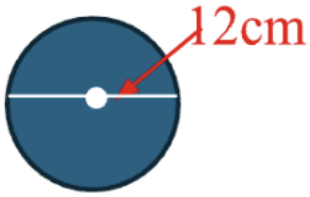
1. Estimate the circumference of a circle that has a diameter of 12cm. Show your thinking.



2. The diameter of a regulation basketball hoop (rim) is 45.72cm.

a) What is the radius?

b) Calculate the circumference

3. The Wave Swinger (the classic ride at Playland) has a radius of about 4.18m. Find the circumference (the distance traveled by a swing seat in one full rotation around the ride's centre).

4. A circle has a circumference of 23.55cm. About how far is a point on the circle from the centre?

5. A bicycle wheel has a radius of 35cm.

a) What is the diameter of the wheel?

b) If the wheel turns 40 revolutions, how far would the bike travel?

6. While Luca was on vacation, he stayed at a hotel with a circular swimming pool with a diameter of 15 m. A fence around the pool costs $90 per meter to build. How much did the fence cost?

7. Find the area of a circle with the given dimension:

a) a radius of 2.5m

b) a diameter of 11km

8. A circular outdoor rink has an area of $510m^2$. What is the diameter of the rink, to the nearest tenth of a meter?

9. The Canadian toonie has two parts:

- an outer ring (made of nickel plating)
- an inner circle with a diameter of 16mm (made of brass)

What is the area of the outer ring, rounded to the nearest hundredth of a square millimeter?

10. Construct a circle with these measurements:

a) a radius of 6cm

b) a diameter of 9cm

a) a circumference of 25cm

11. What patterns do you notice when you compare the circumference and diameter of different circles. Explain and justify your thinking using pictures, symbols and words.

12. How can you estimate the circumference of a circle without using the formula? What strategies might work?

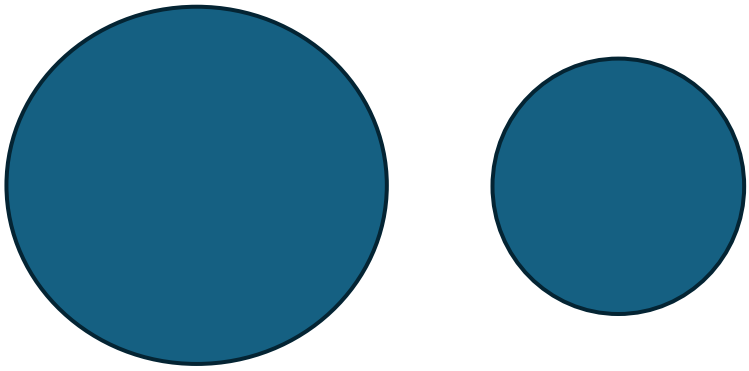
13. If you double the diameter of a circle, what happens to the circumference? How can you show this in more than one way?

14. If two circles have the same circumference, do they have the same area? Why? Show your thinking using math.

15. Describe a situation in which you might want to estimate either the circumference or the area of a circle but would not want to calculate it exactly.

16. A circle has a radius of 10cm. Is it possible to create a rectangle with the same perimeter and a ratio of width to perimeter of about 1 to 10? If so, what are those measurements? Show your thinking.

17. You want to compare the circumferences of these two circles. What unit and what tool would you use? Why?



TASK: Design a geometric pattern using overlapping circles of different diameters.

Materials Needed

- Compass
- Pencil
- Eraser
- Blank or graph paper
- String for measuring distance around the circle

Include the Following

- At least six circles
- Include the following circle sizes
    - 8cm (large), 6cm (medium), 4cm (small)
- Circles must overlap with at least one other circle

Steps

- Draw the largest circle near the centre of your paper.
- Add the medium-sized circles so they overlap with the large circle.
- Fill gaps with smaller circles, making sure they overlap with others.
- Add other shapes to your design, if you like.
- Use colour or shading to enhance your design.

