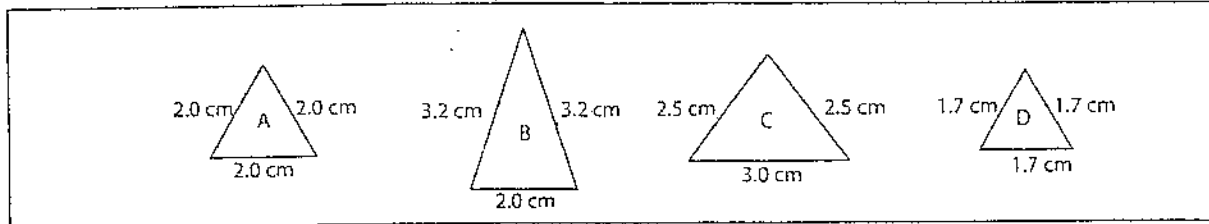Part I – Multiple Choice and Numerical Response
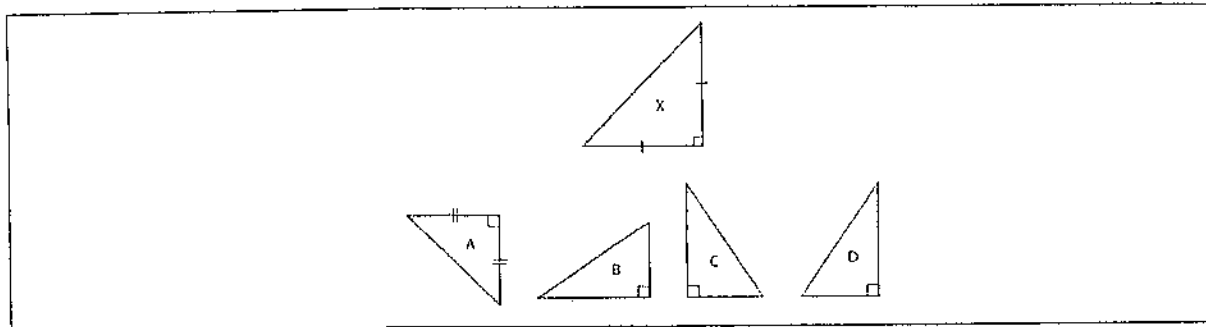
Use the following information to answer question #1

