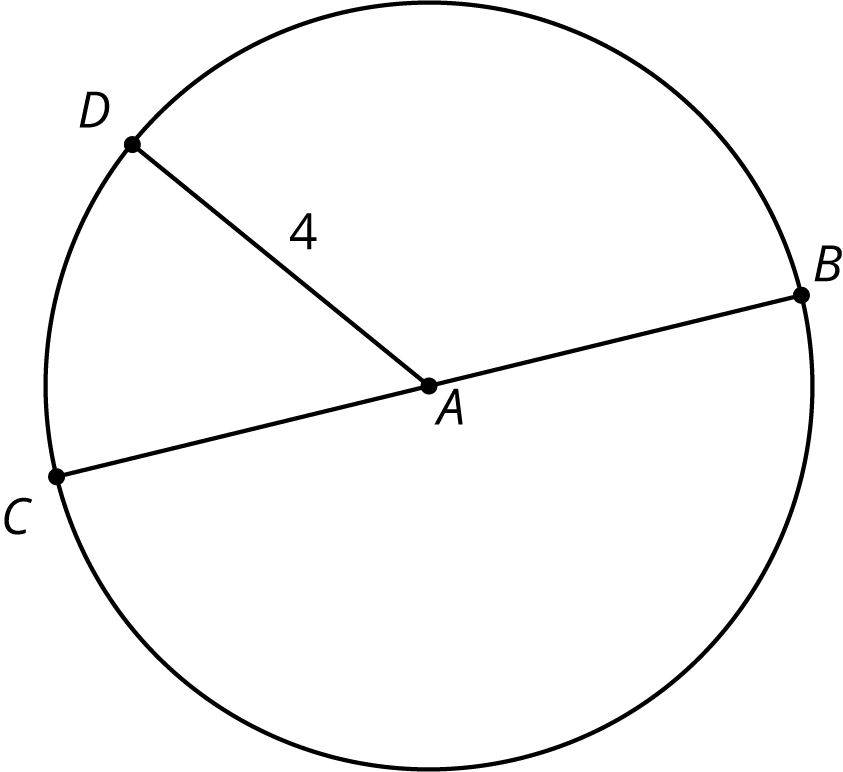
## Unit 5 Lesson 13: The Volume of a Cylinder

### 1 A Circle's Dimensions (Warm up)

#### Student Task Statement



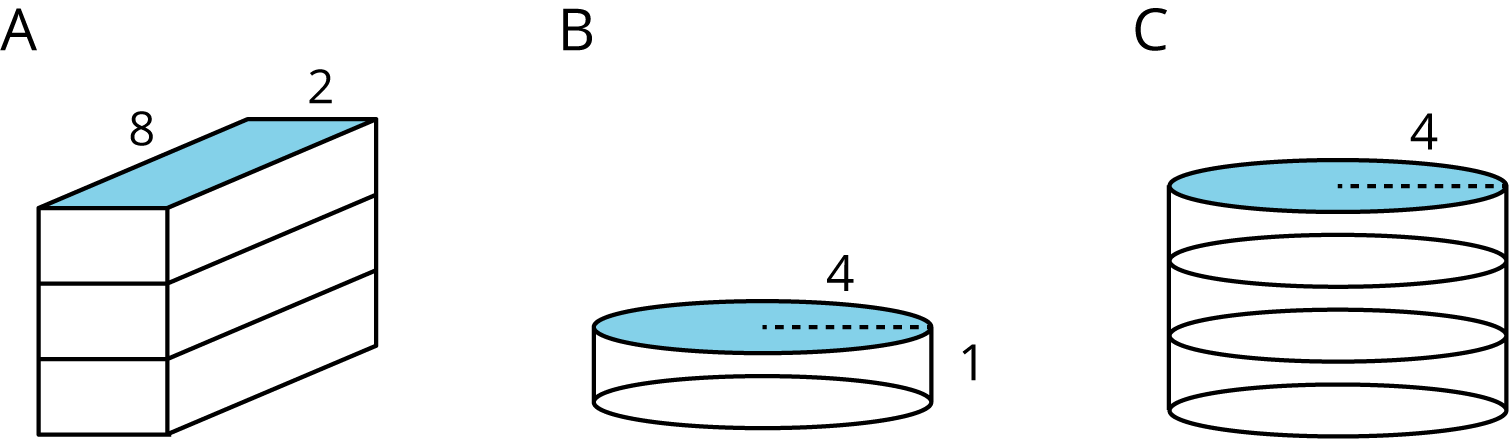
Here is a circle. Points , , , and are drawn, as well as Segments and .

1. What is the area of the circle, in square units? Select all that apply.
   1. approximately 25
   2. approximately 50
2. If the area of a circle is square units, what is its radius? Explain your reasoning.

### 2 Circular Volumes

#### Student Task Statement

What is the volume of each figure, in cubic units? Even if you aren’t sure, make a reasonable guess.