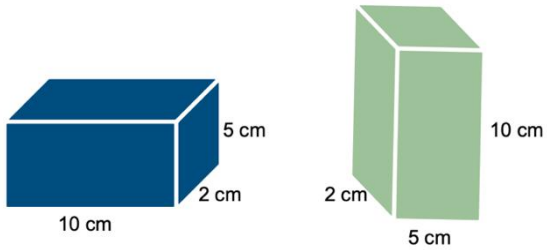
1. a. Construct a rectangular prim using cubes. Count and record the number of cubes that make up its volume, as well as the number of cubes in its base and its height. Enter your findings in the table.

Height of Prism	Area of Base	Volume of Rectangular Prism

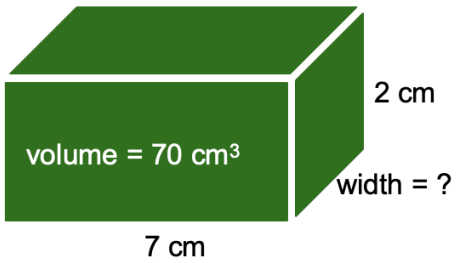
b) What is the relationship between the area of the base, the height of the prism, and the volume of a rectangular prism?

2. If the volume of a rectangular prism is 128 cubes and the height is 4 cubes, what is the area of the base?

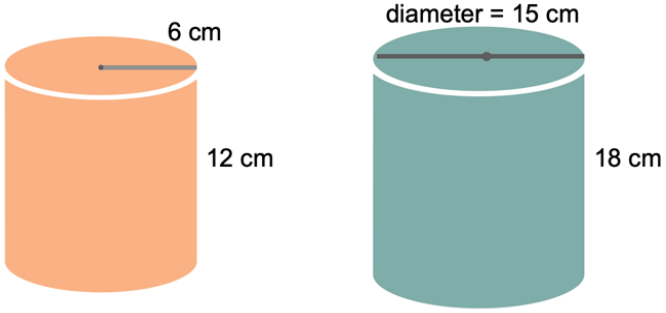
3. Which box has a greater volume? Explain your reasoning.



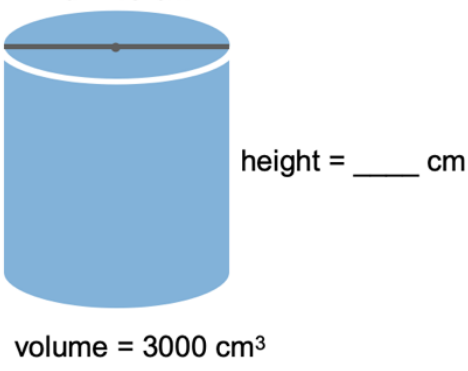
4.



5. What is the volume of each cylinder?



6.



volume = 3000 cm^3

7. Aisha and Ben each have two cans with the same base radius of 4 cm. Aisha's can is shorter, with a height of 6 cm. Ben's can is taller, with a height of 9 cm. Ben says his can holds more liquid than Aisha's can. Is he correct? Explain your reasoning.

8. Lina is pouring juice into a tall glass. The area of the base of the glass is 12 cm^2, and the glass is 15 cm high. When Lina finishes pouring, the juice reaches a height of only 13 cm. What is the volume of juice in the glass?

9. If a cylinder has a base with an area of 28cm2 and a volume of 196cm3, what is its height?

10. Determine the volume of a cylinder that has a circumference of 46cm and a height of 20cm.

11. In what ways is calculating the volume of a cylinder similar to calculating the volume of a rectangular prism? Use pictures, numbers and words to share your thinking.

12. How does changing the height of a rectangular prism affect its volume if the base stays the same?

13. What patterns do you notice when you double one dimension of a prism? How does that compare to doubling two dimensions?

14. How many ways can you build a rectangular prism using 16 cubes. Show your thinking using pictures and numbers.

15. Two cylinders have the same height but different volumes. What makes them the same and what makes them different?