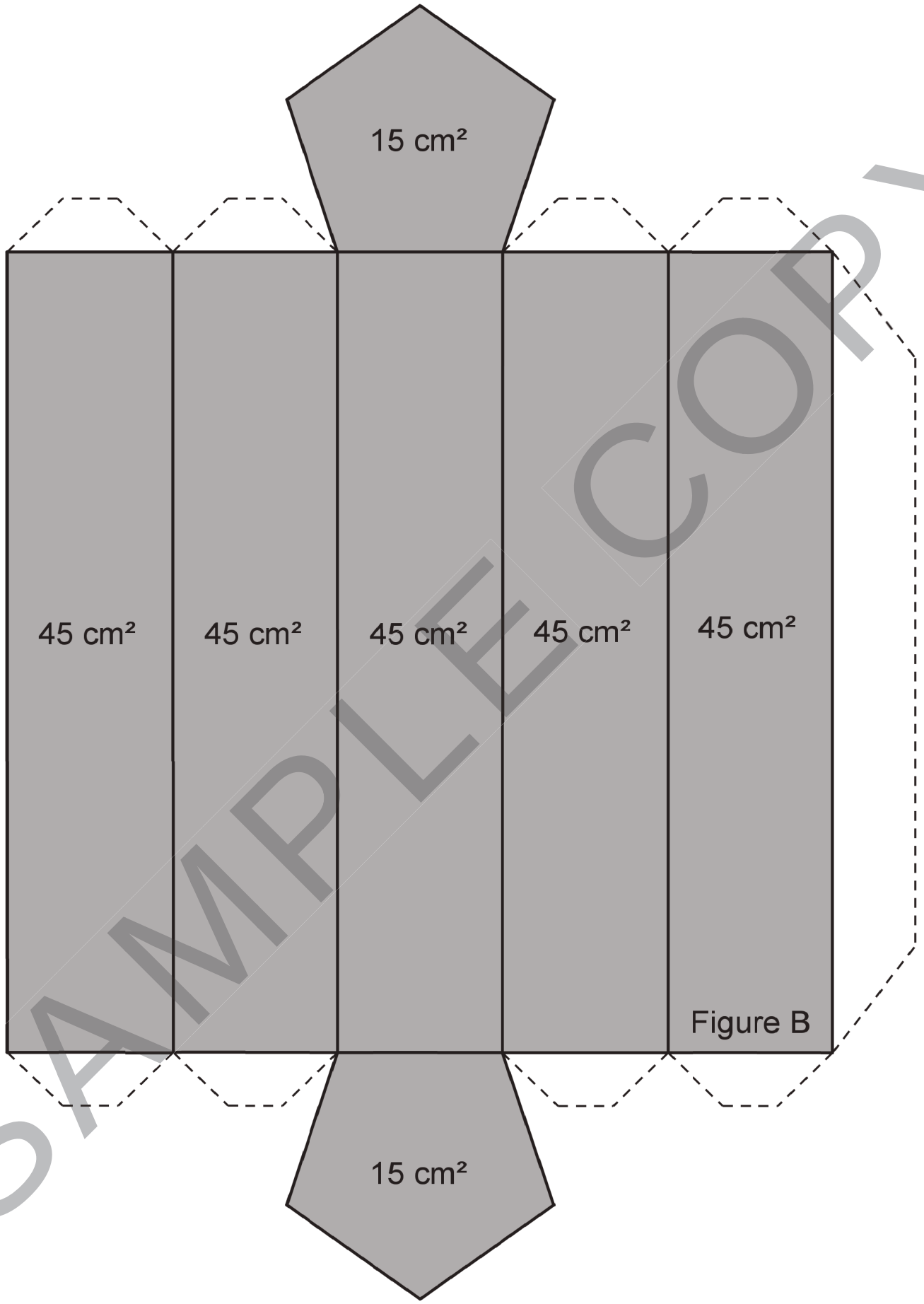
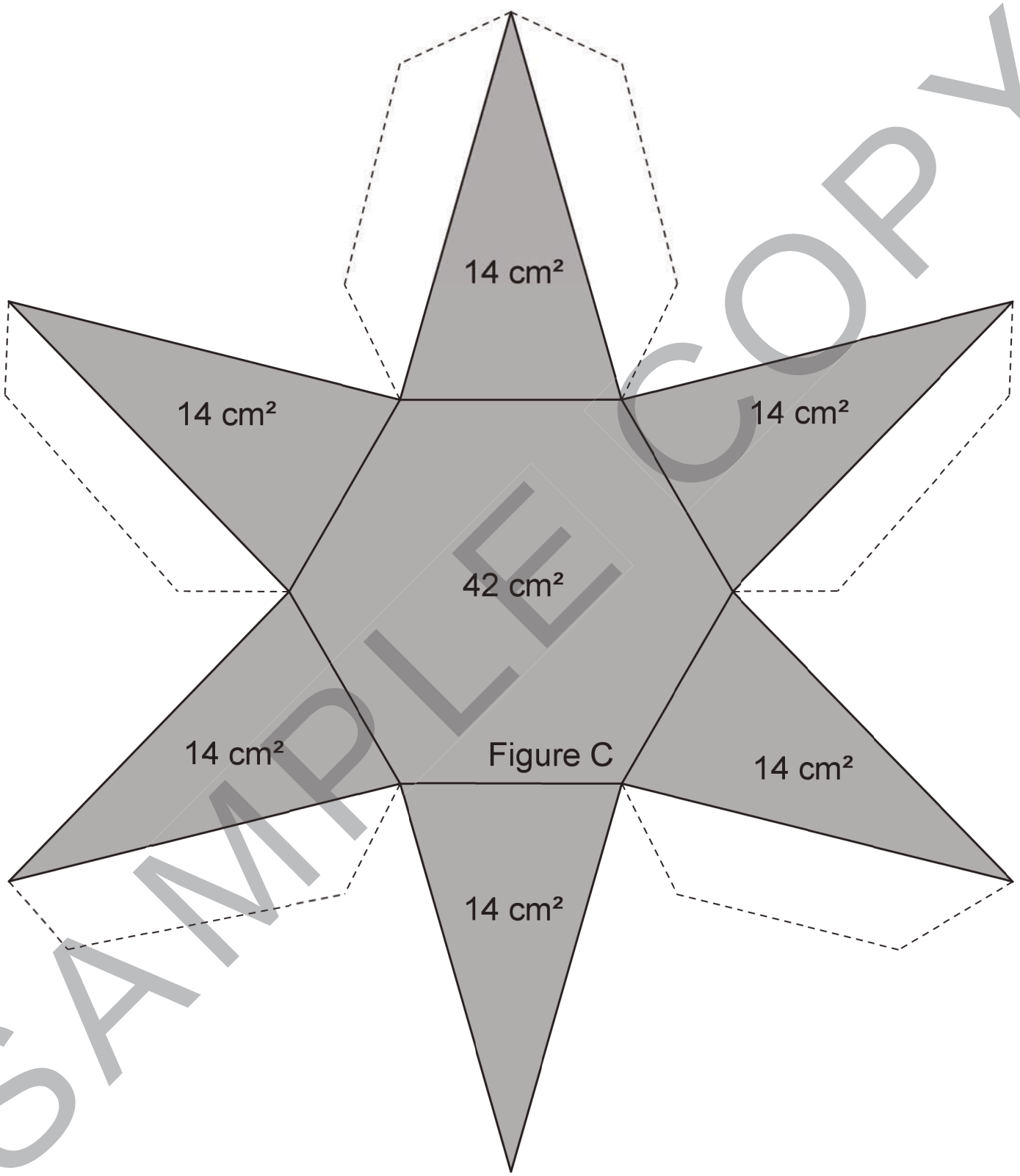


