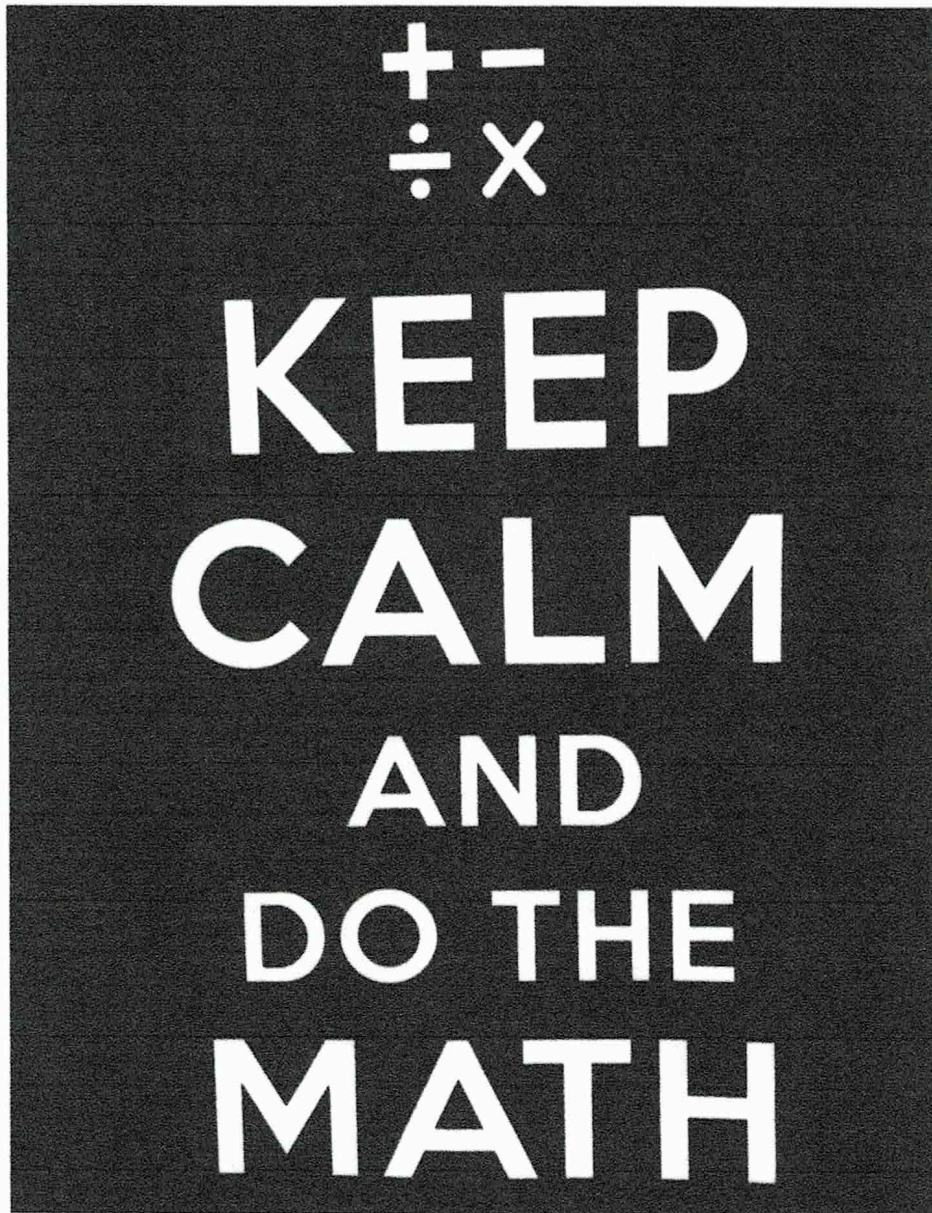


NOMBRE: _____

P.A.T Prep
Scale Factors/Similar Polygons
Similar Triangles



St. Brendan School
Mr. Martínez

SCALE FACTOR

↳ Maps

- Be careful! Very possibly, you will have to change units so that the units are equal

