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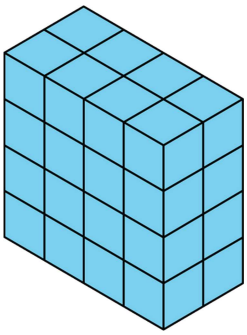
Unit 1, Lesson 12

Practice Problems

1. What is the surface area of this rectangular prism?



A. 16 square units
B. 32 square units
C. 48 square units
D. 64 square units

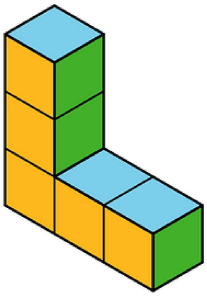
2. Which description can represent the surface area of this trunk?

A. The number of square inches that cover the top of the trunk.
B. The number of square feet that cover all the outside faces of the trunk.
C. The number of square inches of horizontal surface inside the trunk.
D. The number of cubic feet that can be packed inside the trunk.

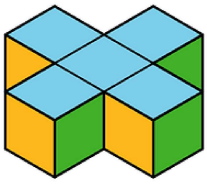
"Trunk 1" via Wikimedia Commons. Public Domain.

3. Which figure has a greater surface area?

A



B



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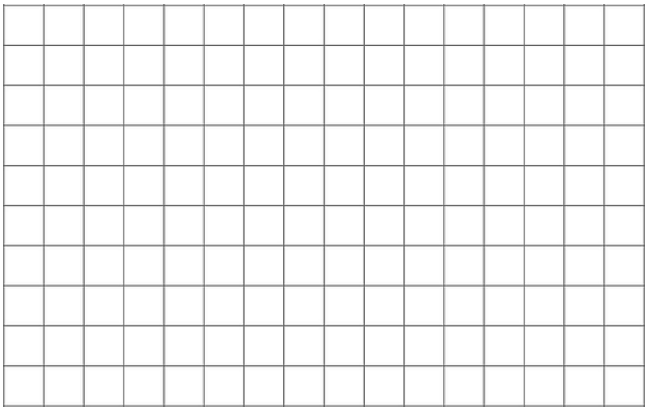
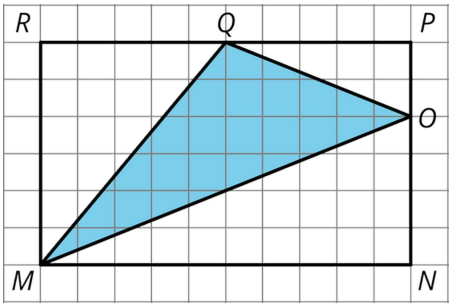
4. A rectangular prism is 4 units high, 2 units wide, and 6 units long. What is its surface area in square units? Explain or show your reasoning.

5. Draw an example of each of the following triangles on the grid.



   a. A right triangle with an area of 6 square units.
   b. An acute triangle with an area of 6 square units.
   c. An obtuse triangle with an area of 6 square units.

6. Find the area of triangle MOQ in square units. Show your reasoning.



7. Find the area of this shape. Show your reasoning.

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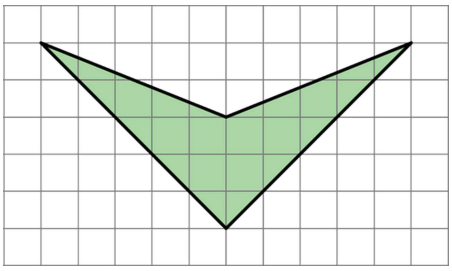

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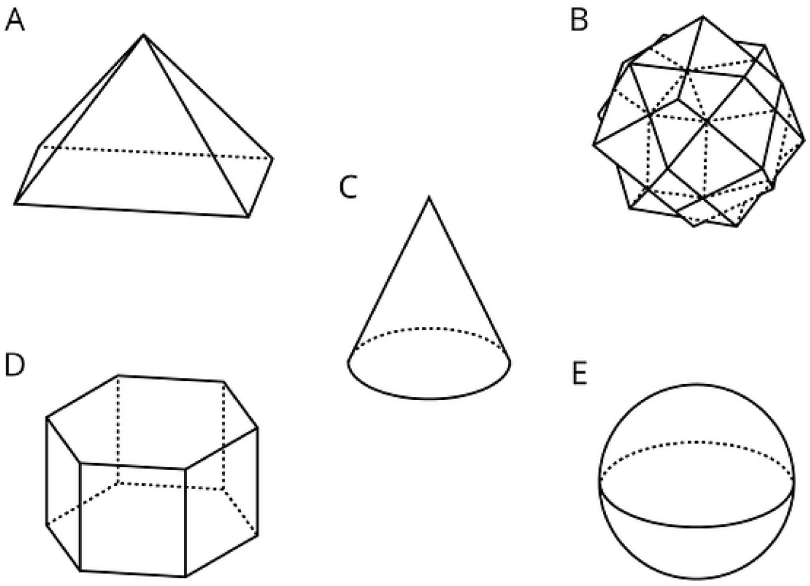
Unit 1, Lesson 13