Figure A





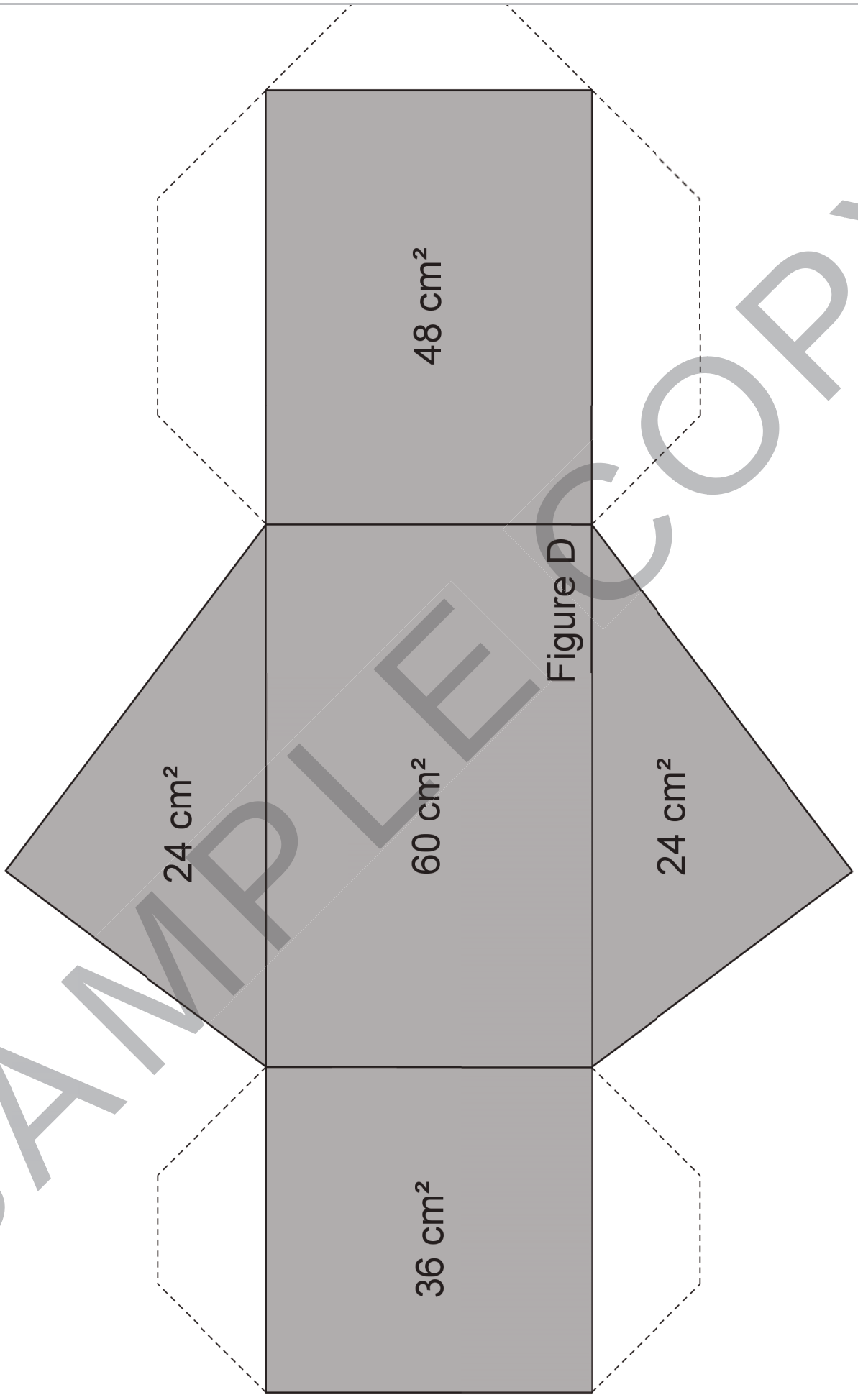


Figure D

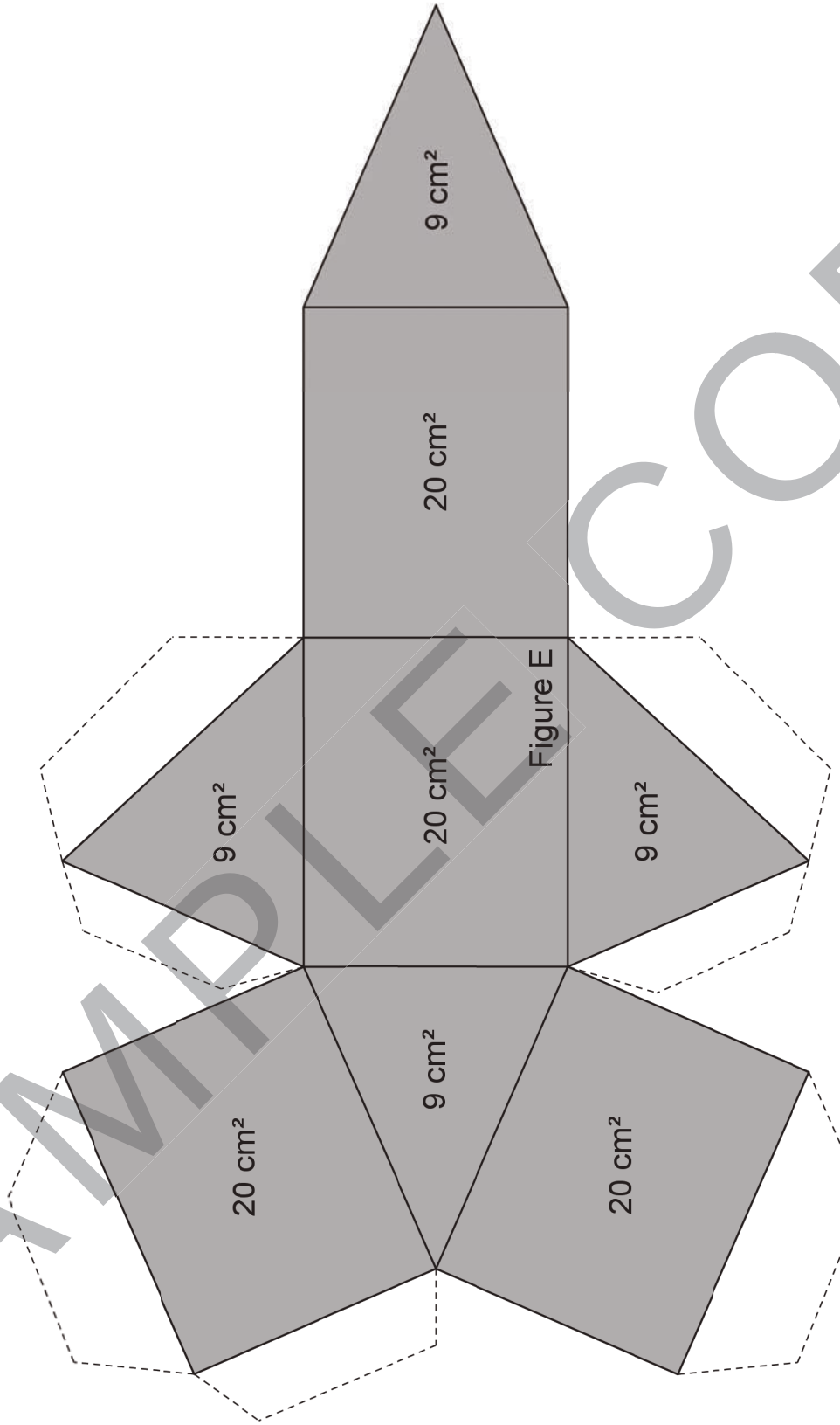
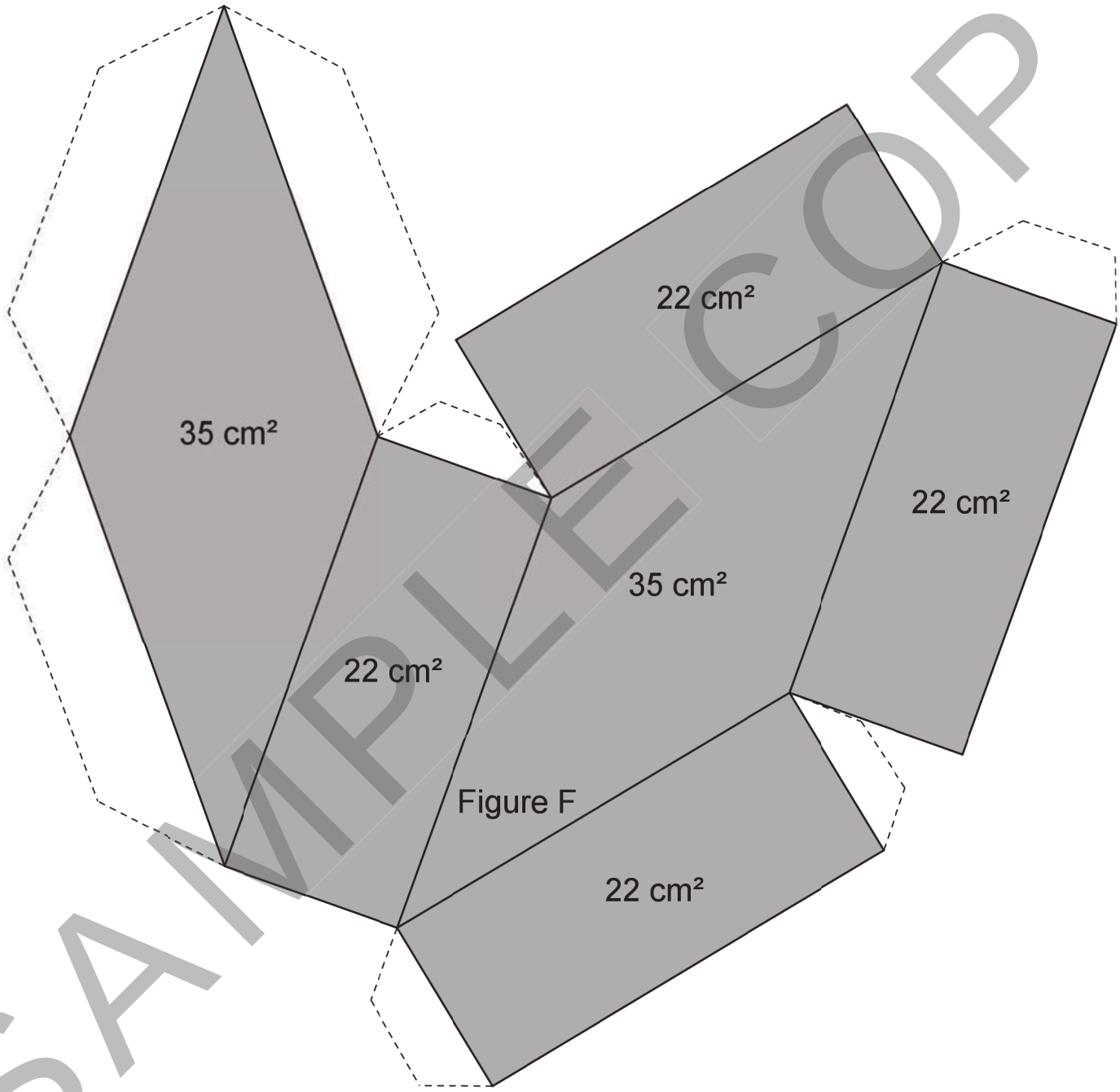
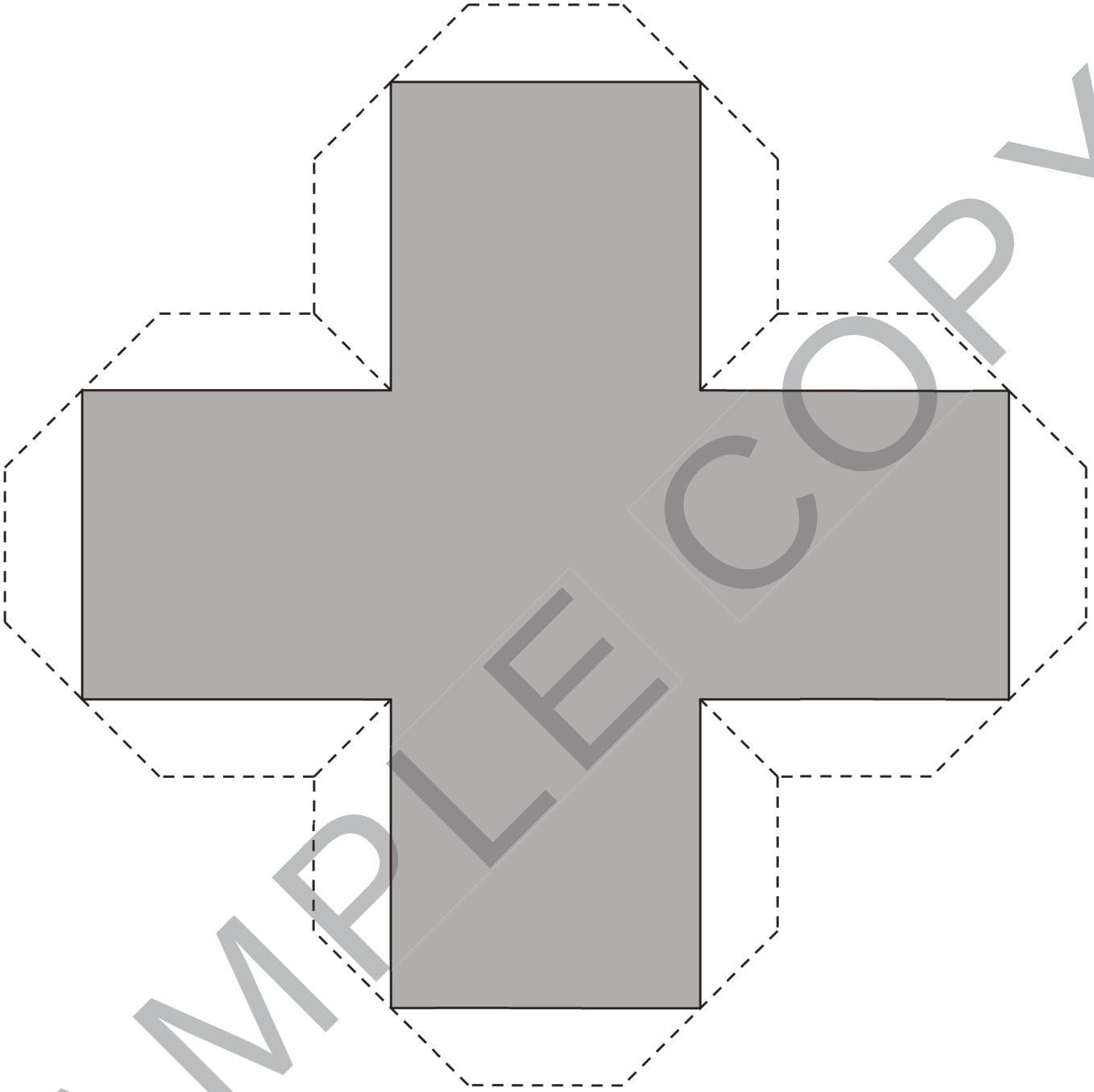
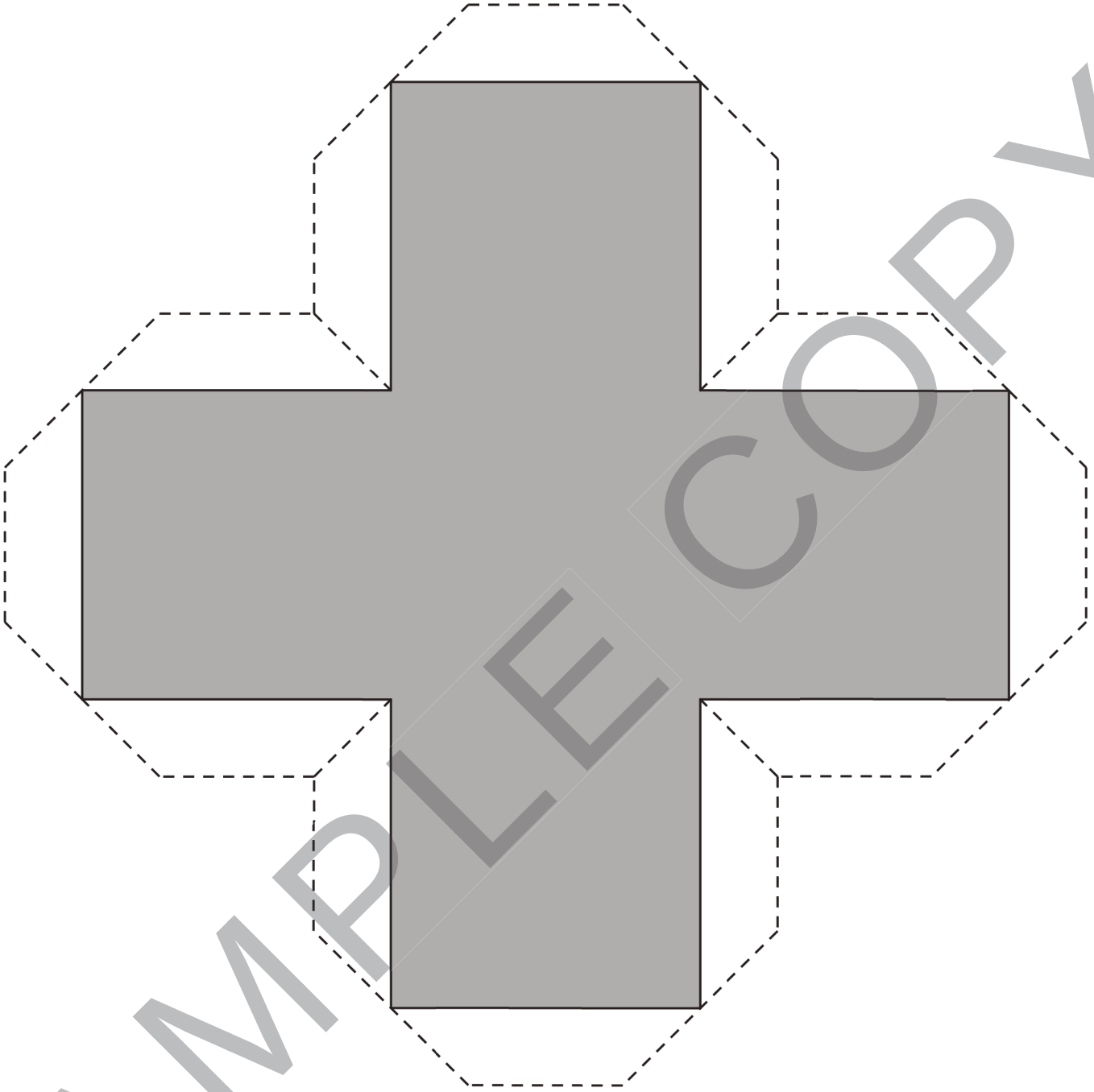
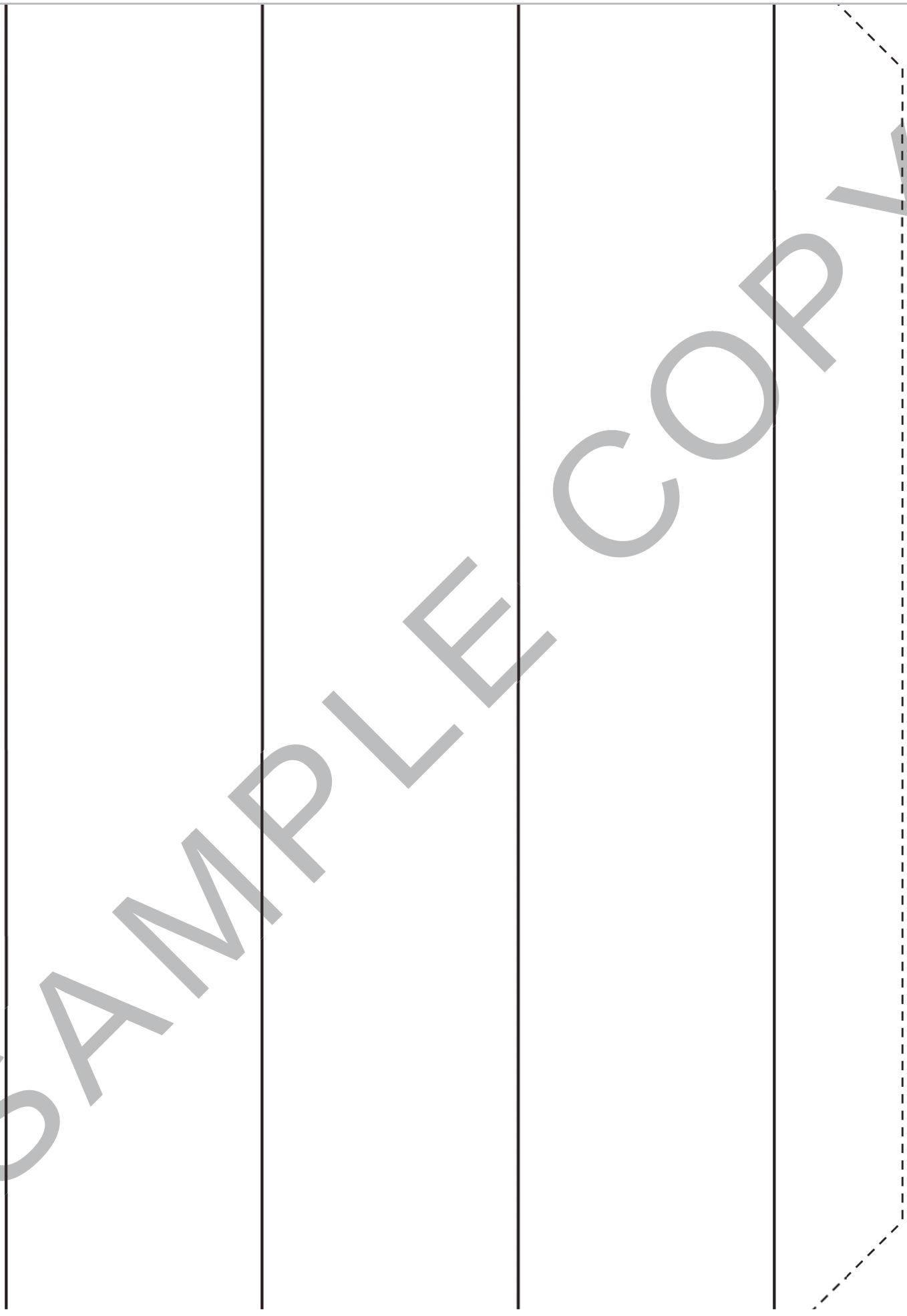