cm to m

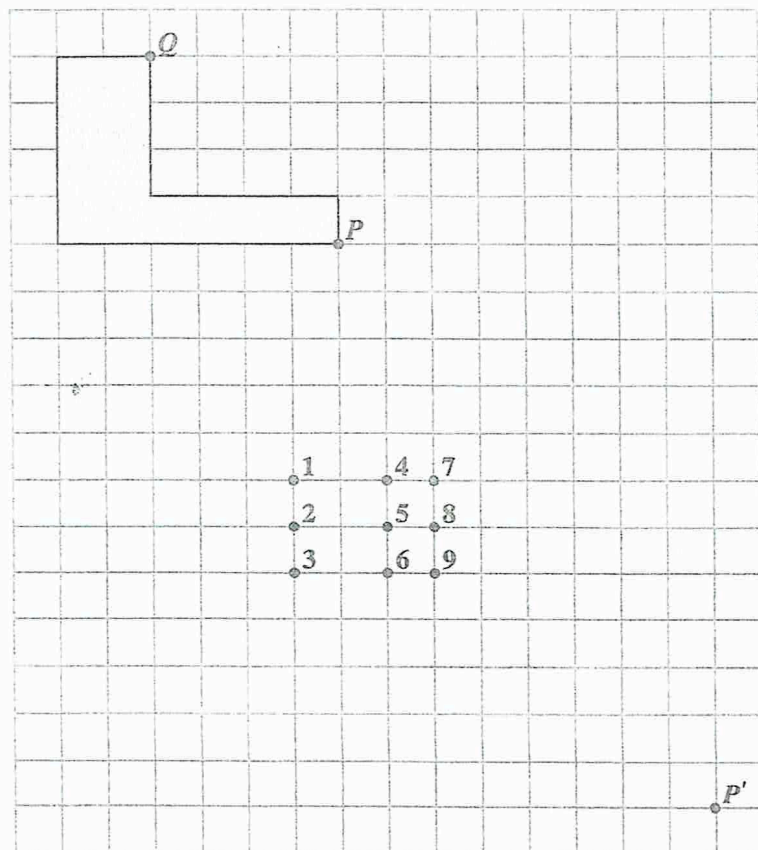
m to km



$$\text{Scale factor} = \frac{\text{New}}{\text{Old}}$$

New dimensions
↓
Multiply all sides
or
Divide by
S.F.

Kate begins to create an image of the shaded 2-D shape shown below by applying a scale factor of $\frac{3}{2}$. The location of Point P' is given.



Numerical Response

5. Which numbered point shown above represents the location of Point Q' in Kate's image?

Answer: Point _____

The star on the map below represents the capital city of a country. Maria uses the map to locate a city that is 225 km from the capital.



39. Which of the cities on the map above is the city located by Maria?

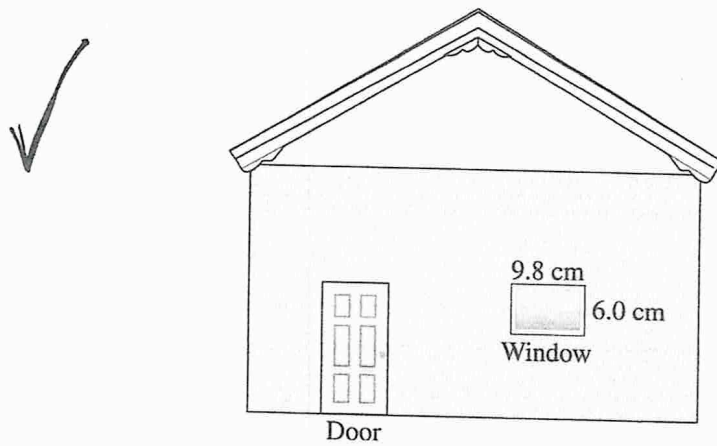
The two x's shown on the map below represent the locations of two communities in Alberta. The distance between the two communities is 1 000 km.



32. Which of the following ratios represents the scale used to create the map?

- A. 1 cm:10 km
B. 1 cm:100 km
C. 1 cm:1 000 km
D. 1 cm:10 000 km

The diagram below shows the front elevation of a building on a blueprint.



Blueprint scale
1:18 means each single unit $\times 18$

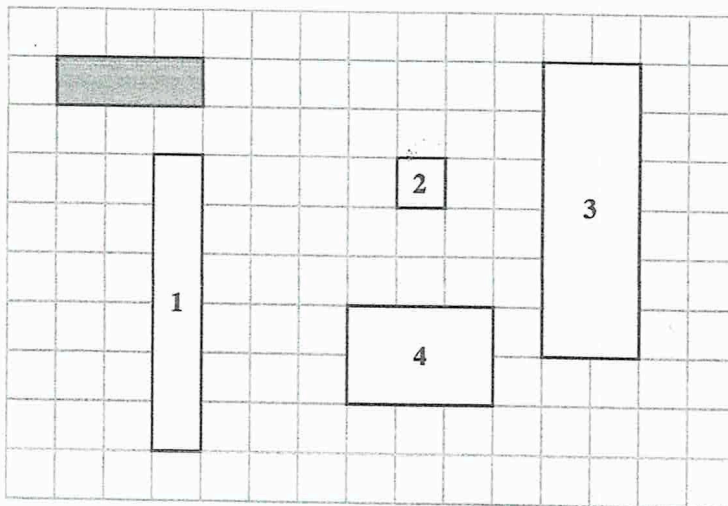
25. Based on the dimensions shown on the blueprint, the actual dimensions of the window, to the nearest tenth of a metre, will be