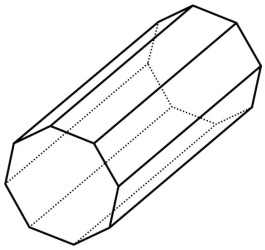
Practice Problems

1. Select **all** the polyhedra.



2. a. Is this polyhedron a prism, a pyramid, or neither? Explain how you know.

   b. How many faces, edges, and vertices does it have?



3. Tyler said this net cannot be a net for a square prism because not all the faces are squares.

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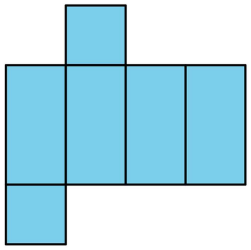
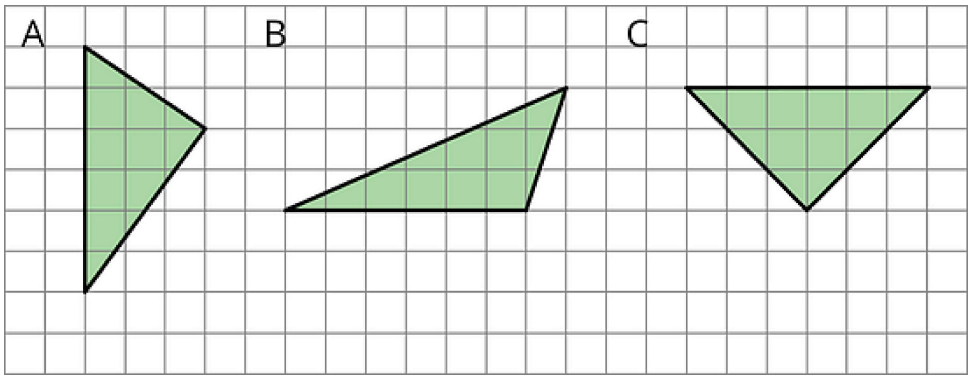
Do you agree with Tyler's statement? Explain your reasoning.



4. Explain why each of the following triangles has an area of 9 square units.



5. a. A parallelogram has a base of 12 meters and a height of 1.5 meters. What is its area?
   b. A triangle has a base of 16 inches and a height of $\frac{1}{8}$ inches. What is its area?
   c. A parallelogram has an area of 28 square feet and a height of 4 feet. What is its base?
   d. A triangle has an area of 32 square millimeters and a base of 8 millimeters. What is its height?

6. Find the area of the shaded region. Show or explain your reasoning.

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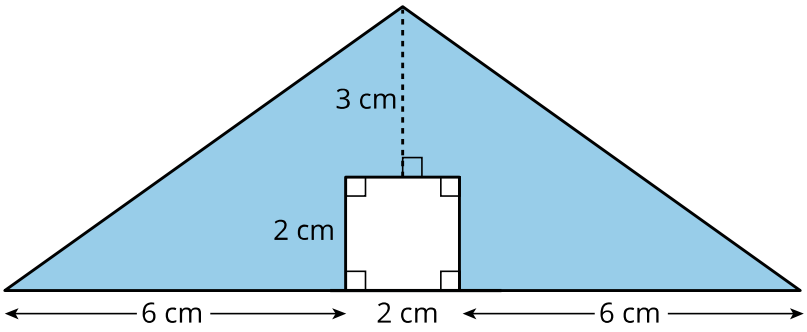