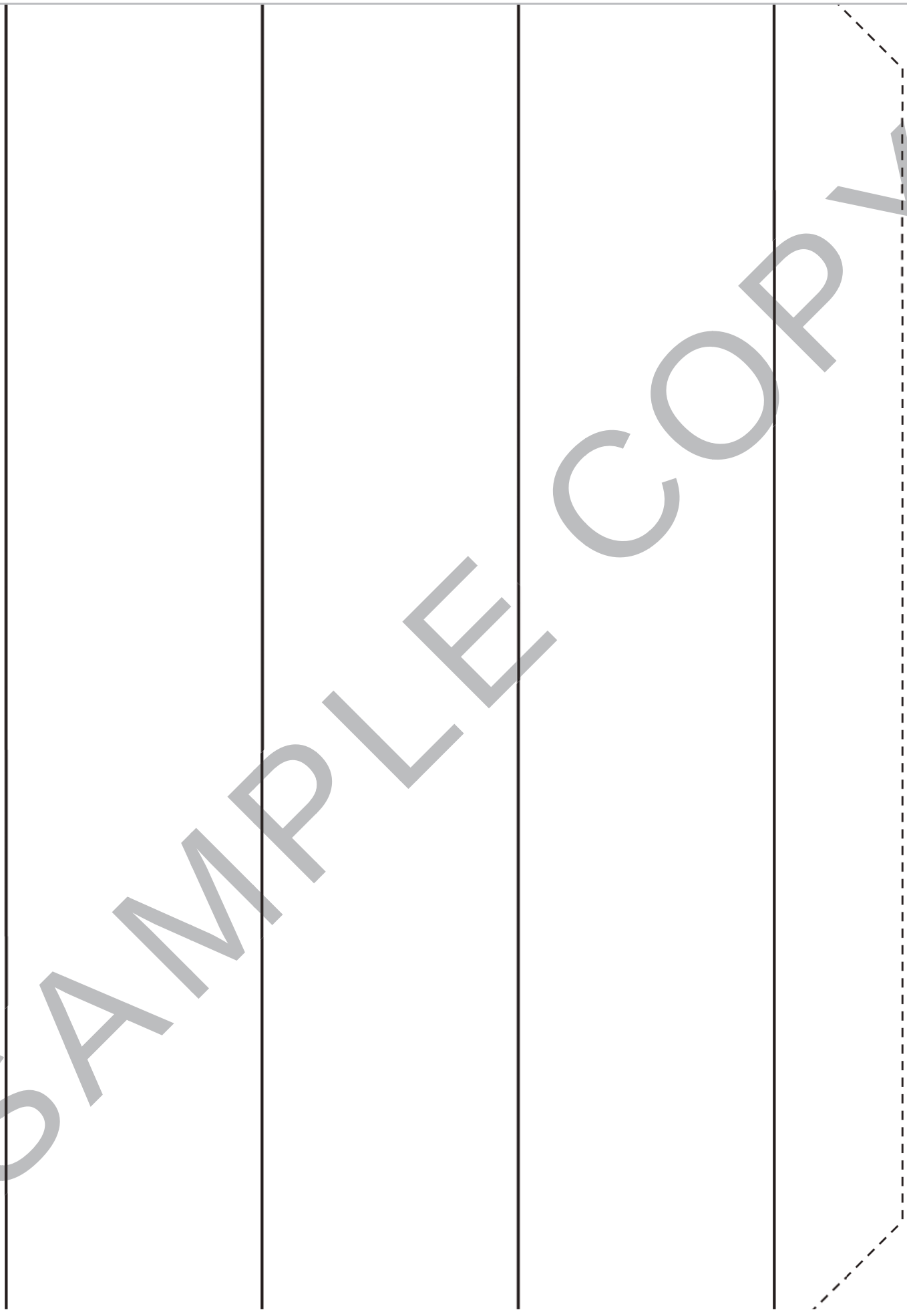
Figure E

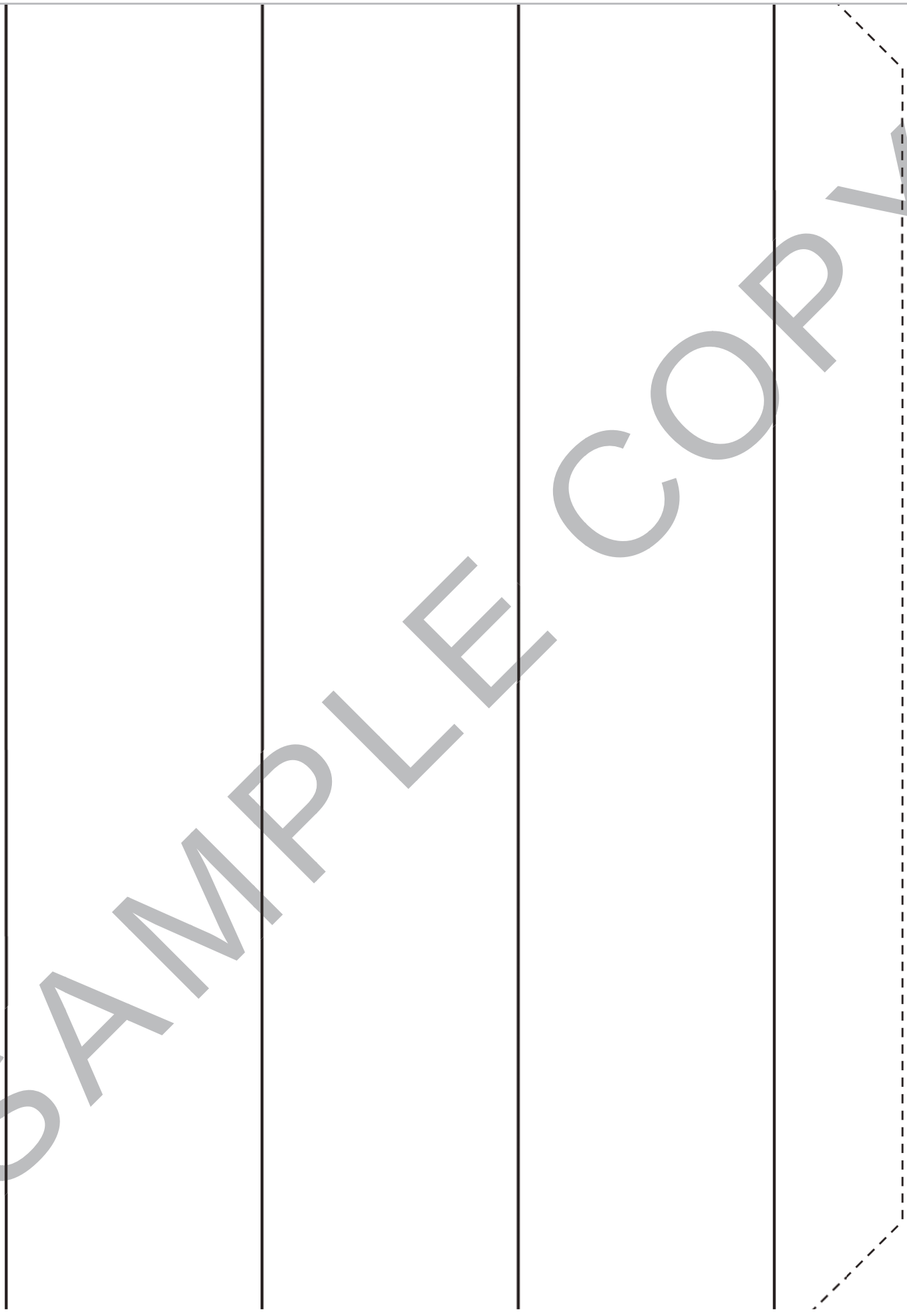


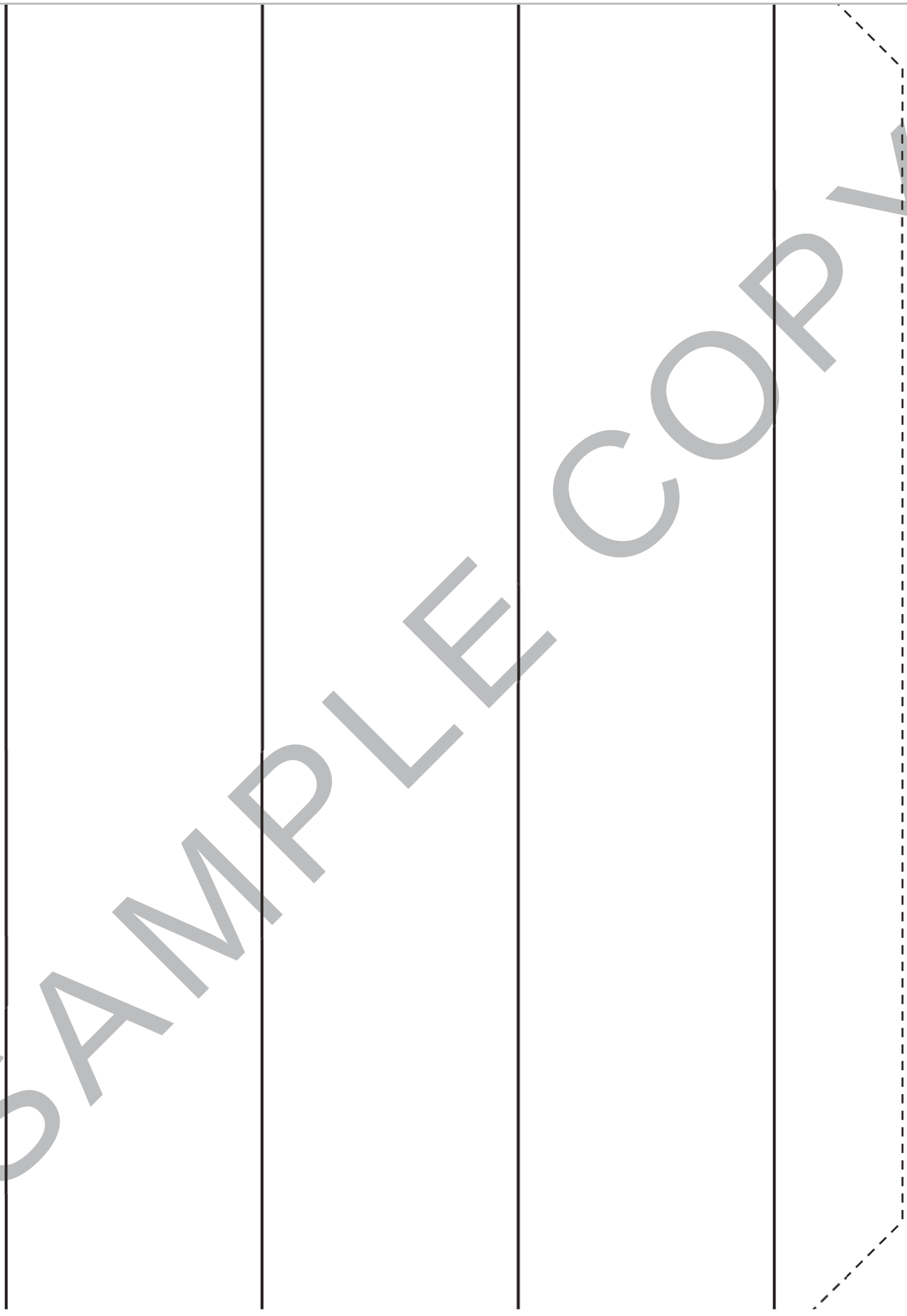


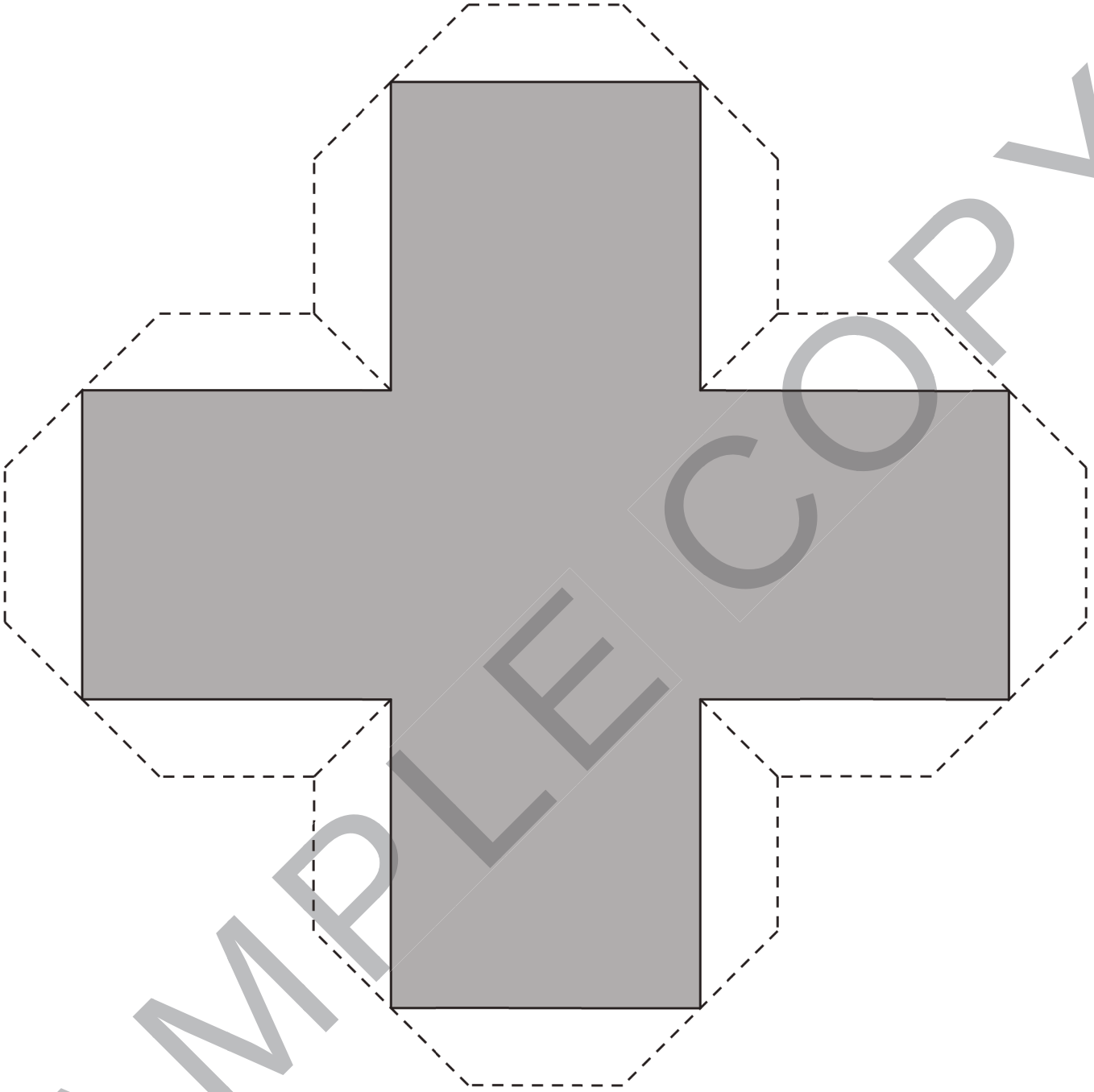


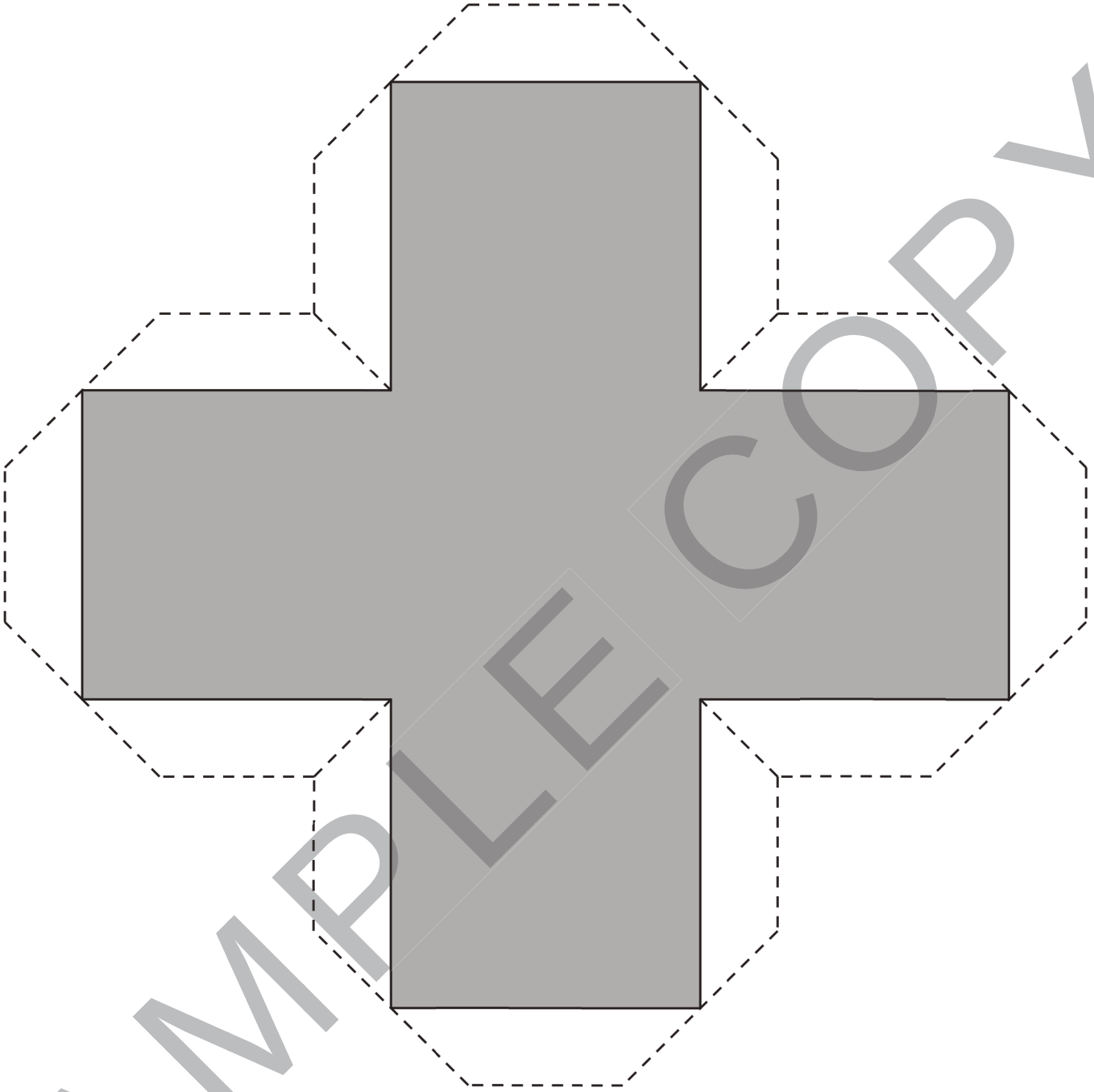


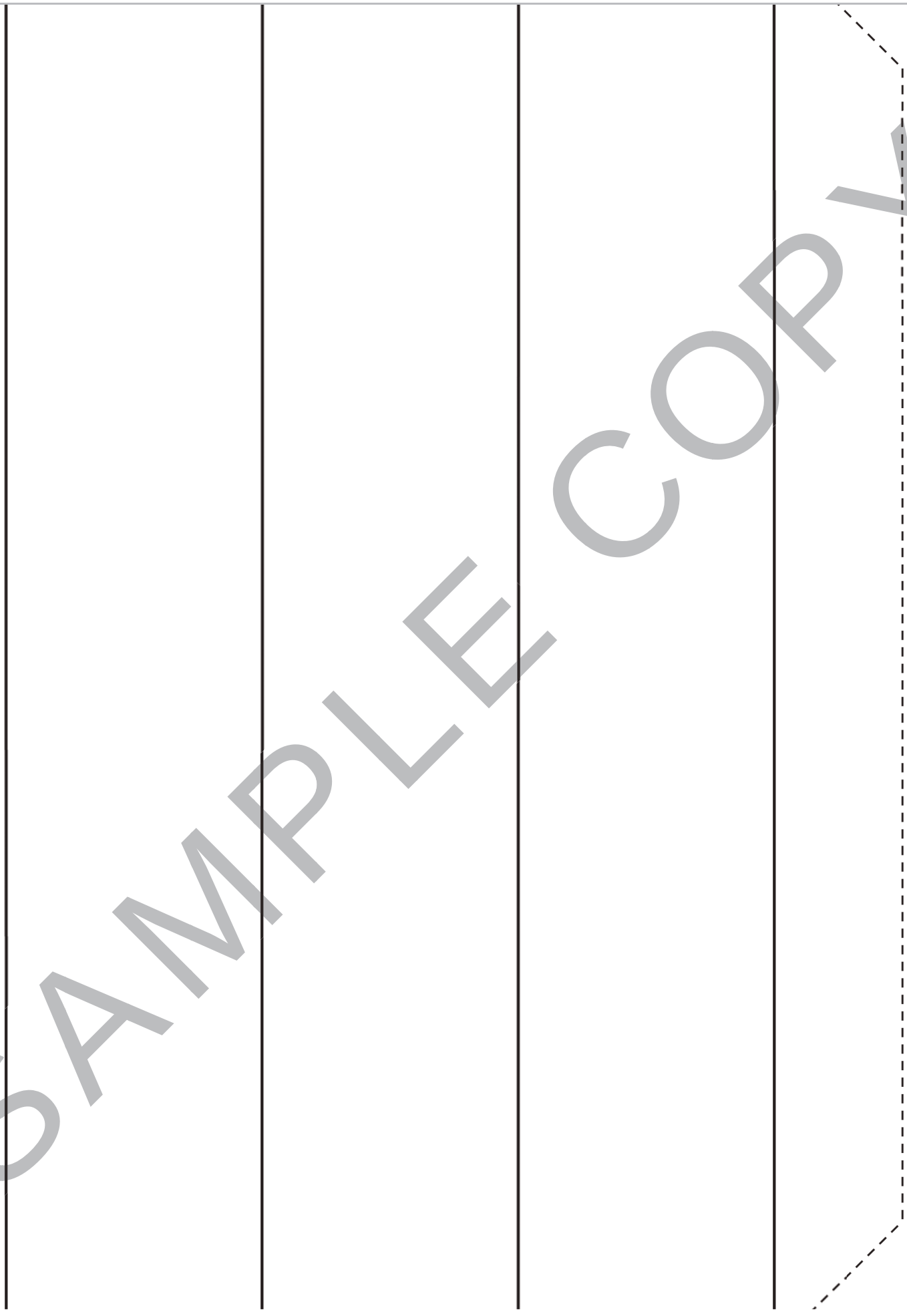


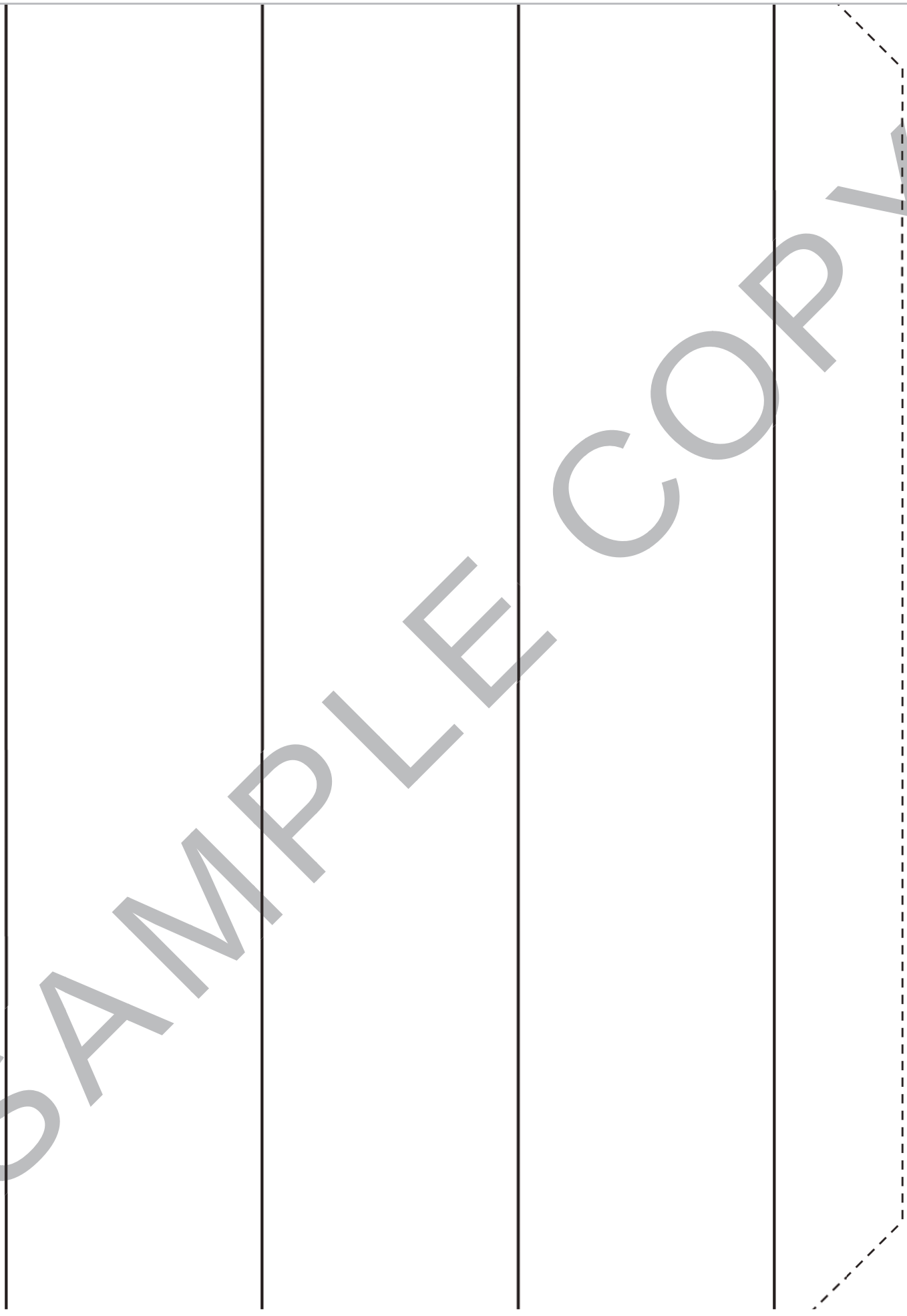


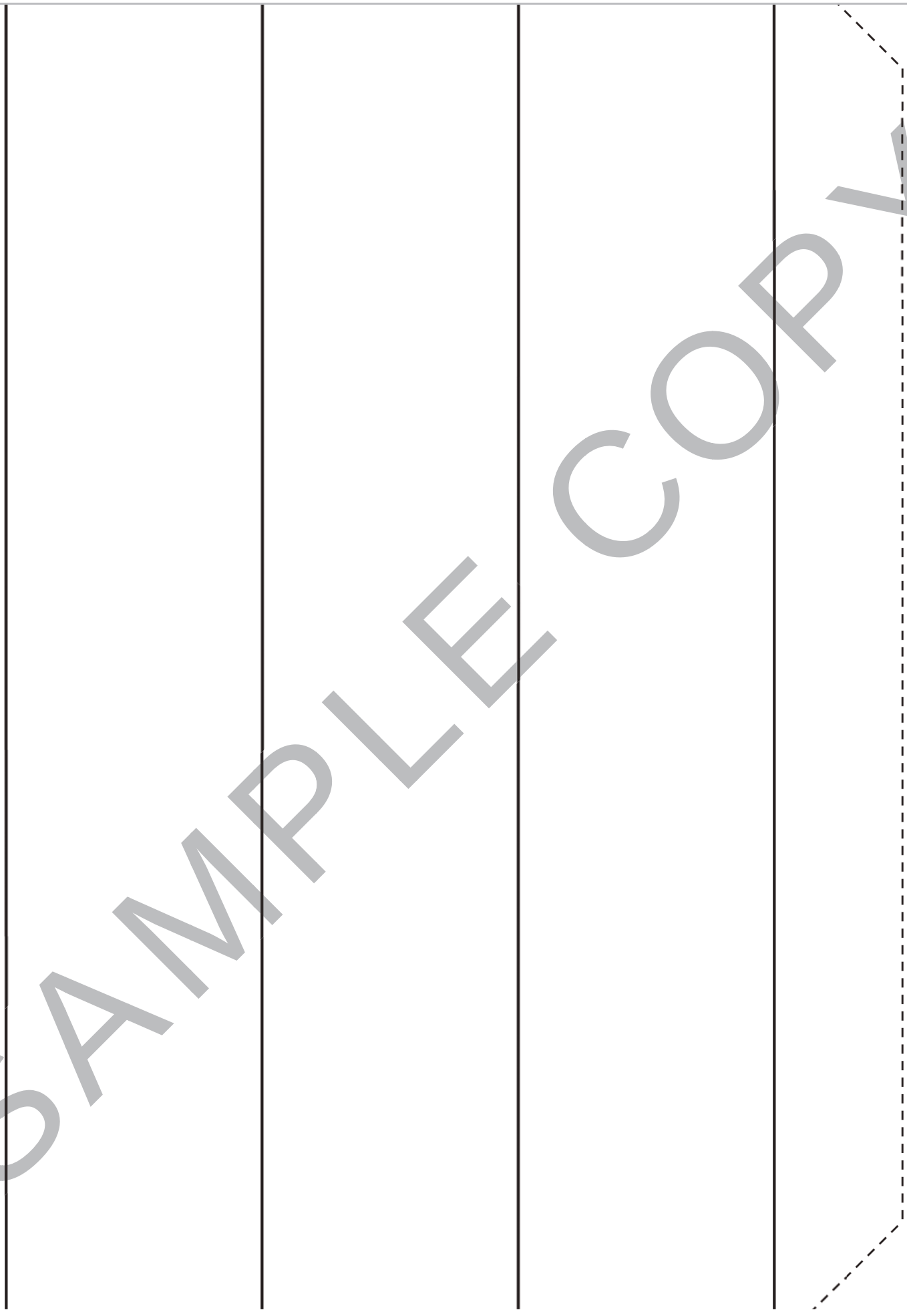


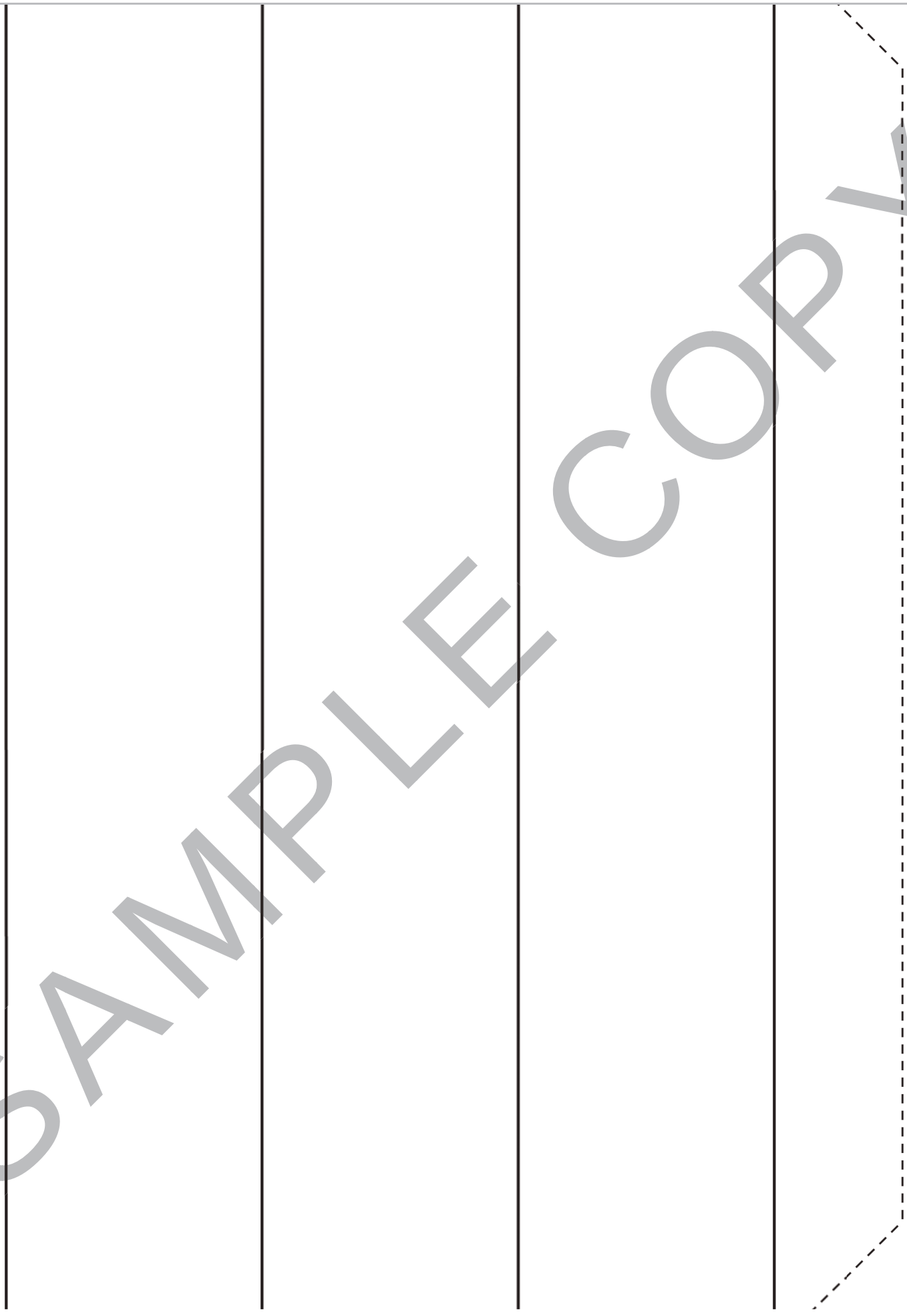












Card Sort: Surface Area or Volume

How much wood is needed to make triangular shaped stacking blocks?

Card Sort: Surface Area or Volume

How much glass is needed to build a greenhouse?

Card Sort: Surface Area or Volume

How long would it take to fill a rectangular swimming pool?

Card Sort: Surface Area or Volume

How long would it take to paint the outside of a barn?

Card Sort: Surface Area or Volume

How long would it take to dig dirt out to form a rectangular foundation for a new building?

Card Sort: Surface Area or Volume

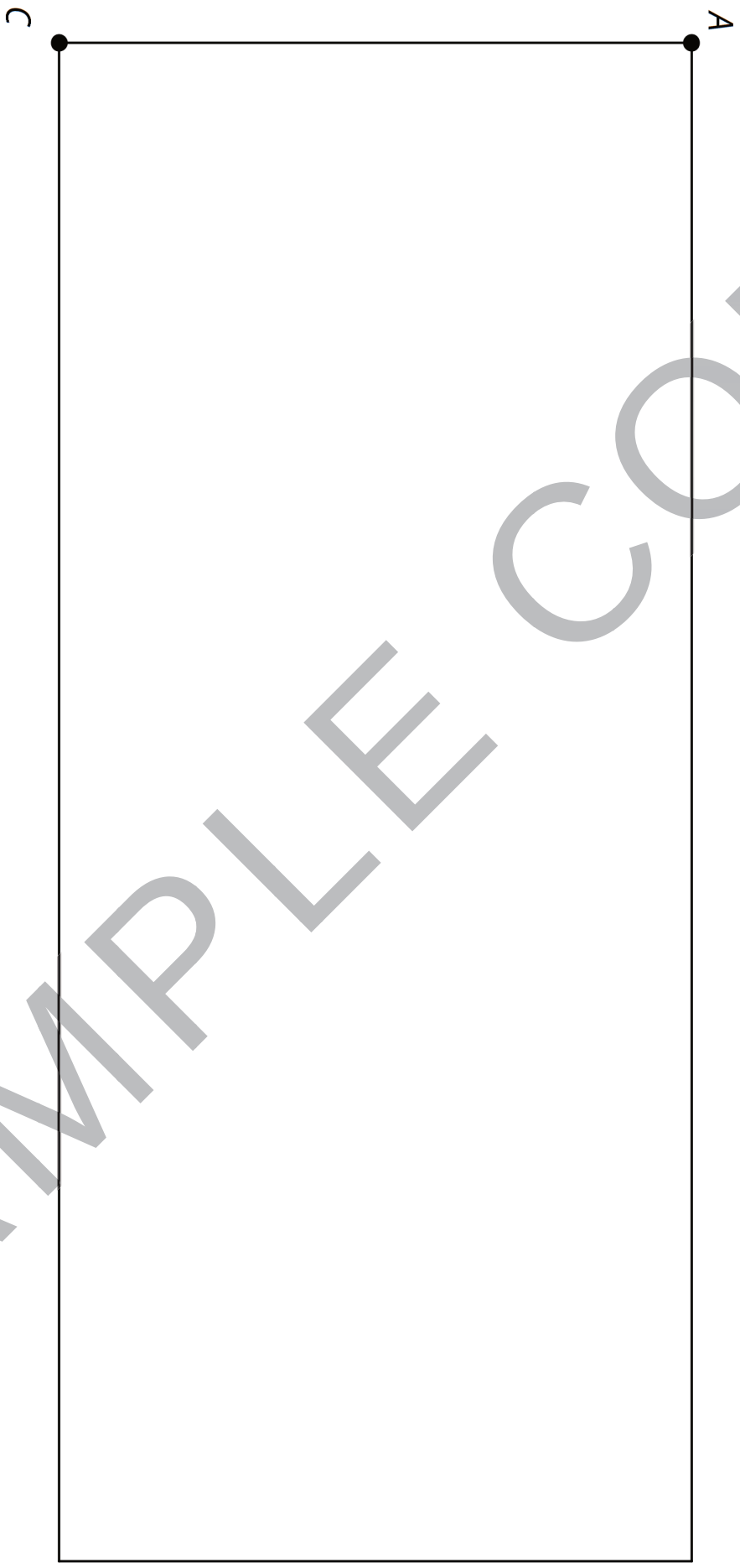
How much cardboard is needed to make a cereal box?

Card Sort: Surface Area or Volume

How many yards of fabric are needed to sew a pillowcase?

Card Sort: Surface Area or Volume

How much wood is needed to build a birdhouse?



GRADE 7

UNIT

8

Teacher Resource Copy Masters