- A. $0.5 \text{ m} \times 0.3 \text{ m}$
- B. $1.0 \text{ m} \times 0.6 \text{ m}$
- C. $1.8 \text{ m} \times 1.1 \text{ m}$
- D. $1.8 \text{ m} \times 3.0 \text{ m}$

Watch the units!

cm must be converted to m

Four-sided Polygons

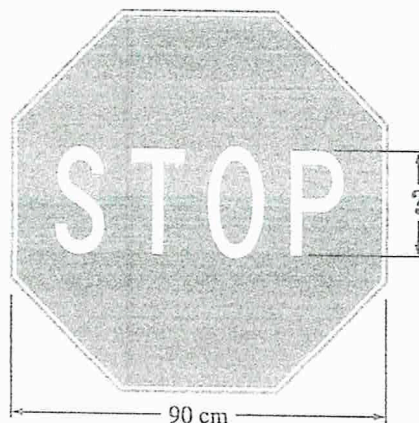
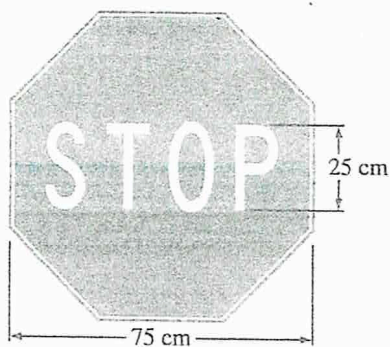


Proportional means

- Same angles
- Same scale factors for all sides

6. Which of the polygons above is proportional to the shaded rectangle?

- A. 1
- B. 2
- C. 3
- D. 4



40. If the two stop signs shown above are similar, what is the height of the letters in the larger stop sign?

- A. 30 cm
- B. 40 cm
- C. 45 cm
- D. 50 cm

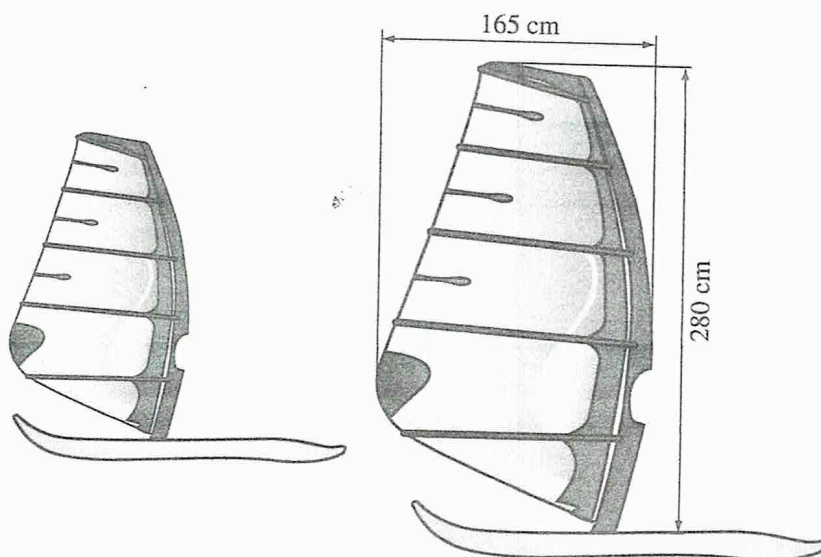


Sam draws two polygons that are similar. The first polygon has a perimeter of 16 cm and the second polygon has a perimeter of 10 cm.

Numerical Response

3. If the shortest side of the first polygon has a length of 4 cm, then the corresponding side of the second polygon has a length of _____ cm.

The large sail shown below is an enlargement of the small sail.