1. Which shapes are similar?

    A and B
    C and D
    B and C
    A and D

Use the following information to answer question #2

2. Which triangle is similar to triangle X?
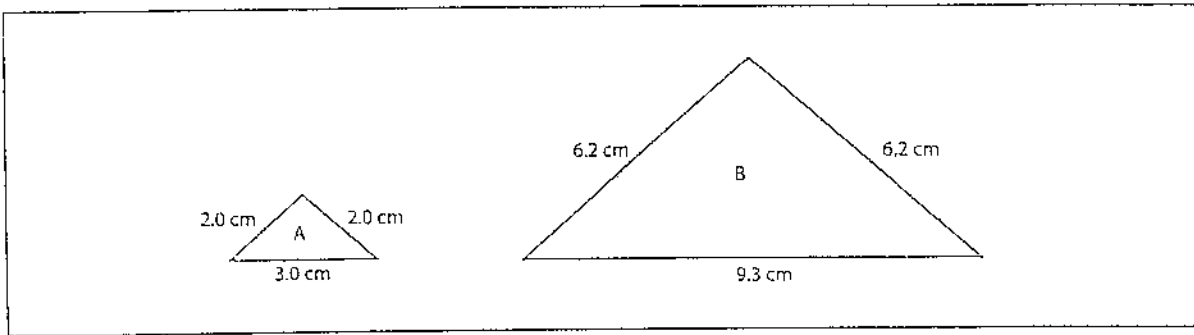
    A
    C
    B
    D

Numerical Response

1   A square with side lengths of 2 cm is enlarged by a scale factor of 3. The new side length is
    _ cm.

    (Record your answer in the numerical response section of the answer sheet).
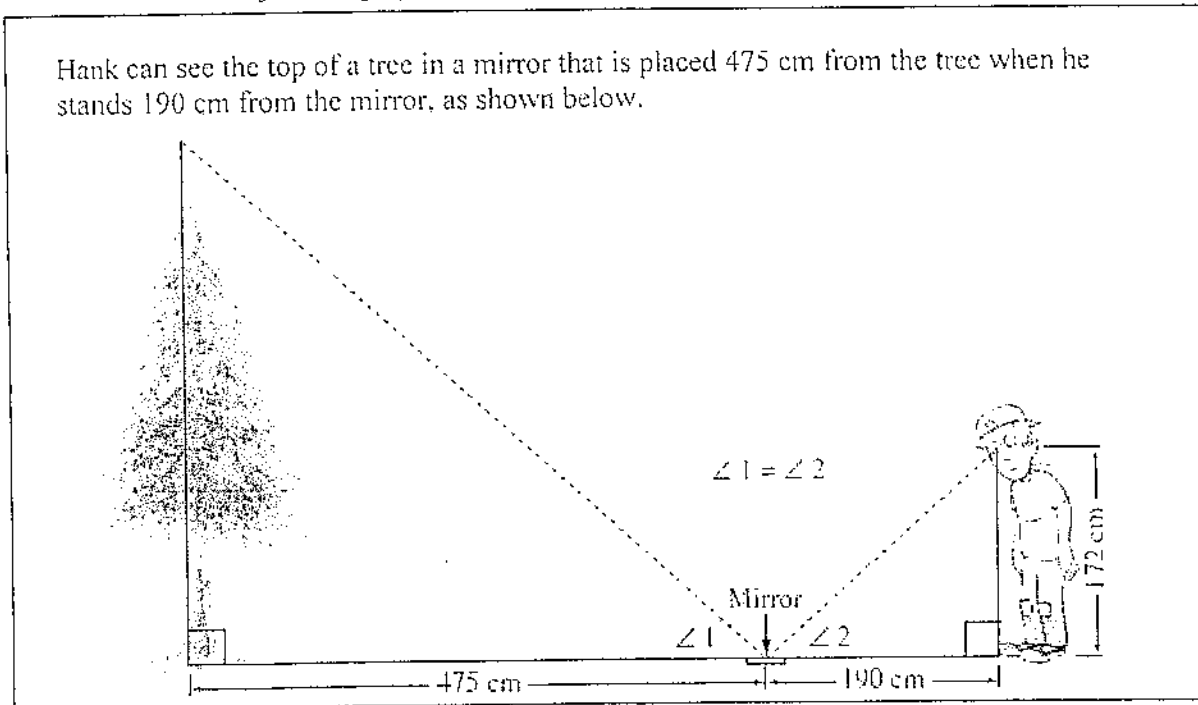
3. If triangles A and B are similar, which ratio represents the relationship between the corresponding sides?

        1 : 1.2
        1 : 3.1
        1 : 1.7
        1 : 3.9

Use the following information to answer Numerical Response question #2

Hank can see the top of a tree in a mirror that is placed 475 cm from the tree when he stands 190 cm from the mirror, as shown below.

Numerical Response

**2**   The height of the tree is   cm.

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

4. A square is enlarged by a scale factor of 5 to create a new square with side lengths of 15 cm. Determine the side length of the original square.

    5 cm
    15 cm
    3 cm
    45 cm

Use the following information to answer question #5

Triangle *ABC* was reduced by a certain scale factor to create △*DEF*.
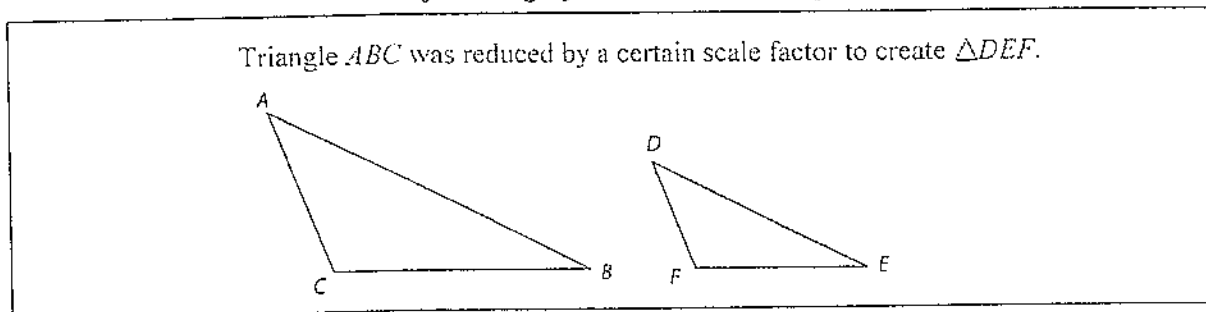
5. Which step would you take to calculate that scale factor?

