Name _____ Class _____ Date _____

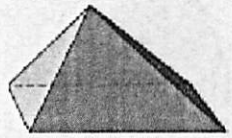
Practice 14-1

Analyzing Three-Dimensional Figures

1. How many faces, edges, and vertices does the three-dimensional figure have?

_____

2. How many faces, edges, and vertices does the three-dimensional figure have?

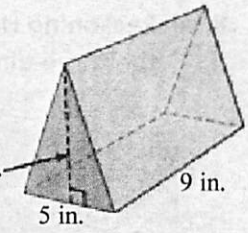


_____

3. a) How many bases and lateral faces does the prism have?

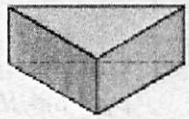
_____

b) What is the height of the prism?



(The figure is not to scale.)

4. Name the figure shown.

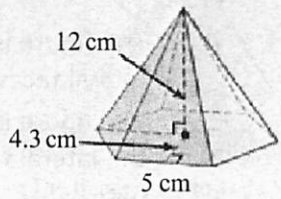


_____

5. a) How many bases and lateral faces does the pyramid have?

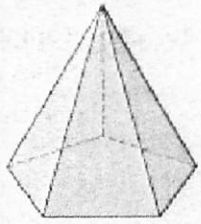
_____

b) What is the height of the pyramid?



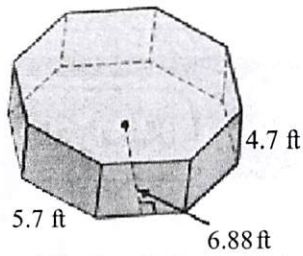
(The figure is not to scale.)

6. Name the figure shown.



_____

7. a) **Writing** How many bases, faces, and edges does the prism have?



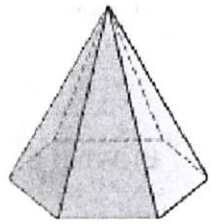
(The figure is not to scale.)

_____

b) What is the height of the prism?

c) Describe an object that looks like the prism. Explain why it might be important to know how many edges it has.

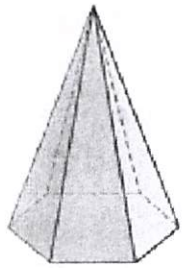
8. a) **Reasoning** How many faces, edges, and vertices does the three-dimensional figure have?



_____

b) If the base of a pyramid has n sides, how many vertices does the pyramid have? Explain your reasoning.

9. **Error Analysis** Michelle said that this figure is a triangular pyramid. What is the name of the figure and what was her error?



- ❍ A. The figure is a hexagonal pyramid. She used one of the lateral faces to name the figure instead of the base.
- ❍ B. The figure is an octagonal pyramid. She used one of the lateral faces to name the figure instead of the base.
- ❍ C. The figure is a hexagonal prism. She said the figure is a pyramid.
- ❍ D. The figure is a hexagonal pyramid. She used the base to name the figure instead of one of the lateral faces.
- ❍ E. The figure is a hexagon. She said the figure is three-dimensional.

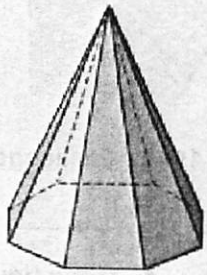
10. **Landscaping** A landscaper makes a patio using tiles. Some of the tiles are shaped like this figure.

a) Name the figure.

_____

b) Describe what the finished patio might look like. Include a sketch.

11. a) Open-Ended Name the figure shown.



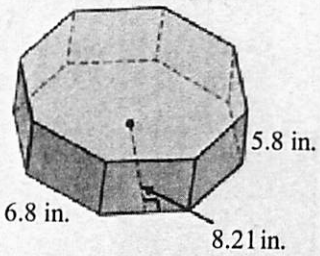
_____

b) How are pyramids similar to prisms? How are they different?

12. a) How many bases, faces, edges, and vertices does the prism have?

_____

b) What is the height of the prism?

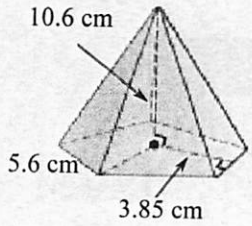


(The figure is not to scale.)

13. a) How many bases, faces, lateral faces, edges, and vertices does the pyramid have?

_____

b) What is the height of the pyramid?



(The figure is not to scale.)

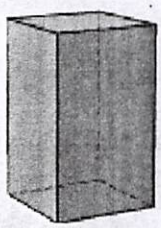
c) In general, how are the numbers of faces and lateral faces of pyramids related? Explain your reasoning.