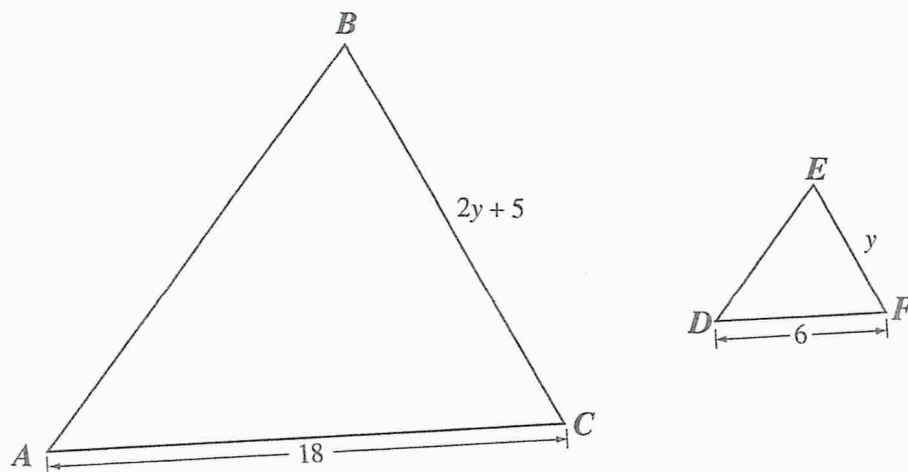
Numerical Response

9. What is the height of the small sail if the scale factor of the enlargement is 2.50?

Answer: _____ cm

(Record your answer in the numerical-response section on the answer sheet.)

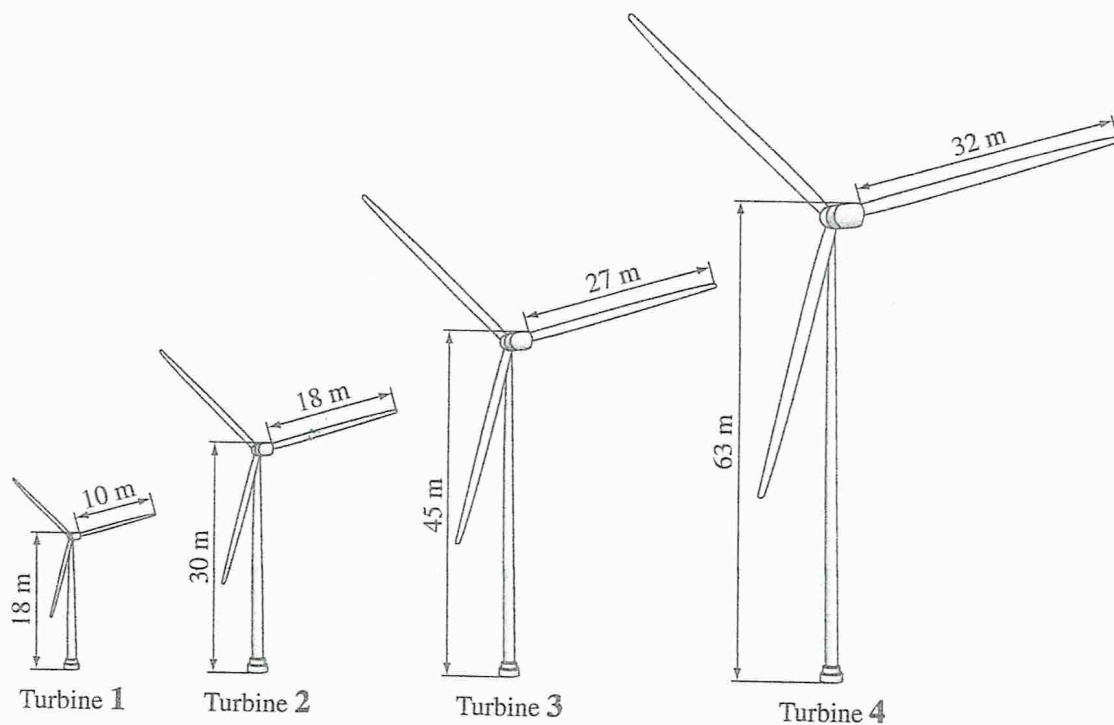
Triangle ABC is similar to triangle DEF .