    Multiply the length of DF by the length of AC.
    Divide the length of AB by the length of DE.
    Multiply the length of BC by the length of EF.
    Divide the length of DF by the length of AC.

6. A shape is enlarged by two and a half times. Which of the following represents the scale factor?

    0.25
    250%
    2/5
    25

7. A polygon is enlarged by a scale factor of 2. What happens to each angle measurement?

    Each angle measure is halved.
    Each angle measure is multiplied by ½
    Each angle measure is doubled.
    Each angle measure stays the same.

Use the following information to answer Numerical Response question #3

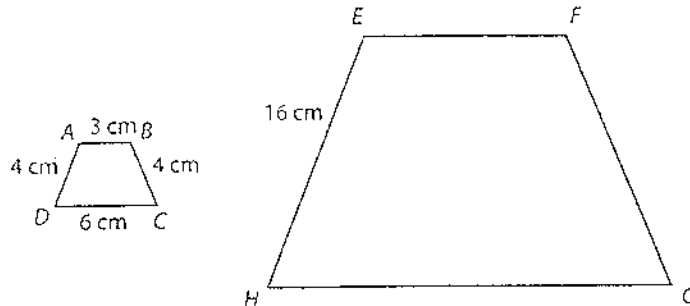Photocopiers use percentages to enlarge or reduce original copies.

Numerical Response

3. The length of an 8 cm by 12 cm image reduced to 40% is _____ cm.

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

Use the following information to answer question #8

Trapezoids *ABCD* and *EFGH* are similar.

8. Which of the following best describes the relationship between polygons *ABCD* and *EFGH*?

   An enlargement with a scale factor of 4 between *ABCD* and *EFGH*
   A reduction with a scale factor of 4 between *ABCD* and *EFGH*
   An enlargement with a scale factor of 0.25 between *ABCD* and *EFGH*
   A reduction with a scale factor of 0.25 between *ABCD* and *EFGH*

9. A dinosaur robot is a scale model in which 1 cm represents 7 cm. The head on the model is 22 cm long. How long is the head of the real dinosaur?
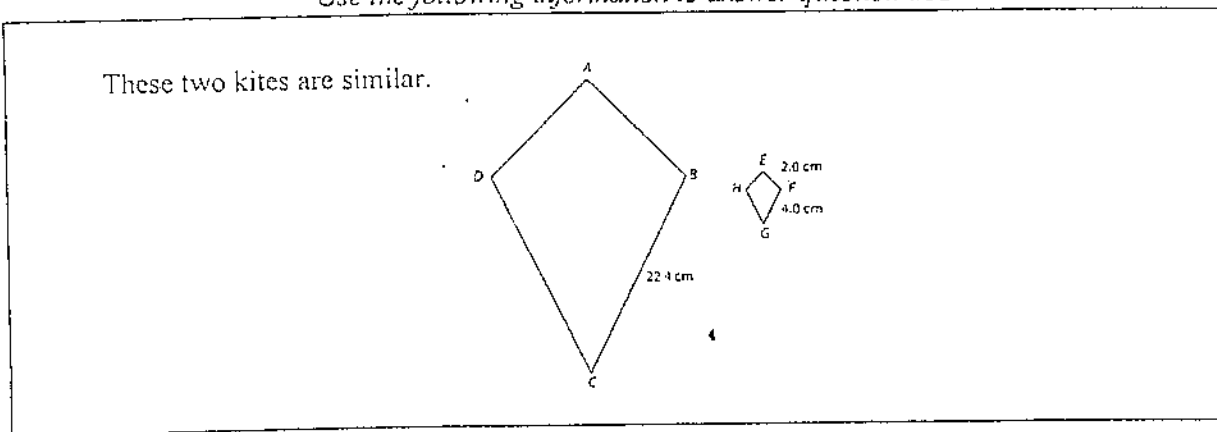
   125 cm
   149 cm
   138 cm
   154 cm

10. A map lists the scale as 1 cm = 500 m. How far apart on the map are two houses 3500 m apart?

   1 cm
   3.5 cm
   7 cm
   14 cm

11. A camp flagpole 14 m tall casts a shadow 17 m long. Frank is 1.8 m tall. How long is Frank's shadow?

        1.5 m
        2.2 m
        25.2 m
        30.6 m
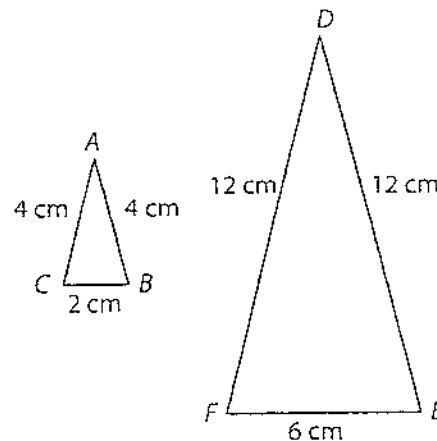
Use the following information to answer question #12

These two kites are similar.

