Dear Parents / Students

Due to the unprecedented situation, Knowledgeplus Training center is mobilized and will keep accompanying and supporting our students through this difficult time. Our Staff will be continuously, sending notes and exercises on a weekly basis through what's app and email. Students are requested to copy the notes and do the exercises on their copybooks. The answers to the questions below will be made available on our website on knowledgeplus.mu/support.php. Please note that these are extra work and notes that we are providing our students and all classes will be replaced during the winter vacation. We thank you for your trust and are convinced that, together, we will overcome these troubled times.

Knowledgeplus Training Center

Mathematics

Garde 8

Week 8

Notes and Exercise

Note:(All the Notes, Examples and Exercise are on the photos and Note:(Please copy all the Notes, Examples and Exercises on your copy book).

Mathematics   Grade 8   Week 8

Applications   of   Pythagoras   theorem   in   Real-life situation.

Example 1

A ladder   lens   against   a   wall   of   a house. If   then   length   of   the   ladder   is   5m   and the   base   of   the   ladder   is   3 m   from   the house, find   the   distance, d.

5m ←

↳ 3m
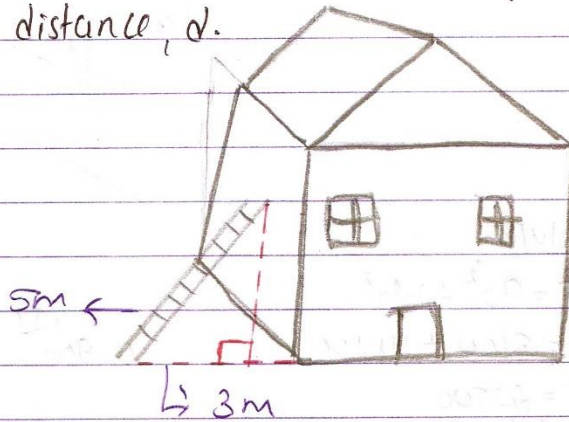
Solution

Hypotenuse (length) = 5m,   base = 3m

$H^2 = A^2 + O^2$
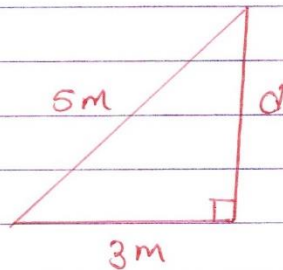
$5^2 = 3^2 + d^2$

$25 = 9 + d^2$

$9 + d^2 = 25$

$d^2 = 25 - 9$

$d^2 = 16$

$d = \sqrt{16}$

$d = 4$
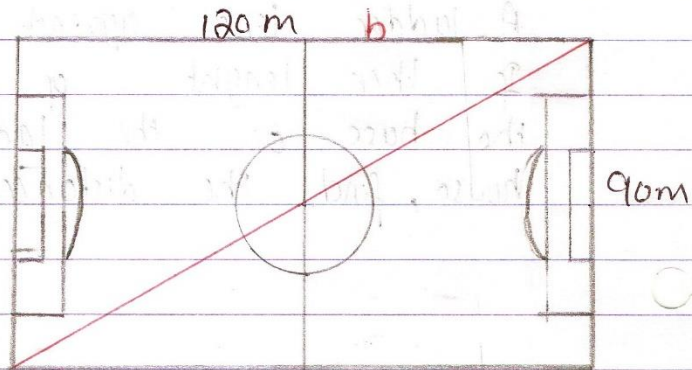
∴ Distance, d = 4m

5m

d

3m

Example 2

A football playground is a rectangle of width 90 metres and lenght 120 metres. The coach asked the players to run from one corner diagonally across the playground. What distance did each player run?