LESSON BLACKLINE MASTERS

address	title	students per copy	written on?	requires cutting?	card stock recommended?	color paper recommended?	used multiple times?	used as a center material?
Activity Grade7.8.2.4	Likelihood Cards	2	no	yes	no	yes	no	no
Activity Grade7.8.3.3	What's in the Bag Cutouts	8	no	yes	no	no	no	no
Activity Grade7.8.5.2	Making My Head Spin Handout	4	no	yes	no	no	no	no
Activity Grade7.8.6.2	Diego's Walk Cards	18	no	yes	no	no	no	no
Activity Grade7.8.7.2	Alpine Zoom Handout	6	no	yes	no	no	no	no
Activity Grade7.8.10.3	Designing Simulations Cards	15	no	yes	no	no	no	no
Activity Grade7.8.16.2	Reaction Times Cutouts, Spanish	4	no	yes	no	yes	no	no
Activity Grade7.8.17.1	Reaction Times Cutouts, Spanish	4	no	yes	no	yes	no	no

address	title	students per copy	written on?	requires cutting?	card stock recommended?	color paper recommended?	used multiple times?	used as a center material?
Activity Grade7.8.19.2	Comparing Populations Cards	2	no	yes	no	no	no	no
Activity Grade7.8.20.1	Collecting a Sample Handout	2	no	yes	no	no	no	no

Likelihood, Set 1

The weather report says there is a 20% chance of rain tomorrow.

What is the chance of rain tomorrow?

Likelihood, Set 1

10% of people are left-handed.

What is the chance that a randomly chosen person is left-handed?

Likelihood, Set 1

Fruit flies in a science experiment have a 75% chance of having red eyes.

What is the chance that the first fly you catch has red eyes?

Likelihood, Set 1

Half of the cards in a deck are red and half are black. Shuffle the cards and select the first card.

What is the chance that the card is red?

Likelihood, Set 2

2 out of every 5 dentists recommend a certain brand of toothpaste.

What is the chance that a random dentist recommends the toothpaste?

Likelihood, Set 2

You play rock paper scissors.

What is the chance that your opponent will play rock?

Likelihood, Set 2

There are 6 square pattern blocks and you choose one.

What is the chance that the block you choose has 4 sides of the same length?

Likelihood, Set 2

A fishbowl contains 5 balls with an even number from 2 to 10 written on each one.

What is the chance that you draw out a ball with the number 3 on it?

Likelihood, Set 2

$\frac{4}{25}$ of English words begin with the letter T.

What is the chance that a randomly chosen word in a book begins with the letter T?

Likelihood, Set 2

The probability that a certain medical test gives the right result is 0.95.

What is the chance that this medical test is correct for a random patient?