Name Key Class Date

Practice 14-1

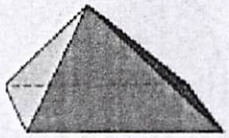
Analyzing Three-Dimensional Figures

1. How many faces, edges, and vertices does the three-dimensional figure have?



6 faces, 12 edges, 8 vertices

2. How many faces, edges, and vertices does the three-dimensional figure have?

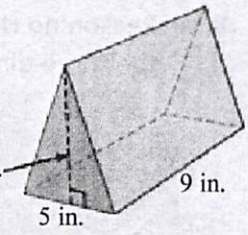


5 faces, 8 edges, 5 vertices

3. a) How many bases and lateral faces does the prism have?

2 bases and 3 lateral faces

b) What is the height of the prism?



(The figure is not to scale.)

4.3 in

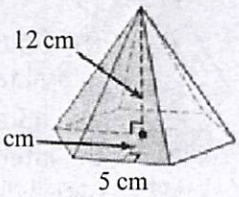
4. Name the figure shown.

Triangular Prism

5. a) How many bases and lateral faces does the pyramid have?

1 base and 5 lateral faces

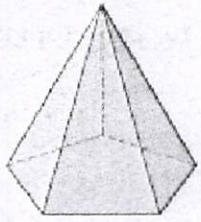
b) What is the height of the pyramid?



(The figure is not to scale.)

12 cm

6. Name the figure shown.

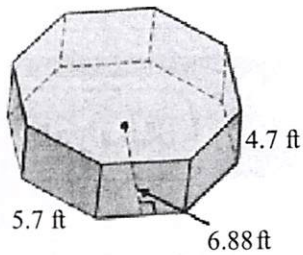


Pentagonal Pyramid

7. a) **Writing** How many bases, faces, and edges does the prism have?

2 bases, 8 lateral faces

24 edges



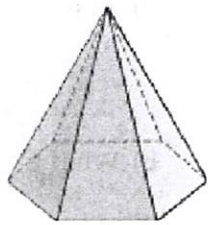
(The figure is not to scale.)

b) What is the height of the prism?

4.7 ft

c) Describe an object that looks like the prism. Explain why it might be important to know how many edges it has.

8. a) **Reasoning** How many faces, edges, and vertices does the three-dimensional figure have?



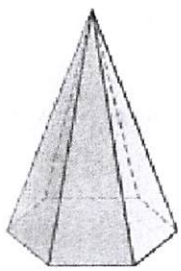
7 faces, 12 edges, 7 vertices

b) If the base of a pyramid has n sides, how many vertices does the pyramid have? Explain your reasoning.

n + 1

n corners of base plus 1 at the top

9. **Error Analysis** Michelle said that this figure is a triangular pyramid. What is the name of the figure and what was her error?



- A. The figure is a hexagonal pyramid. She used one of the lateral faces to name the figure instead of the base.
- B. The figure is an octagonal pyramid. She used one of the lateral faces to name the figure instead of the base.
- C. The figure is a hexagonal prism. She said the figure is a pyramid.
- D. The figure is a hexagonal pyramid. She used the base to name the figure instead of one of the lateral faces.
- E. The figure is a hexagon. She said the figure is three-dimensional.

10. **Landscaping** A landscaper makes a patio using tiles. Some of the tiles are shaped like this figure.

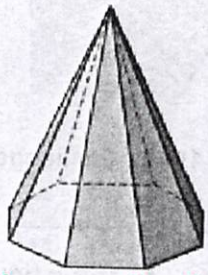
a) Name the figure.

Triangular Prism

b) Describe what the finished patio might look like. Include a sketch.

11. a) **Open-Ended** Name the figure shown.

Octagonal Pyramid



b) How are pyramids similar to prisms? How are they different?

Both named by base

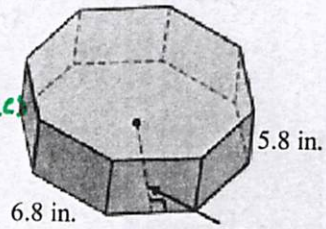
Prisms = 2 bases Pyramids = 1 base

12. a) How many bases, faces, edges, and vertices does the prism have?

2 bases, 10 faces, 24 edges 16 vertices

b) What is the height of the prism?

5.8 in



(The figure is not to scale.)

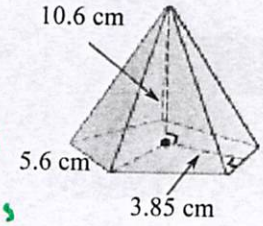
13. a) How many bases, faces, lateral faces, edges, and vertices does the pyramid have?

1 base, 6 faces 5 lateral faces, 10 edges

6 vertices

b) What is the height of the pyramid?

10.6 cm



(The figure is not to scale.)

c) In general, how are the numbers of faces and lateral faces of pyramids related? Explain your reasoning.

faces − 1 = lateral faces

↖ base