120 m

b

a

90m

Solution

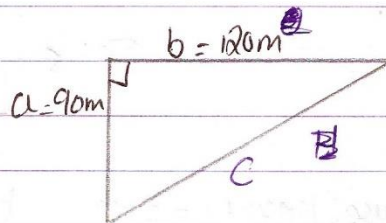$$H^2 = 90^2 + 120^2$$

$$c^2 = 8100 + 14400$$
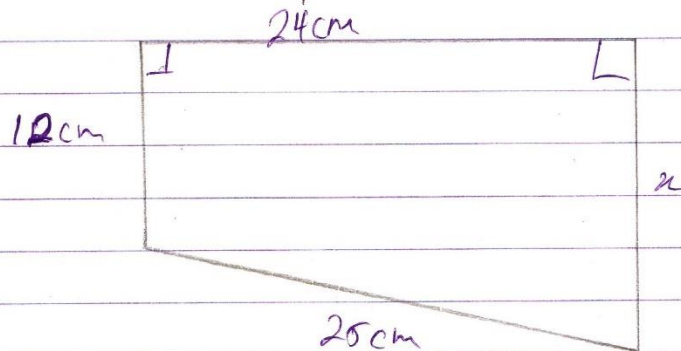
$$c^2 = 22500$$

$$c^2 = \sqrt{22500}$$

$$C = \sqrt{(225 \times 100)}$$

$$C = 15 \times 10$$

$$C = 150$$

b = 120m

a = 90m
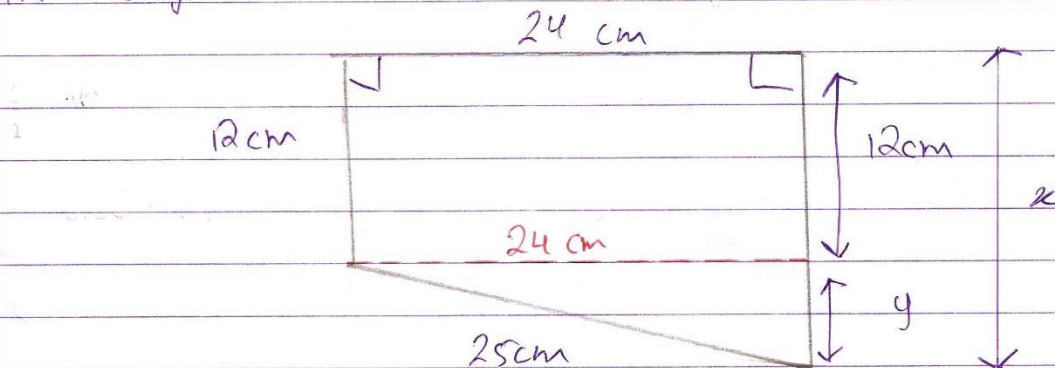
C

$$\therefore C = 150 \ m$$

Example 3

Find the value of x.

24cm

12cm

x

25cm

Solution

We divide the trapezium into a rectangle and a right - angle triangle as shown in the diagram.

24 cm

12cm

24 cm

12cm

x

25cm

y

$x = (12 + y)$ cm

Using Pythagoras theorem,

24cm

25cm

x

$H^2 = x^2 + 24^2$

$25^2 = y^2 + 24^2$

$625 = y^2 + 576$

$y^2 + 576 = 625$

$y^2 = 625 - 576$

$y^2 = 49$

$y = \sqrt{49}$
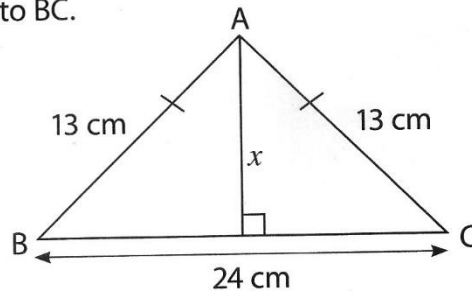
$y = 7$

$\therefore \quad x = (12 + 7)$ cm $= 19$ cm
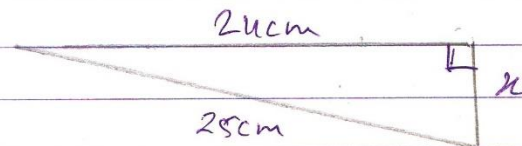
Attempt:Ex1, Ex2, Ex3, Ex4, Ex5 and Ex6.

1. Find the value of x in each of the following:

(a)   6 cm

x cm

8 cm

(b) x cm

5 cm

13 cm

(c)   15 cm
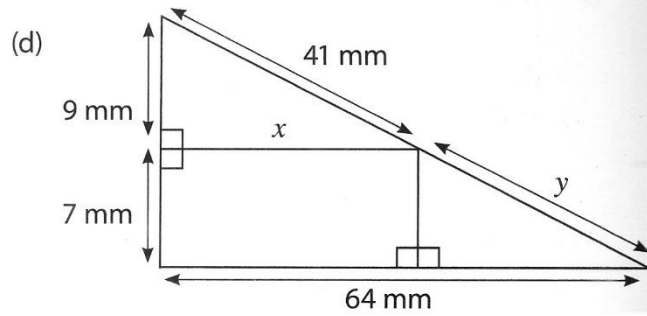
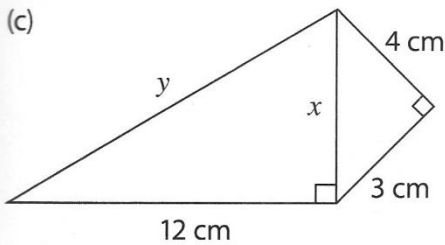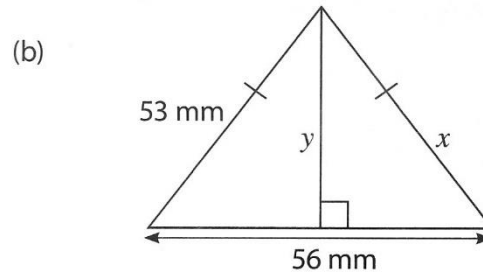6 cm

