Class Test ❰ 3 ❱
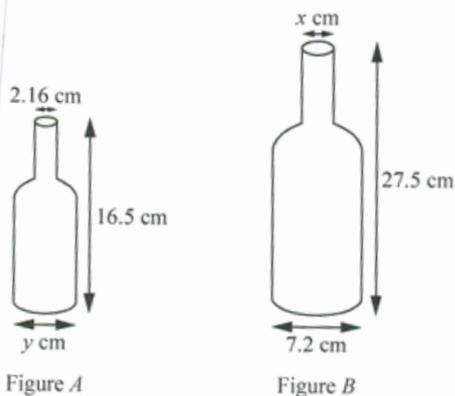
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Answer all questions. Show your working clearly.
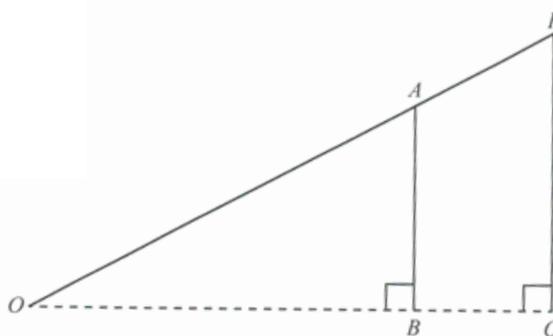
1. Figure *A* and figure *B* show two similar glass bottles.

Figure *A*   Figure *B*

Find the value of *x* and of *y*. [2]

2. The diagram below shows a light source placed at *O*. When a person, *AB*, stands between the light source and a wall, a shadow, *PQ*, is cast on the wall. The person is 7.2 m from the light source and the light source is 12 m from the base of the wall, *Q*.
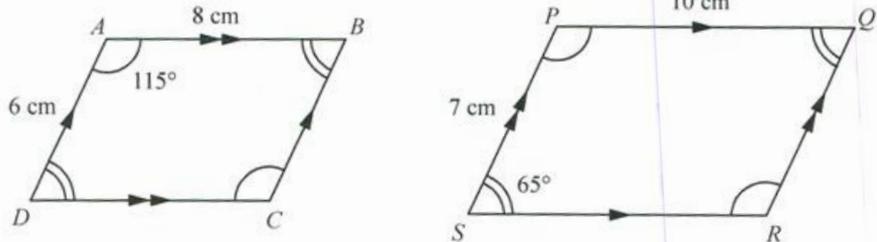

△*OAB* and △*OPQ* are similar triangles.
    (a)   If the shadow cast on the wall is 2.75 m, find the height of the person. [1]
    (b)   If the person moves 0.6 m nearer to the light source, find the new height of the shadow cast on the wall. [2]
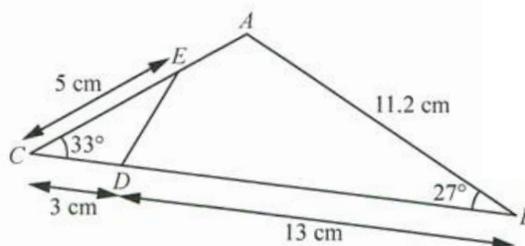
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3.

Are parallelogram *ABCD* and parallelogram *PQRS* similar? Explain your answer.　　　[3]

4.

△*ABC* and △*DEC* are similar triangles. Find

(a)　∠*CDE*,　　　[1]
(b)　∠*AED*,　　　[1]
(c)　*AE*,　　　[2]
(d)　*DE*.　　　[1]
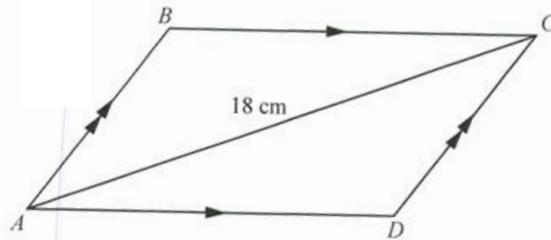
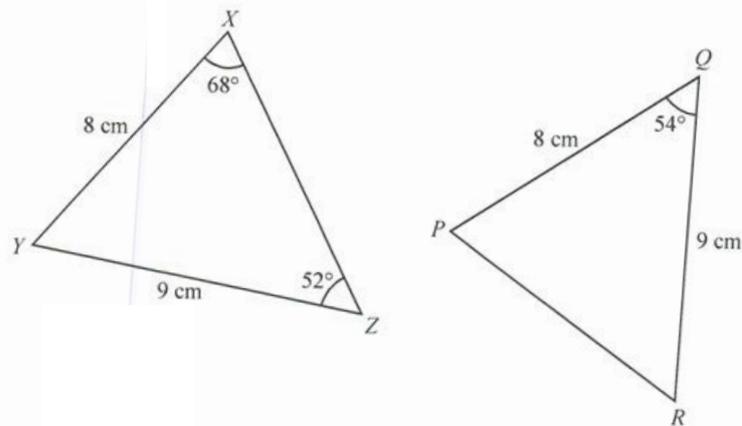5. Are the following pairs of triangles congruent? Explain your answers.

(a)

[2]
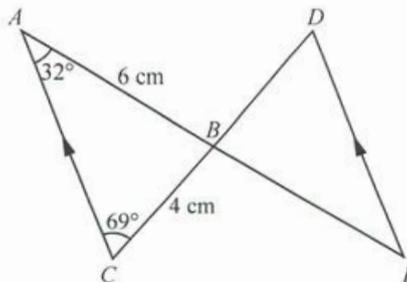
(b)

[2]

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6.

△ABC and △EBD are congruent triangles. AE and CD are straight lines. Find

(a)   CD, [1]
(b)   ∠DBE, [1]
(c)   reflex ∠DEB. [1]

7.   A rectangular field measures 120 m by 96 m. On a map, the length of the field is 8 cm.

(a)   Find the scale of the map in the form 1 : n. [1]
(b)   Find the area of the field represented on the map. [2]
(c)   On the map, the distance between P and Q is 7.2 cm. Find the actual distance in metres. [1]

8.   On a scale drawing, A, B and C are such that AC = 10.8 cm, AB = 6.5 cm and ∠BAC = 65°.

(a)   If the actual distance between B and C is 720 m, find the scale of the drawing. [2]
(b)   A flagpole is to be erected along AC at P. Given that P is equidistant from B and C, mark out P. [2]
(c)   Find the actual distance of the flagpole from A, in m. [2]