Around the Edge

Which perimeter estimates make sense?

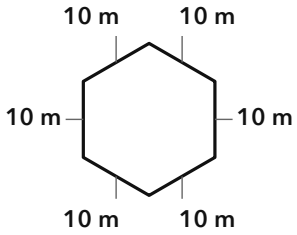
5.GM.2.2 "Estimate the perimeter of polygons and create arguments for reasonable perimeter values of shapes that may include curves."

NAME _____ DATE _____

REASONABLE ESTIMATE

The estimate is close to the distance around the whole figure. Add straight sides, and remember that a full circle's curved edge is about three times its diameter.

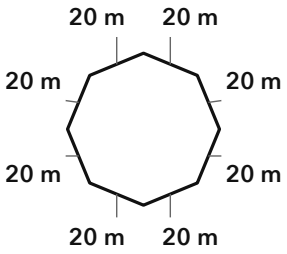
About 60 m



UNREASONABLE ESTIMATE

The estimate is much too large or too small for the whole edge. For a half-circle, count both the curved edge and the straight edge.

About 50 m



1 SORT

8 items

For Part 1, circle CLOSE or FAR for each estimate; for Part 2, choose one CLOSE figure and one FAR figure and explain how you checked each perimeter.

1.

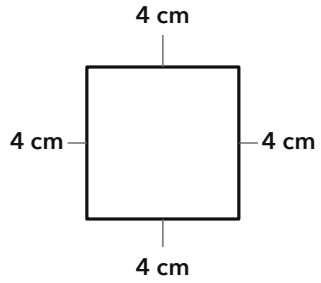


Figure 1: about 16 cm

CLOSE FAR

2.

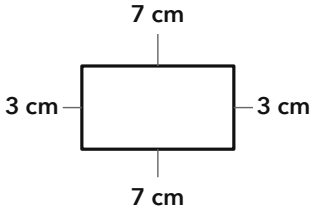


Figure 2: about 11 cm

CLOSE FAR

3.

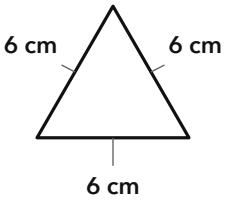


Figure 3: about 18 cm

CLOSE FAR

4.

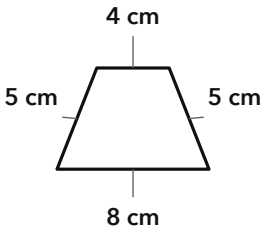


Figure 4: about 22 cm

CLOSE FAR

5.

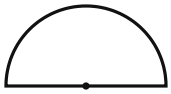


Figure 5: about 12 cm

CLOSE FAR

6.

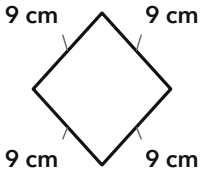


Figure 6: about 18 cm

CLOSE FAR

7.

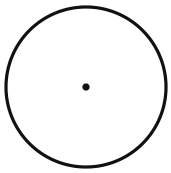


Figure 7: about 24 cm

CLOSE FAR

8.

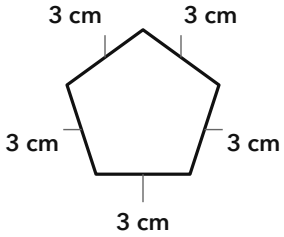


Figure 8: about 15 cm

CLOSE FAR

2 PROVE IT

Explain your thinking

Choose one CLOSE figure and one FAR figure and explain how you checked each perimeter.

ITEM # _____ **HOW I KNEW** _____

ITEM # _____ **HOW I KNEW** _____

3 MAKE YOUR OWN

One of each

For Part 3, draw two new shapes and label their lengths: give one a CLOSE perimeter estimate and the other a FAR perimeter estimate.

CLOSE

FAR

CHALLENGE

Choose a curved figure from Part 1, double its diameter, and give a reasonable new perimeter estimate; explain how you found it.

ANSWER KEY

Around the Edge

GRADE 5 · 5.GM.2.2

PART 1 · SORT

#	ITEM	CATEGORY	WHY
1	Figure 1: about 16 cm (square)	**CLOSE**	Four sides of 4 cm total 16 cm.
2	Figure 2: about 11 cm (rectangle)	**FAR**	The perimeter is 20 cm, not about 11 cm.
3	Figure 3: about 18 cm (equilateral)	**CLOSE**	Three sides of 6 cm total 18 cm.
4	Figure 4: about 22 cm (trapezoid)	**CLOSE**	The four side lengths total 22 cm.
5	Figure 5: about 12 cm (semicircle)	**FAR**	The straight edge alone is 12 cm. The curved edge adds about 18 cm, for about 30 cm total.
6	Figure 6: about 18 cm (rhombus)	**FAR**	Four sides of 9 cm total 36 cm.
7	Figure 7: about 24 cm (circle)	**CLOSE**	The curved edge is about three times the 8 cm diameter, or about 24 cm.
8	Figure 8: about 15 cm (pentagon)	**CLOSE**	Five sides of 3 cm total 15 cm.

PART 2 · PROVE IT

Task: Choose one CLOSE figure and one FAR figure and explain how you checked each perimeter. Accept any explanation that names the deciding feature from the rule box for the chosen item.

PART 3 · MAKE YOUR OWN (SAMPLE ANSWERS)

- **CLOSE**: A square with each side labeled 8 cm; estimate: about 32 cm.
- **FAR**: A rectangle with sides labeled 2 cm, 5 cm, 2 cm, and 5 cm; estimate: about 35 cm.

Challenge: Figure 7 has a diameter of 8 cm. Doubling it gives 16 cm, so the new perimeter is about 48 cm because 3 times 16 is 48.

For Part 2, accept explanations that use all straight sides or account for the curved edge. Curved-edge estimates may vary slightly.