x cm

17 cm

(d)   9 cm

4 cm

x cm
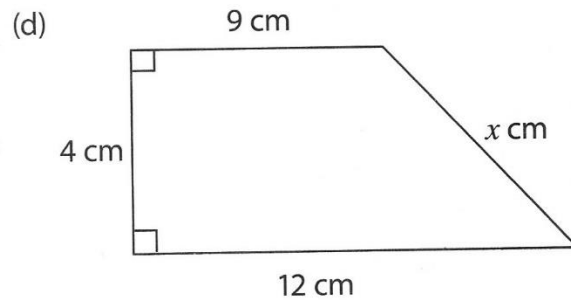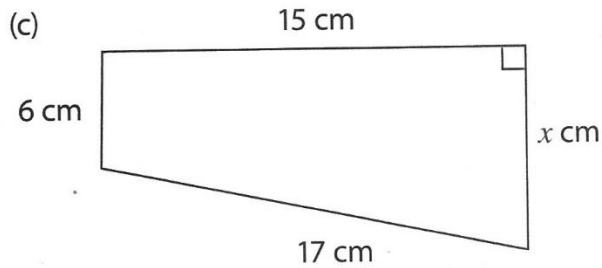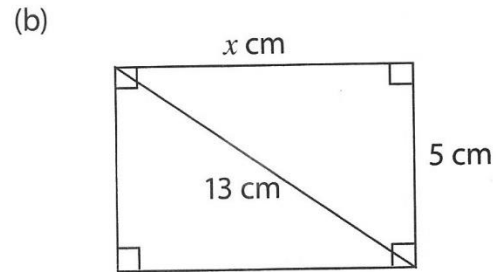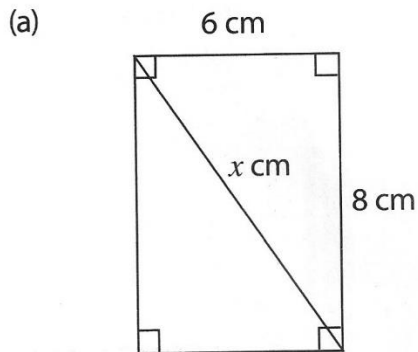
12 cm

Ex2
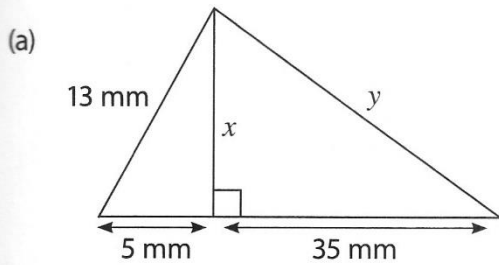
2. ABC is an isosceles triangle with AB = AC = 13 cm. Given that the length of BC = 24 cm, calculate the perpendicular distance, x, from A to BC.

A

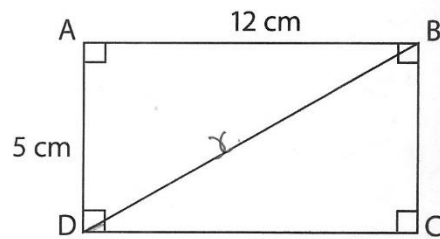13 cm   13 cm

x

B   C

24 cm

Ex3

3. Find the marked lengths x and y in each of the following:

(a)

13 mm y x

5 mm 35 mm

(b)

53 mm y x

56 mm

(c)

y 4 cm x 3 cm

12 cm

(d)

41 mm

9 mm x

7 mm y
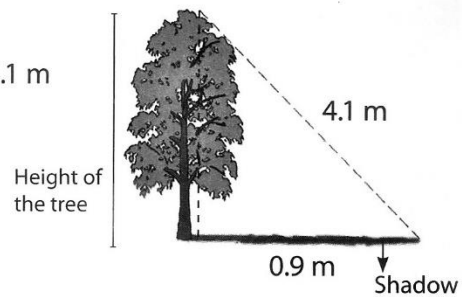
64 mm

Ex4 and Ex5

4. ABCD is a rectangle of length 12 cm and width 5 cm. Find the length of the diagonal BD.

A   12 cm   B

5 cm

D   C

5. A tree casts a shadow 0.9 m long. The tip of the tree is 4.1 m from the tip of its shadow. Find the height of the tree.

4.1 m

Height of the tree

0.9 m   Shadow

Ex6

7) Oudesh, a farmer, has a rectangular field as shown in the diagram. He is at one corner of the field and his tractor is at the opposite corner of the field. Calculate the shortest distance he needs to walk to get his tractor.

40 m

30 m