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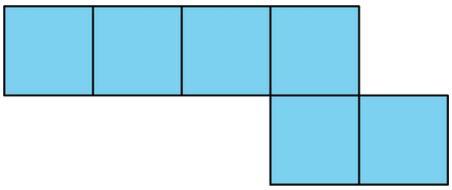
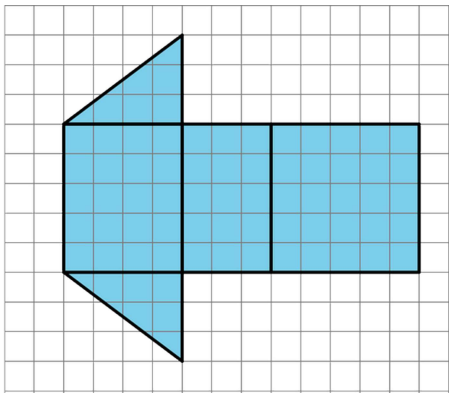
Unit 1, Lesson 14

Practice Problems

1. Can the following net be assembled into a cube? Explain how you know. Label parts of the net with letters or numbers if it helps your explanation.



2. a. What polyhedron can be assembled from this net? Explain how you know.



b. Find the surface area of this polyhedron. Show your reasoning.

3. Here are two nets. Mai said that both nets can be assembled into the same triangular prism. Do you agree? Explain or show your reasoning.

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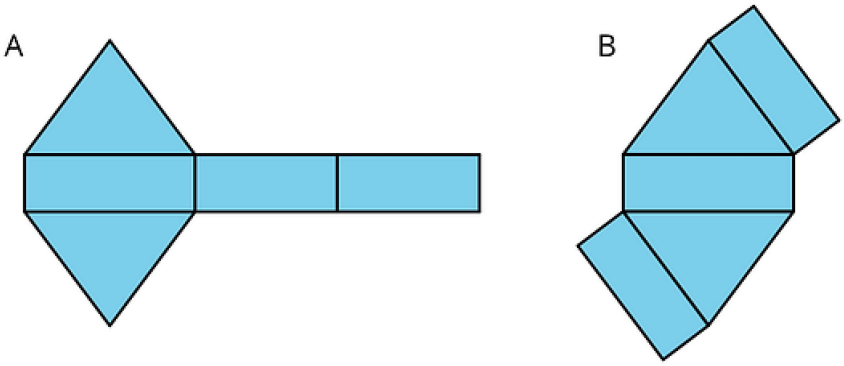
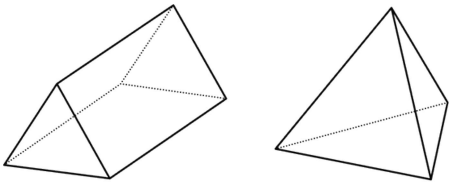


4. Here are two three-dimensional figures.



Tell whether each of the following statements describes Figure A, Figure B, both, or neither.

a. This figure is a polyhedron.
b. This figure has triangular faces.
c. There are more vertices than edges in this figure.
d. This figure has rectangular faces.
e. This figure is a pyramid.
f. There is exactly one face that can be the base for this figure.
g. The base of this figure is a triangle.
h. This figure has two identical and parallel faces that can be the base.

5. Select **all** units that can be used for surface area. Explain why the others cannot be used for surface area.

a. square meters
b. feet
c. centimeters
d. cubic inches
e. square inches

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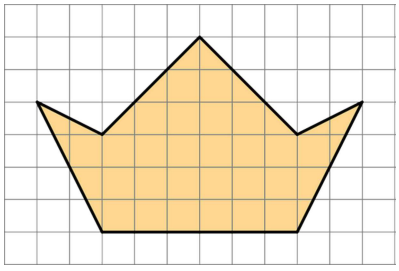
f. square feet

6. Find the area of this polygon. Show your reasoning.



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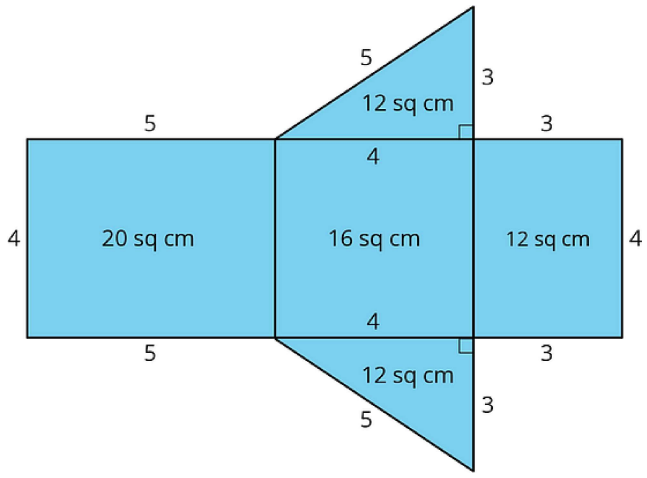
Unit 1, Lesson 15

Practice Problems

1. Jada drew a net for a polyhedron and calculated its surface area.

   a. What polyhedron can be assembled from this net?