What's in the Bag? A	What's in the Bag? B	What's in the Bag? C	What's in the Bag? D	What's in the Bag? E
What's in the Bag? F	What's in the Bag? G	What's in the Bag? H	What's in the Bag? I	What's in the Bag? J
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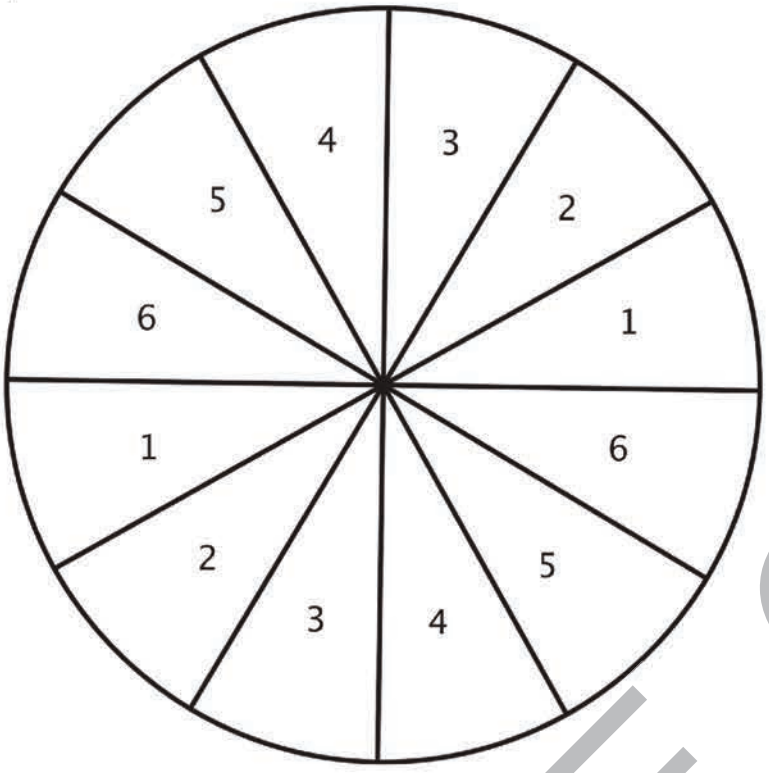
Spinner A



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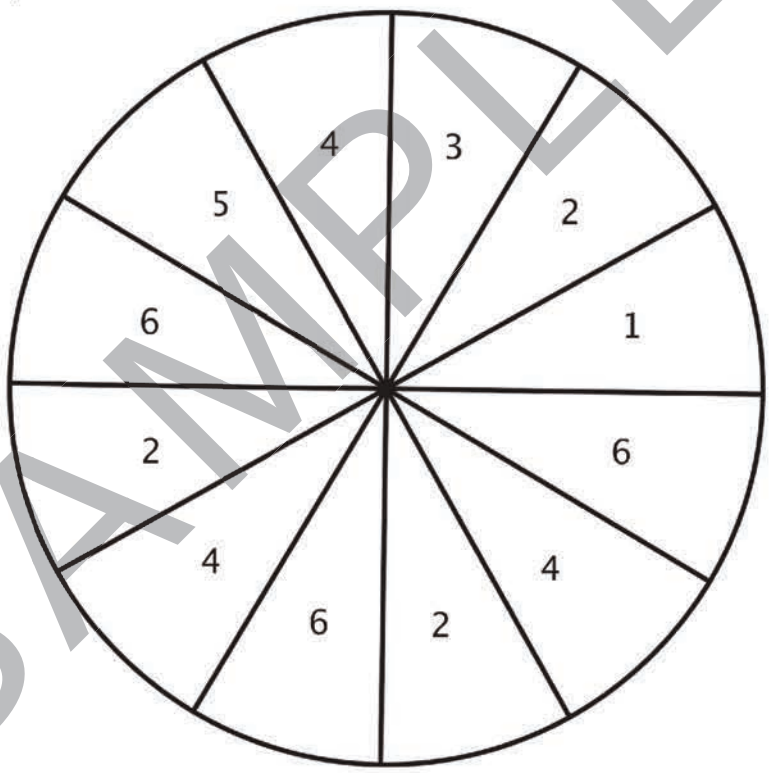

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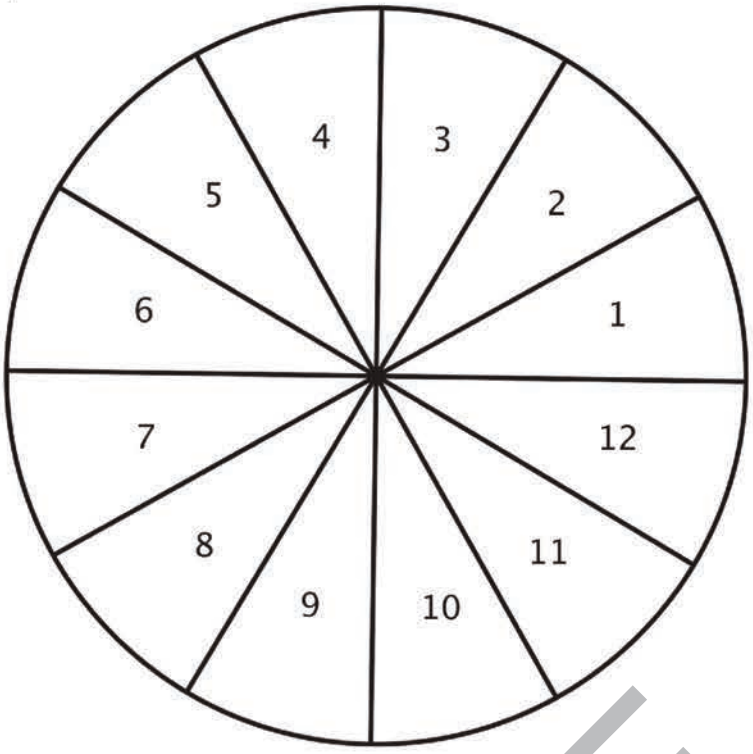

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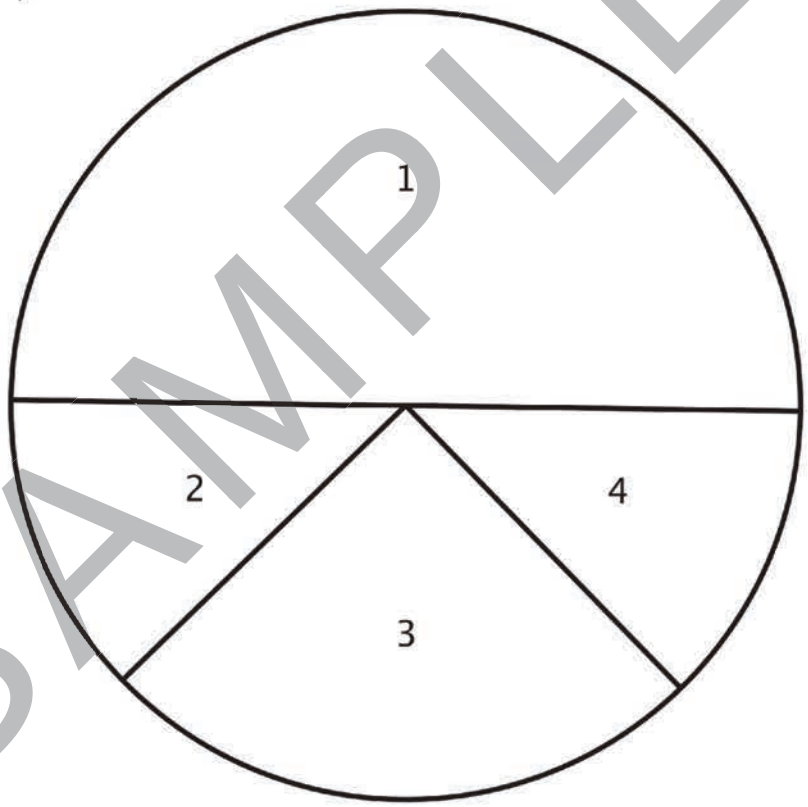

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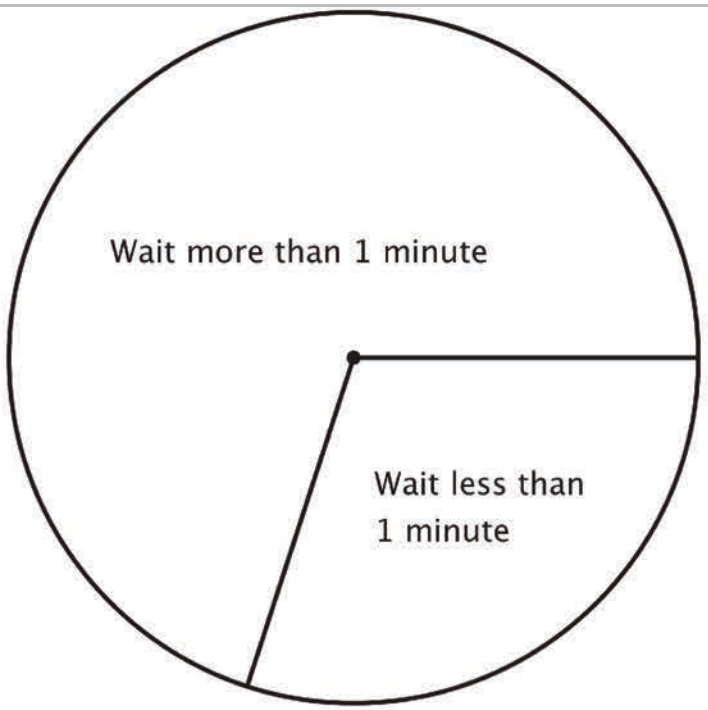
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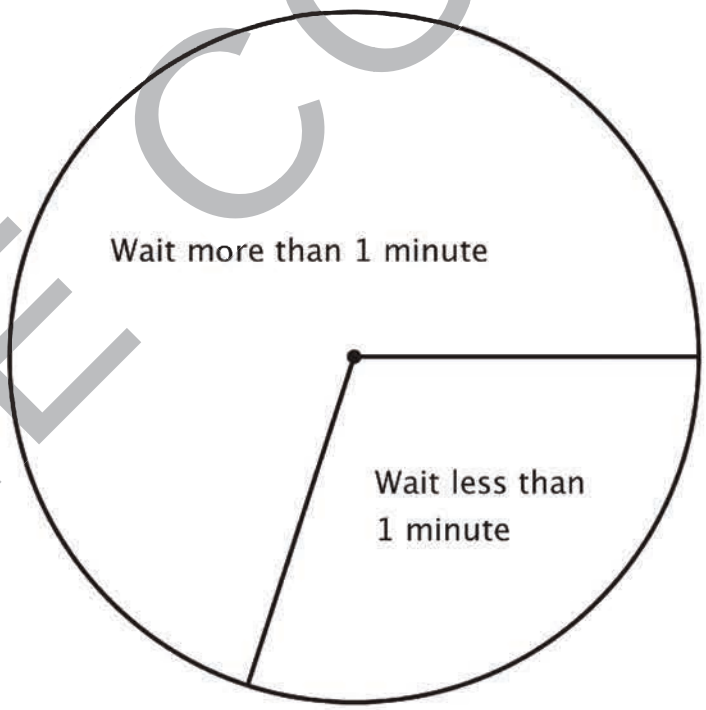
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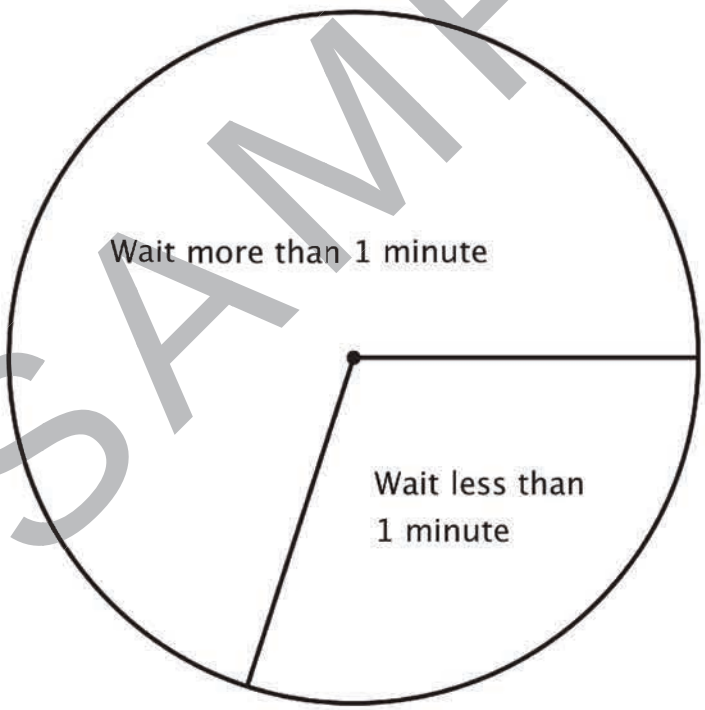
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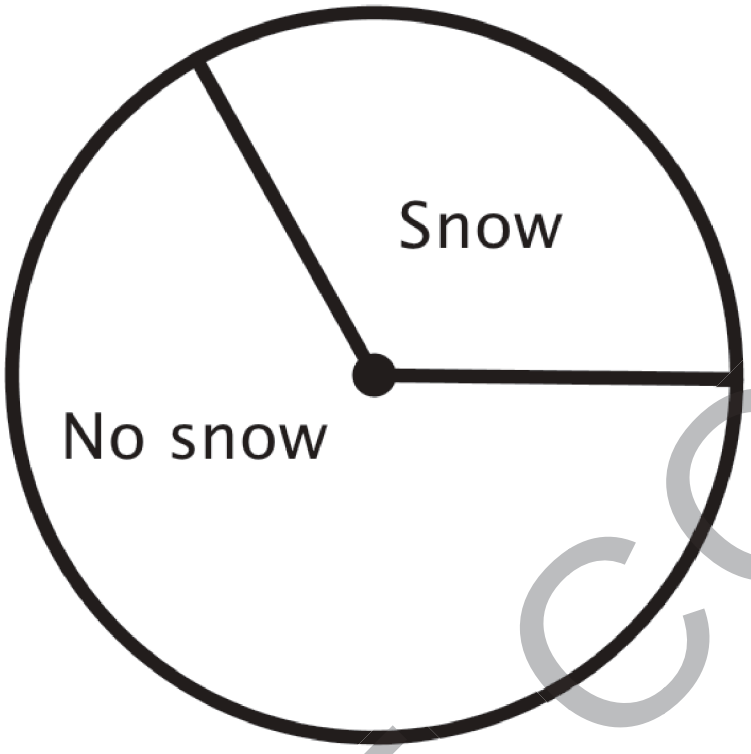

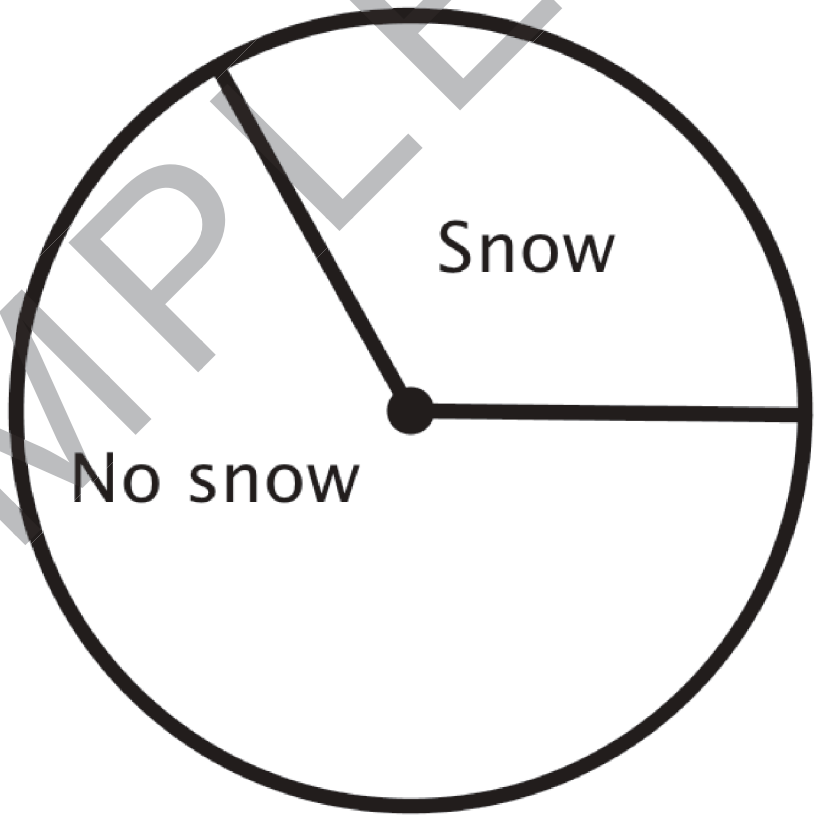

Designing Simulations

1. A child is playing a game where they pick a card that is either a unicorn or dragon. In the last 5 turns, they got 4 unicorns and 1 dragon. The probability that a card will be a unicorn is $\frac{1}{2}$.