A

D   B

E   2.0 cm

H   F

    4.0 cm

G

22.4 cm

C

12. What is the length of *AB*?

        9.8 cm
        12.9 cm
        11.2 cm
        15.6 cm

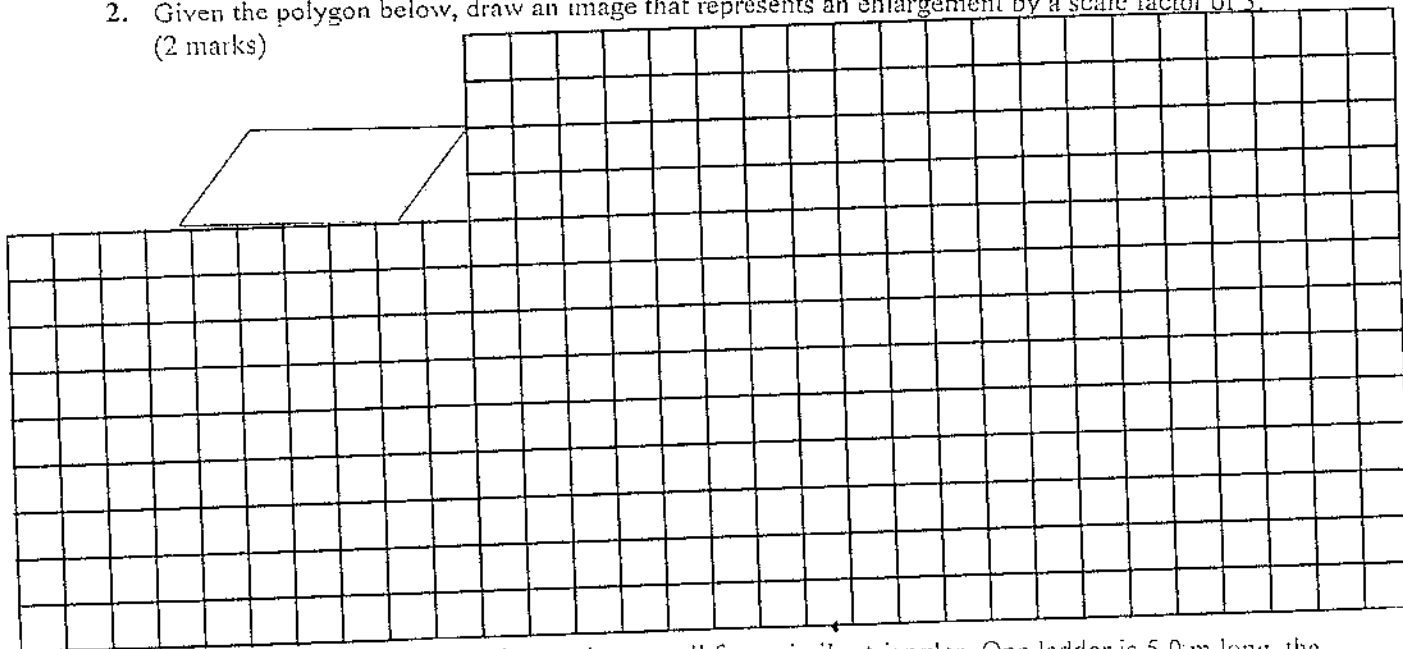## Short Answer Questions

Show all of your work for full marks:

1. Prove that triangles *ABC* and *DEF* are similar. (3 marks)

D

A

12 cm   12 cm

4 cm   4 cm

C   B

   2 cm

F   E

   6 cm

2. Given the polygon below, draw an image that represents an enlargement by a scale factor of 3. (2 marks)

3. Two fire rescue ladders leaning against a wall form similar triangles. One ladder is 5.0 m long, the other ladder is 12.0 m long. The 5.0 m ladder reaches 4.0 m up the wall.

A. Draw a labeled diagram representing the two ladders forming similar triangles (2 mark)

B. How far up the wall does the 12.0 m ladder reach? (2 marks)

C. How much farther up the wall does the 12.0 m ladder reach? (1 mark)