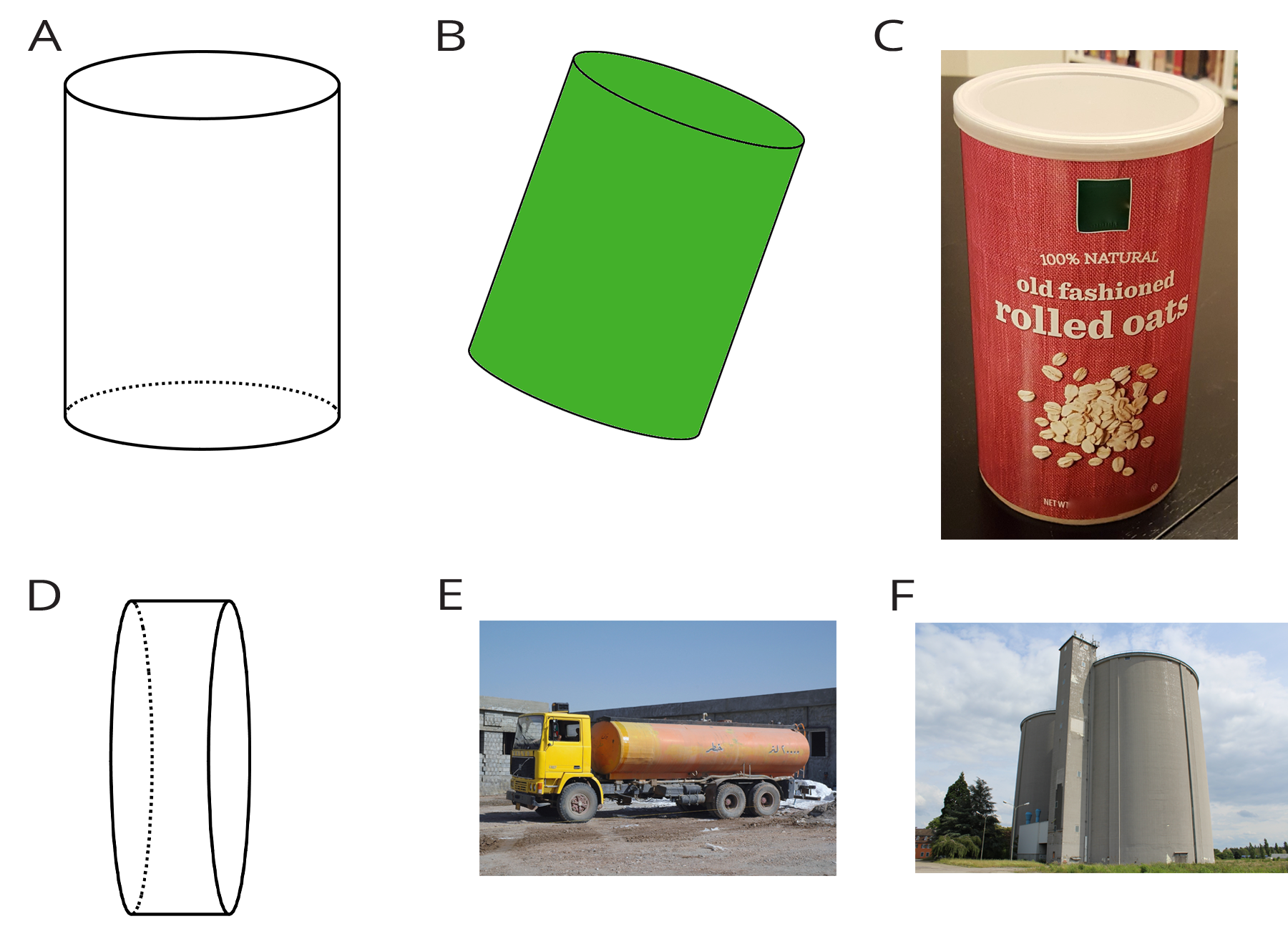


1. Figure A: A rectangular prism whose base has an area of 16 square units and whose height is 3 units.
2. Figure B: A cylinder whose base has an area of 16 square units and whose height is 1 unit.
3. Figure C: A cylinder whose base has an area of 16 square units and whose height is 3 units.

### 3 A Cylinder's Dimensions (Optional)

#### Student Task Statement

1. For cylinders A–D, sketch a radius and the height. Label the radius with an and the height with an .

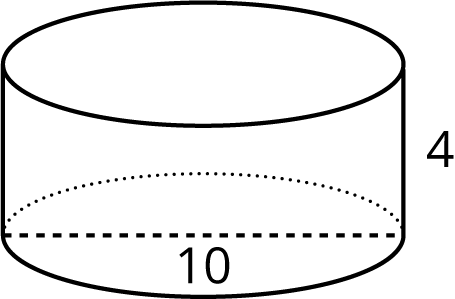
* 

1. Earlier you learned how to sketch a cylinder. Sketch cylinders for E and F and label each one’s radius and height.

### 4 A Cylinder's Volume

#### Student Task Statement

1. Here is a cylinder with height 4 units and diameter 10 units.

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  1. Shade the cylinder’s base.
  2. What is the area of the cylinder’s base? Express your answer in terms of .
  3. What is the volume of this cylinder? Express your answer in terms of .

1. A silo is a cylindrical container that is used on farms to hold large amounts of goods, such as grain. On a particular farm, a silo has a height of 18 feet and diameter of 6 feet. Make a sketch of this silo and label its height and radius. How many cubic feet of grain can this silo hold? Use 3.14 as an approximation for .



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