   - What is the probability that a person gets exactly 4 unicorns in 5 turns?
   - Is this case unusual? Explain your reasoning.

Designing Simulations

2. Three smoke detectors are installed in a factory room to make sure that if there is a fire, at least one of them will signal a warning. The probability that any one of the smoke detectors will work correctly is 0.75. This also means that there is a 25% chance that if there is smoke or a fire, the detector will not work!

   - What is the probability that if there is smoke in the factory, none of the 3 detectors would work?
   - Does this probability indicate a safety problem for the factory? Explain your reasoning.

Designing Simulations

3. Several new cars from a certain factory are shipped out with a brake problem. It is estimated that approximately 10% of the cars assembled at this factory have defective brakes. Five of these cars are shipped to a dealership.

   - What is the probability that none of the 5 cars have defective brakes?
   - Should the dealership be concerned? Explain your reasoning.

Designing Simulations

4. At a summer camp, your group is working with park rangers for the next 5 days. The rangers at the camp indicate that there is a 40% chance of seeing an eagle each day.

   - What is the probability that you will see an eagle on two or more of the 5 days?
   - Your camp leader also indicates that if you see eagles 2 or more times during the 5 days, your group will win a prize. Do you think you have a good chance of winning a prize? Explain your reasoning.

Designing Simulations

5. At a small animal hospital, there is a 20% chance that an animal may need to stay overnight. The hospital only has enough room to hold 2 animals per night. On a particular day, 5 animals are brought into the hospital.

   - What is the probability that at least 3 of the animals may need to stay overnight?
   - If seeing 5 animals per day is typical for this hospital, do you think the hospital is usually able to accommodate all of the animals that might have to stay overnight? Explain your reasoning.

0.28	0.30	1.20	0.51	0.33	0.73	0.34	0.27
0.27	0.09	0.37	0.33	0.48	0.51	0.11	0.34
0.38	0.49	0.34	0.81	0.75	0.32	0.31	0.40
0.41	0.58	0.72	0.39	0.40	0.31	0.32	0.39
0.25	0.29	0.36	0.38	0.44	0.73	0.36	0.30
0.48	0.61	0.35	0.23	0.42	0.83	0.92	0.44
0.70	0.45	0.21	0.36	0.72	0.44	0.35	0.39
0.40	0.37	0.40	0.41	0.36	0.50	0.52	0.29
0.36	0.31	0.04	0.30	0.69	0.34	0.31	0.47
0.59	0.74	0.31	0.38	0.82	0.36	0.37	0.36
0.46	0.44	0.50	0.61	0.38	0.30	0.42	0.72
0.40	0.35	0.33	0.45	0.59	0.40	0.55	0.51
0.34	0.35	0.49	0.80	0.41	0.97	0.36	0.23
0.42	0.36	0.46	0.37	0.79	0.38	0.34	0.31
0.27	0.51	0.78	0.40	0.63	0.34	0.44	0.43

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0.48	0.61	0.35	0.23	0.42	0.83	0.92	0.44
0.70	0.45	0.21	0.36	0.72	0.44	0.35	0.39
0.40	0.37	0.40	0.41	0.36	0.50	0.52	0.29
0.36	0.31	0.04	0.30	0.69	0.34	0.31	0.47
0.59	0.74	0.31	0.38	0.82	0.36	0.37	0.36
0.46	0.44	0.50	0.61	0.38	0.30	0.42	0.72
0.40	0.35	0.33	0.45	0.59	0.40	0.55	0.51
0.34	0.35	0.49	0.80	0.41	0.97	0.36	0.23
0.42	0.36	0.46	0.37	0.79	0.38	0.34	0.31
0.27	0.51	0.78	0.40	0.63	0.34	0.44	0.43

Info Gap: Comparing Populations

Problem Card 1

A chewing gum company records the amount of time, in minutes, it takes for a person to find that the gum has lost its flavor for two different flavors of gum. A sample of 20 people is used for mint, and another sample of 20 people is used for cinnamon gum.

Is there a meaningful difference in the amount of time for the different flavors? Explain your reasoning.

Info Gap: Comparing Populations

Data Card 1

- The distributions are not symmetric.

- Mean for mint: 74.5 minutes
- Median for mint: 65 minutes
- IQR for mint: 20 minutes
- MAD for mint: 20.9 minutes

- Mean for cinnamon: 108.75 minutes
- Median for cinnamon: 112.5 minutes
- IQR for cinnamon: 22.5 minutes
- MAD for cinnamon: 21.5 minutes

Info Gap: Comparing Populations

Problem Card 2

A grade 8 English teacher is interested in grammar scores for students coming from the two grade 7 English teachers.

Is there a meaningful difference in the means for student scores on a pretest coming from each grade 7 teacher based on the samples? Explain your reasoning.

Here are the scores from Teacher A

70	75	80	80	80	85	85	85	90	95

Info Gap: Comparing Populations

Data Card 2

The scores from Teacher B have:

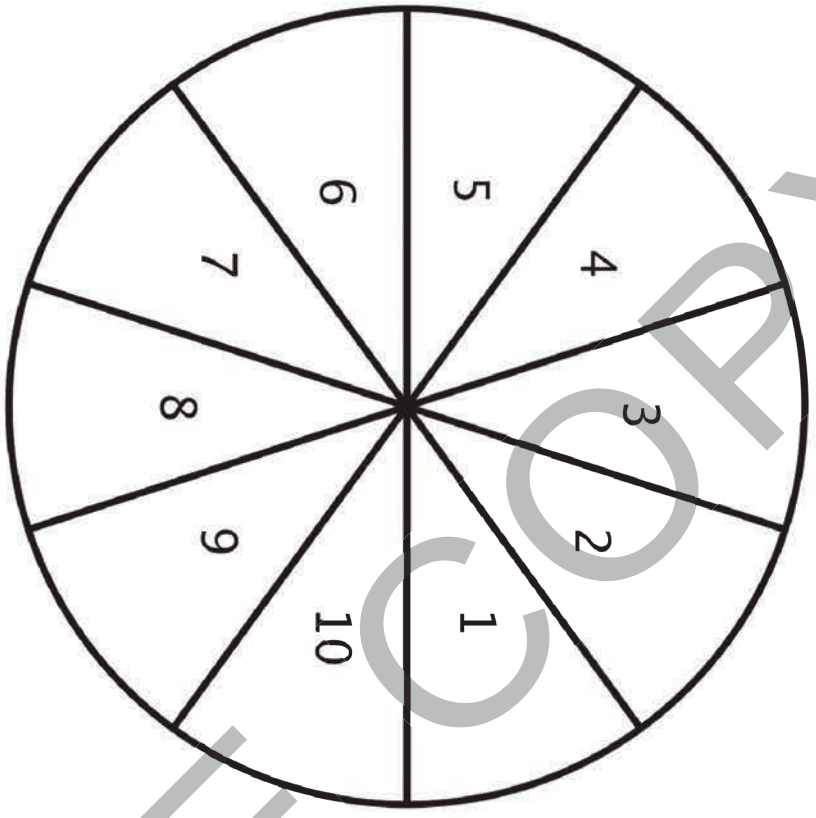
- a symmetric distribution
- a mean of 79
- a median of 77.5
- a MAD of 7
- an IQR of 10

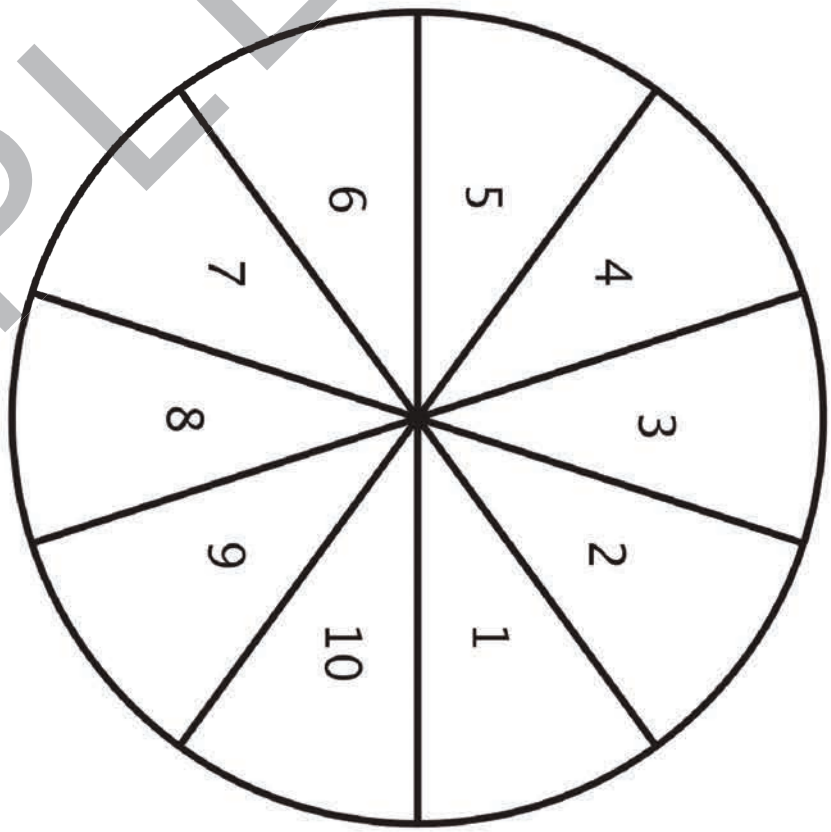
Data Set 1

	column 1	column 2	column 3	column 4	column 5	column 6	column 7	column 8	column 9	column 10
row 1	35	47	42*	33	42	57	40	39	33	37*
row 2	58	33*	55	42	66	10	47	44	45*	54
row 3	45	59	44	51	57	52*	42	42	43	22*
row 4	63	35	37	81	37*	11*	27	43	35*	43
row 5	95*	60*	41*	70*	64	47	34	63	40	41
row 6	47	39	57	71	46	53	63	57*	62	36
row 7	53	44	45	30	73*	39	54	48	30	39
row 8	29	36	27*	69	45	55	40	58*	62	42
row 9	34	49	61	18	40	40	52	54	45	26
row 10	65	35*	63	49	76	62	46*	42*	59	32

Data Set 2

	column 1	column 2	column 3	column 4	column 5	column 6	column 7	column 8	column 9	column 10
row 1	26	39	10	42*	52	34	39	71	30	54
row 2	69	49	45	42	40	46*	47	46	30	18
row 3	22*	47	34	54	48	57*	42	58*	65	27
row 4	40	53	51	63	62	55	37*	41	59	40
row 5	33*	45	36	11*	35*	42	39	63	36	57
row 6	49	63	45	44	70*	42	29	73*	35*	59
row 7	40	32	40	47	57	42*	27*	35	64	57
row 8	54	42	45*	33	60*	63	53	43	35	33
row 9	44	43	43	62	41*	61	44	95*	52*	39
row 10	58	81	37*	45	55	37	62	76	66	47





GRADE 7

UNIT

9

Teacher Resource Copy Masters

LESSON BLACKLINE MASTERS

Calabacitas

Servings: 6

Ingredients:

2 tablespoons butter
2 tablespoons vegetable oil
2 pounds mixed summer squash (such as zucchini, yellow crookneck squash, and light green skinned calabacita) sliced thin or in bite-size cubes
1 medium onion, chopped
2 small tomatoes, preferably Roma or Italian plum, optional
2 cups corn kernels, fresh or frozen
¼ to ¾ cup chopped, roasted mild New Mexican green chile, fresh or thawed frozen
½ teaspoon salt
Up to ¼ cup half-and-half, optional
4 ounces (1 cup) grated Monterey Jack or Cheddar cheese, optional

Directions:

1. Warm the butter and oil in a large skillet over medium heat. Add the squash, onion, and optional tomatoes. Saute for 10–15 minutes, until the squash is well softened.
2. Stir in the corn, chiles, and salt. Cook covered for another 10 minutes until all vegetables are tender.
3. Add in the half-and-half if you wish and simmer briefly, until the liquid is reduced by about half.
4. Serve hot. Add cheese on top just before serving.

Chicken Rice Bowl

Servings: 4

Ingredients:

- 1 cup uncooked instant rice
- 1 cup chicken broth
- 2 teaspoons olive oil
- ½ cup chopped frozen green pepper, thawed
- ¼ cup chopped onion
- 1 9-ounce package ready-to-use grilled chicken breast strips
- ½ cup frozen corn, thawed
- ½ cup frozen peas, thawed
- 1 teaspoon dried basil
- 1 teaspoon rubbed sage
- ⅛ teaspoon salt
- ⅛ teaspoon pepper

Directions:

1. Cook the rice in the broth following package directions.
2. In a large skillet, heat the oil and saute the green pepper and onion for 2–3 minutes.
3. Add the chicken, corn, peas, basil, and sage to the skillet. Cook uncovered for 4–5 minutes over medium heat, or until heated through.
4. Stir in the rice, salt, and pepper.
5. Serve in bowls.