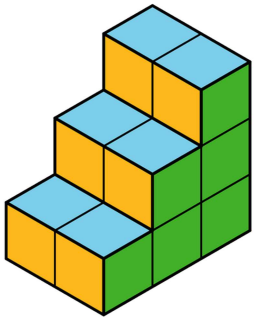
   b. Jada made some mistakes in her area calculation. What were the mistakes?



   c. Find the surface area of the polyhedron. Show your reasoning.

2. A cereal box is 8 inches by 2 inches by 12 inches. What is its surface area? Show your reasoning. If you get stuck, consider drawing a sketch of the box or its net and labeling the edges with their measurements.

3. Twelve cubes are stacked to make this figure.



   a. What is its surface area?

   b. How would the surface area change if the top two cubes are removed?

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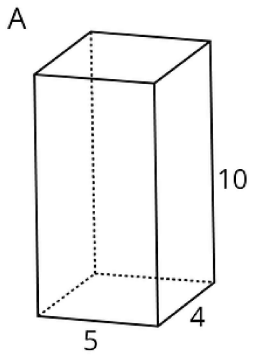
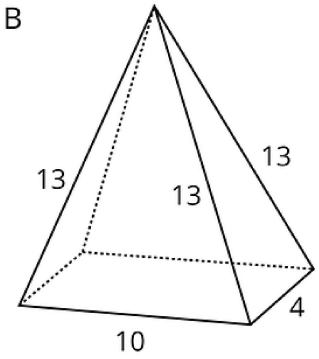
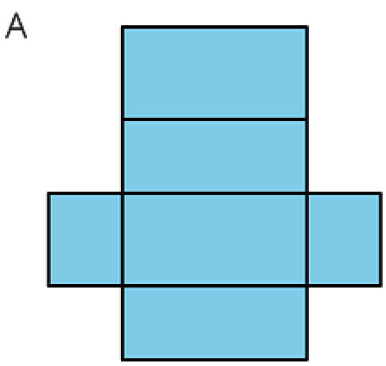
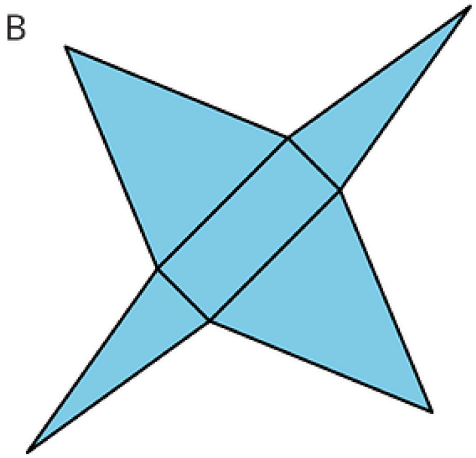
4. Here are two polyhedra and their nets. Label all edges in the net with the correct lengths.

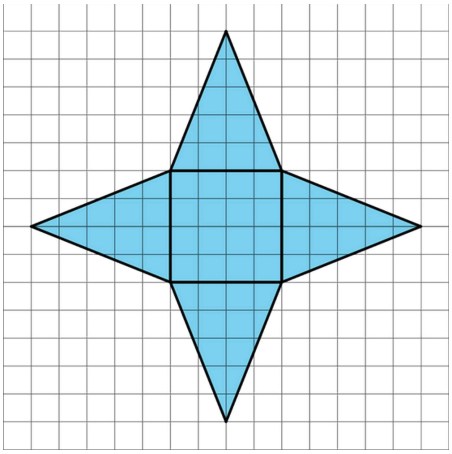








5. a. What three-dimensional figure can be assembled from the net?



b. What is the surface area of the figure? (One grid square is 1 square unit.)

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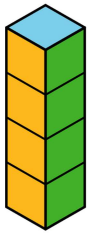
Unit 1, Lesson 16

Practice Problems

1. Match each quantity with an appropriate unit of measurement.

A. The surface area of a tissue box	1. Square meters
B. The amount of soil in a planter box	2. Yards
C. The area of a parking lot	3. Cubic inches
D. The length of a soccer field	4. Cubic feet
E. The volume of a fish tank	5. Square centimeters

2. Here is a figure built from snap cubes.



   a. Find the volume of the figure in cubic units.
   b. Find the surface area of the figure in square units.
   c. True or false: If we double the number of cubes being stacked, both the volume and surface area will double. Explain or show how you know.