39. What is the length of side BC ?

- A. 11
- B. 13
- C. 15
- D. 17

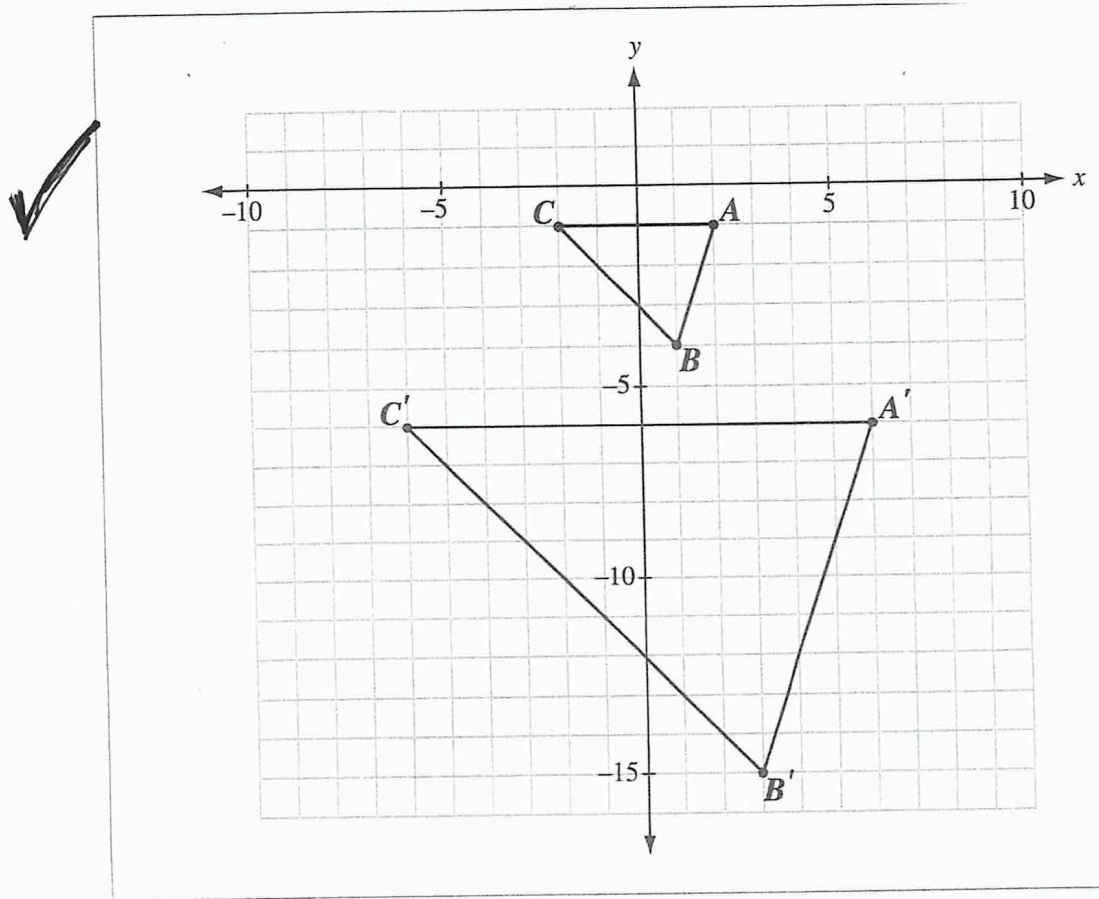
Four examples of wind turbines are shown below.



Numerical Response

3. Considering the blade length and the height of each wind turbine, the two turbines that are proportional to each other are turbines _____ and _____.

(Record **both digits** of your answer **in any order** in the numerical-response section on the answer sheet.)



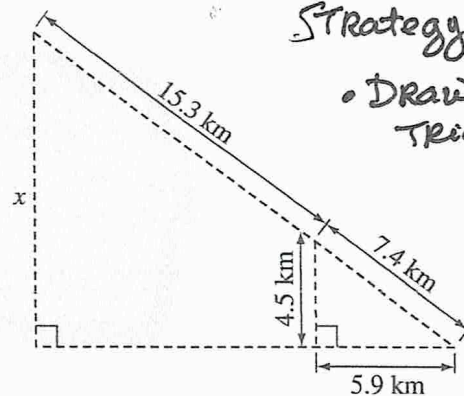
Numerical Response

9. What is the scale factor of the enlargement?

Answer: _____

(Record your answer in the numerical-response section on the answer sheet.)

In the diagram below, x represents the approximate distance across a circular lake.



Strategy:

- Draw the two triangles separately
- Pay attention to the dimensions!

8. What is the approximate area of the lake, to the nearest square kilometre?

- A. 599 km^2
- B. 272 km^2
- C. 150 km^2
- D. 68 km^2

Shape and Space

S.O. = 4

M₈

Use the following information to answer numerical-response question 10.

A person who is 200 cm tall casts a shadow that is 40 cm long. At the same time of day, a nearby post casts a shadow that is 16 cm long.

Numerical Response

10. The height of the post is _____ cm.

(Record your answer in the numerical-response section on the answer sheet.)