Crepes

Servings: 8

Ingredients:

- 8 eggs
- 2 cups milk
- 1 cup water
- 2 cups flour, regular or gluten free
- 1 teaspoon salt
- 6 tablespoons powdered sugar
- Oil for pan
- Cheese, optional

Directions:

1. Beat the eggs and add milk and water.
2. Mix together the dry ingredients.
3. Make a well in the center of the dry ingredients and add the liquid, beating only until moist.
4. Heat a crepe pan and lightly coat with oil.
5. Add enough batter to thinly cover the bottom of the pan, tilting the pan. Cook until lightly browned.
6. Flip to brown the other side. If adding cheese, do so now to melt.
7. Remove from the pan and add additional fillings as desired.

Pesto Penne with Vegetables

Servings: 4

Ingredients:

2 cups whole wheat penne pasta
1 cup jarred pesto
1 ½ cups asparagus
1 ½ cups vidalia onion
10 ounce cherry tomatoes
1 tablespoon vegetable oil

Directions:

1. Cook the pasta according to the package directions. Save a cup of the pasta water. Set aside the cooked pasta.
2. Cut the asparagus and onion into small pieces. Heat a pan with the vegetable oil over medium-high heat. Cook the asparagus and onion in the pan.
3. Add the cooked pasta and pesto to the pan. Mix everything together. Add the pasta water one tablespoon at a time until the sauce is the desired consistency.
4. Cut the cherry tomatoes in half and add them to the pan.
5. Serve.

Pickled Herring

Servings: 32

Ingredients:

- ¾ cup white vinegar
- ½ cup water
- ½ cup sugar
- 2 salted herring, 1–1 ½ pounds each, soaked in cold water for 12 hours
- 2 tablespoons horseradish, squeezed dry
- ¾ cup thin sliced carrot
- ¾ cup thin sliced red onion
- ¼ inch piece ginger root, thinly sliced
- 2 teaspoons whole allspice
- 2 teaspoons whole yellow mustard seeds
- 3 small bay leaves

Directions:

1. Bring the vinegar, water, and sugar to a boil, stirring constantly until the sugar completely dissolves.
2. Remove from the heat and cool to room temperature.
3. Wash the herring in cold running water and cut into 1 inch thick pieces.
4. Layer in 1 quart glass jars: onion, piece of herring, carrots, ginger root, horseradish. Scatter the allspice, mustard seeds, and bay leaf over all. Repeat until all of the ingredients have been used, making 3 or 4 layers. (This should make 2 quart jars.)
5. Pour the cool pickling liquid into the jar, just covering the contents. Close the jar securely with a lid and refrigerate for at least 2–3 days.

Posolé

Servings: 8

Ingredients:
6 dried New Mexican red chile pods, stemmed and seeded
1–1 ½ pounds pork shoulder or loin, trimmed of surface fat and cut into bite-sized cubes, or 1–2 pigs' feet
Water
2 pounds frozen posole or 1 pound dried posole
2 medium onions, chopped
6–10 garlic cloves, minced
1 tablespoon plus 1 teaspoon salt, or more to taste

Directions:

1. If using frozen posole, simmer the chile pods and pork in a Dutch oven or large pot with 4 quarts of water for about 30 minutes, then add the frozen posole and cook for 30 minutes more.
2. If using dried posole, simmer the posole, chile, and pork in a Dutch oven or large pot with 6 quarts of water for about 1 hour.
3. Stir in the onions, garlic, and salt. Continue to simmer over a low heat until the posole is soft. This should take about 30 minutes for frozen posole or 1 hour for dried posole, although it could be longer.
4. Serve hot in bowls.

Potato Latkes

Servings: 12 (depending on size)

Ingredients:

- 2 pounds russet potatoes
- 1 medium onion (yellow or white)
- 2 eggs
- ½ cup all-purpose flour
- 1 teaspoon salt, plus more for sprinkling on the finished latkes
- ⅛ teaspoon black pepper
- Oil for frying

Directions:

1. Grate (by hand or using a food processor) the potatoes and onions. Squeeze the mixture to remove as much liquid as possible.
2. Heat ¼ inch of oil in a pan over medium-high heat.
3. Mix eggs, flour, salt, and pepper to the potato and onion mixture.
4. Form the mixture into palm-sized discs to fry. Place the discs into the pan (cook in batches to not overcrowd the pan) and fry until golden brown (3-5 minutes). Flip the latkes to cook the other side (another 3-5 minutes). Drain the fried latkes on paper towels and sprinkle with salt.
5. Serve hot. Popular toppings include applesauce, sour cream, or ketchup.

Sopapillas

Servings: 12

Ingredients:
1 ½ cups all-purpose flour
½ cup whole wheat flour
1 teaspoon salt
1 teaspoon baking powder
1 teaspoon sugar, optional
2 teaspoons vegetable oil, vegetable shortening, or lard
¼ cup milk or evaporated milk, at room temperature
½ cup lukewarm water or more as needed
Vegetable oil for deep frying
Honey or other toppings

Directions:

1. In a bowl, mix together the flours, salt, baking powder, and sugar.
2. Add in the vegetable oil using fingers to combine. Mix in the milk and water, working the mixture together until a sticky dough forms. Add more water if needed.
3. Strongly knead the dough on a lightly floured surface for 1 minute. The dough should be soft but sturdy and not sticky.
4. Cover the dough with a damp cloth to rest for 15 minutes. Then, divide the dough into 3 balls and let them rest for another 15 to 30 minutes under the damp cloth.
5. On a lightly floured surface, roll out each ball into a circle or rectangle about ¼ inch thick.
6. Cut each portion of dough into 4 pieces.
7. In a high-sided skillet, heat at least 3 inches of oil to 400°F.
8. Fry 1–2 dough pieces at a time. The dough should sink at first before ballooning and rising to the surface.
9. As they start to rise, carefully spoon oil over them until they have fully puffed. Turn them over until they are just golden. Remove from the oil and drain on paper towels.
10. Serve hot with honey or other toppings.

Info Gap: Are They Making Money?

Problem Card 1

A full-service restaurant has to pay some ongoing expenses in addition to the cost of the food.

Is the restaurant making a profit?

Info Gap: Are They Making Money?

Data Card 1

- The restaurant serves an average of 1,500 meals per week.
- The average price for a meal is $17.
- The average cost per meal is $4.60.
- The restaurant's ongoing expenses (rent, utilities, wages) are $27,000 per month.

Info Gap: Are They Making Money?

Problem Card 2

A fast food restaurant also has to pay some ongoing expenses in addition to the cost of the food.

How many meals do they need to serve per week to make a profit?

Info Gap: Are They Making Money?

Data Card 2

- The average price for a meal is $8.
- The average cost per meal is $2.20.
- The restaurant's ongoing expenses (rent, utilities, wages) are $15,000 per month.

Info Gap: Are They Making Money?

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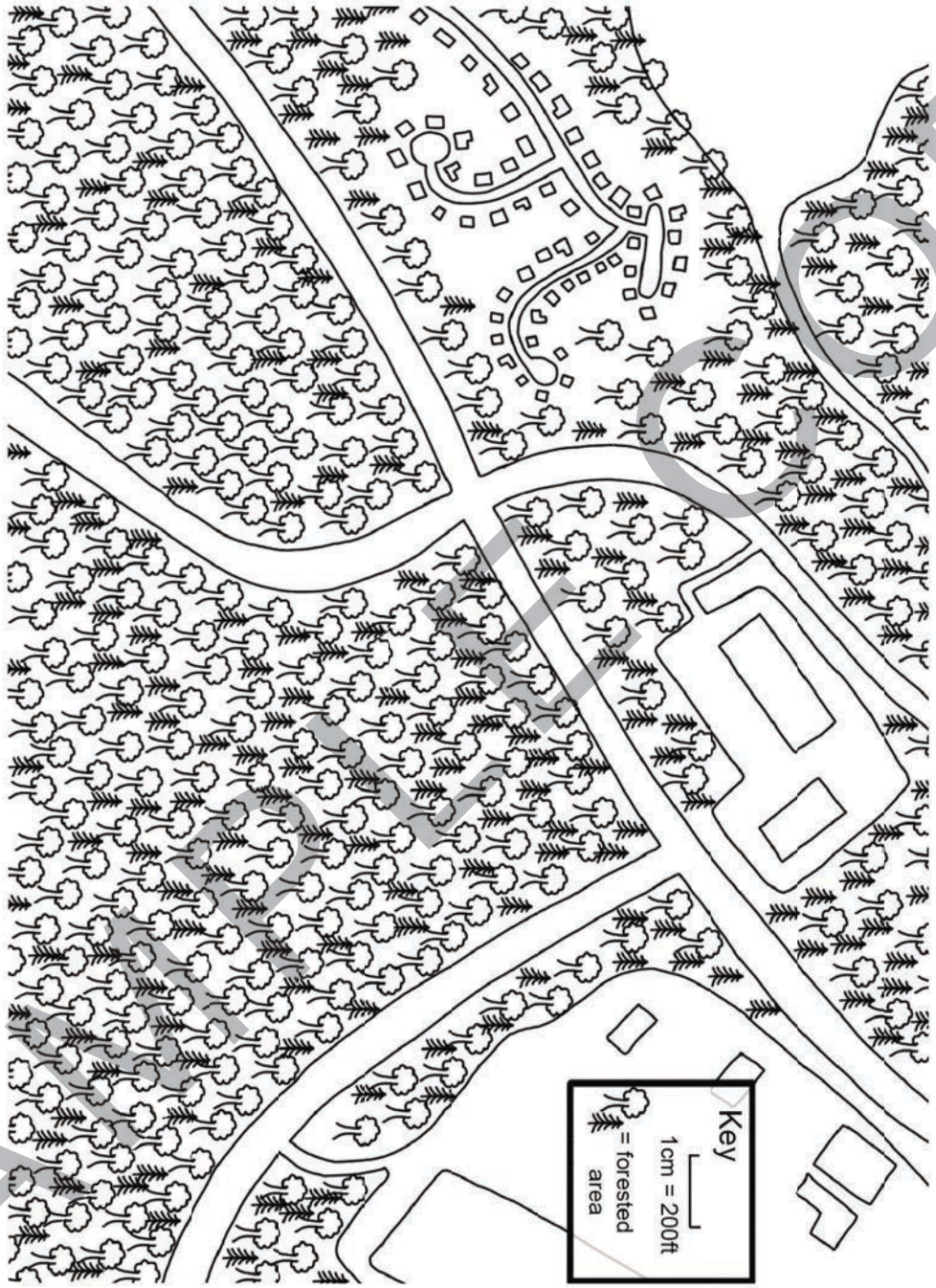
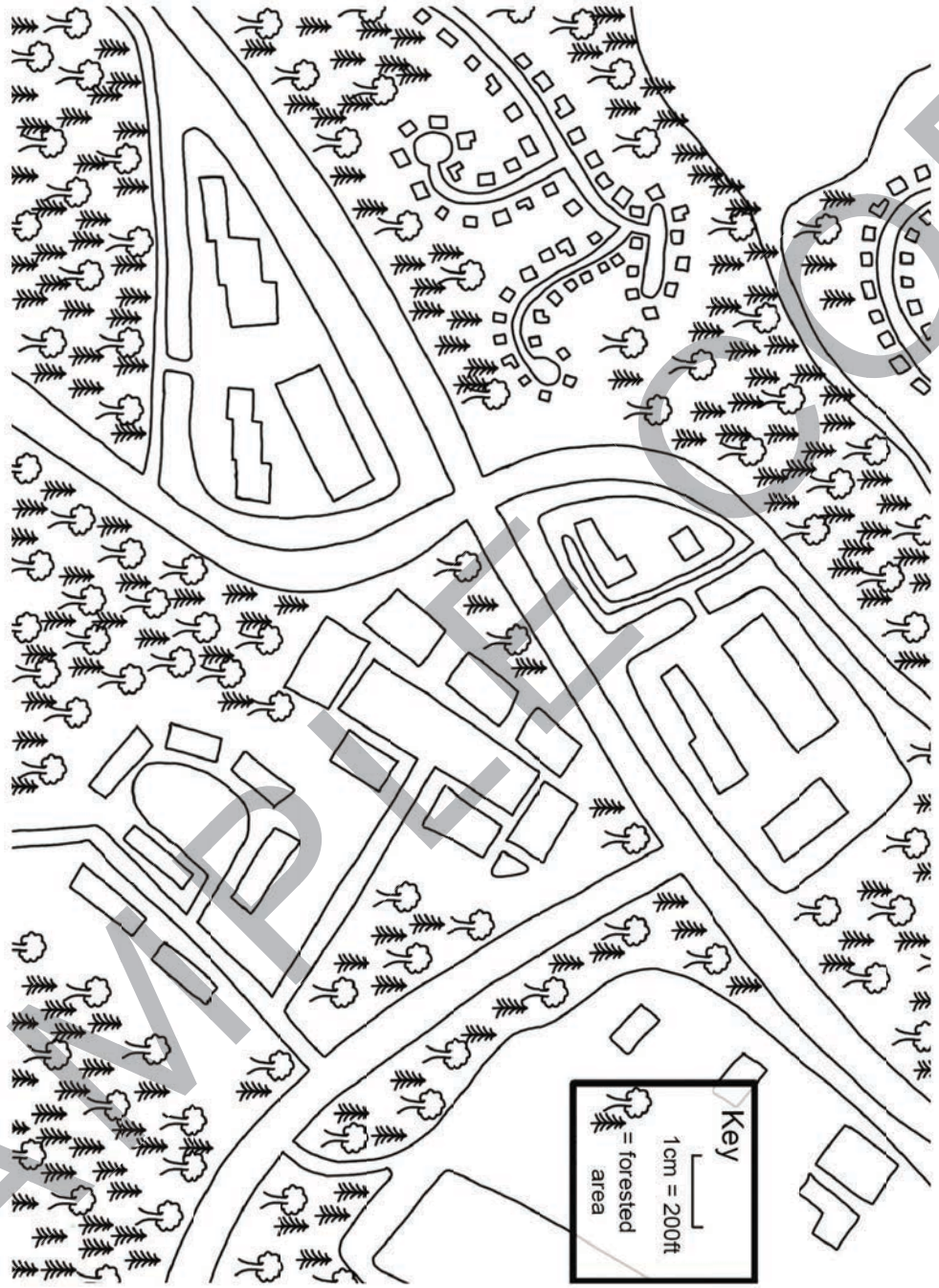


Map 1



Map 2

Attributions

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