3. Lin said, “Two figures with the same volume also have the same surface area.”

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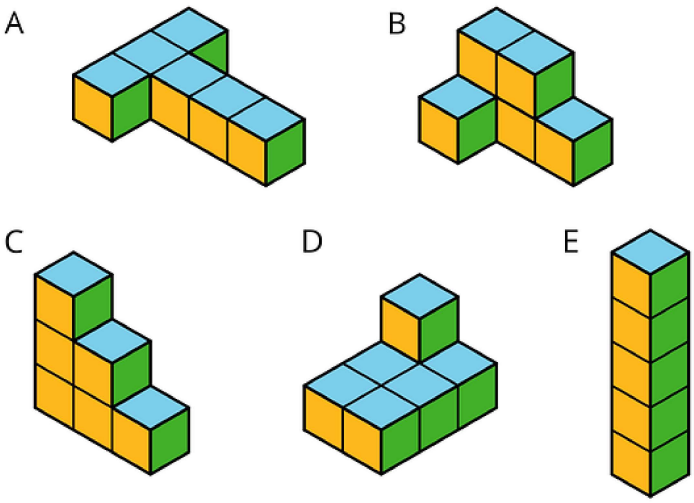
a. Which two figures suggest that her statement is true?

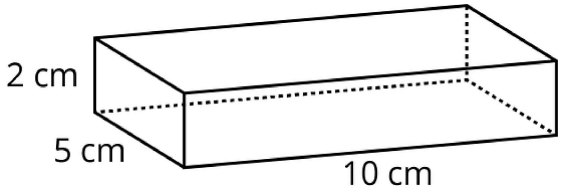
b. Which two figures could show that her statement is *not* true?



4. Draw a pentagon (five-sided polygon) that has an area of 32 square units. Label all relevant sides or segments with their measurements, and show that the area is 32 square units.

5. a. Draw a net for this rectangular prism.

   b. Find the surface area of the rectangular prism.



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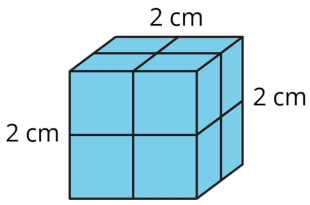
Unit 1, Lesson 17

Practice Problems

1. What is the volume of this cube?



2. a. Decide if each number on the list is a perfect square.

   A. 16
   B. 20
   C. 25
   D. 100
   E. 125
   F. 144
   G. 225
   H. 10,000

   b. Write a sentence that explains your reasoning.

3. a. Decide if each number on the list is a perfect cube.

   A. 1
   B. 3
   C. 8
   D. 9
   E. 27
   F. 64
   G. 100
   H. 125

   b. Explain what a perfect cube is.

4. a. A square has side length 4 cm. What is its area?

   b. The area of a square is 49 m^2. What is its side length?

   c. A cube has edge length 3 in. What is its volume?

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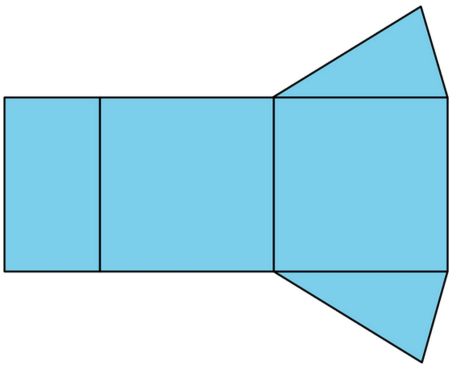
5. Prism A and Prism B are rectangular prisms. Prism A is 3 inches by 2 inches by 1 inch. Prism B is 1 inch by 1 inch by 6 inches.

   Select **all** statements that are true about the two prisms.

   A. They have the same volume.
   B. They have the same number of faces.
   C. More inch cubes can be packed into Prism A than into Prism B.
   D. The two prisms have the same surface area.
   E. The surface area of Prism B is greater than that of Prism A.

6. a. What polyhedron can be assembled from this net?



   b. What information would you need to find its surface area? Be specific, and label the diagram as needed.

7. Find the surface area of this triangular prism. All measurements are in meters.