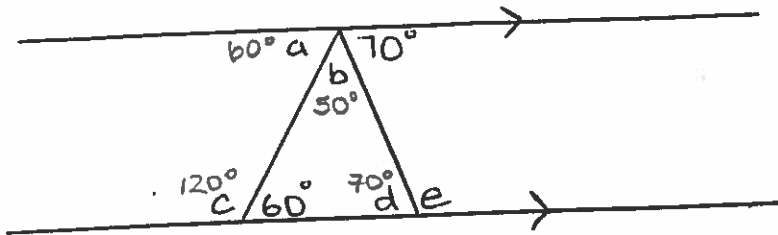


REVIEW → Geometry

FIND THE MISSING ANGLES.



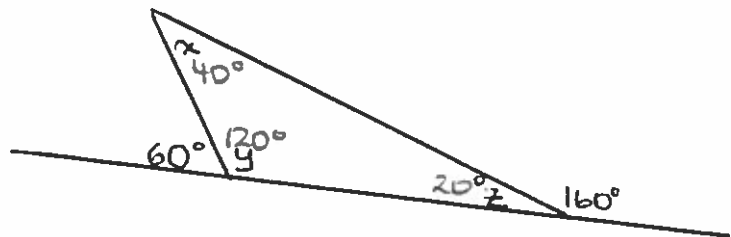
$a =$ ② 60° interior

$b =$ ③ 50° supplementary

$c =$ ① 120° supplementary

$d =$ ④ 70° triangle

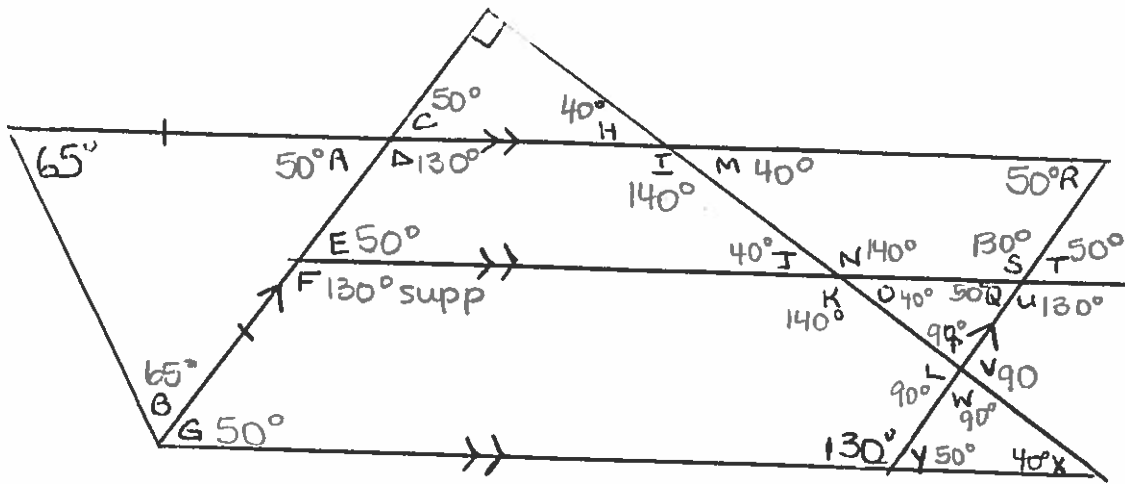
$e =$ ⑤ 110° supplementary



$x =$ ③ 40° triangle

$y =$ ② 120° supplementary

$z =$ ① 20° supplementary



A = (2) 50° Δ

B = (1) 65° isosceles

C = (4) 50° supp

D = (3) 130° supp

E = (23) 50° corr

F = (24) 130° supp

G = (25) 50° alt

H = (5) 40° Δ

I = (6) 140° supp

J = (11) 40° opp

K = (8) 140° corr

L = (15) 90° supp

M = (7) 40° supp

N = (10) 140° opp

O = (9) 40° supp

P = (17) 90° opp

Q = (18) 50° int

R = (22) 50° alt / □ 360°

S = (21) 130° opp

T = (20) 50° opp

U = (19) 130° alt

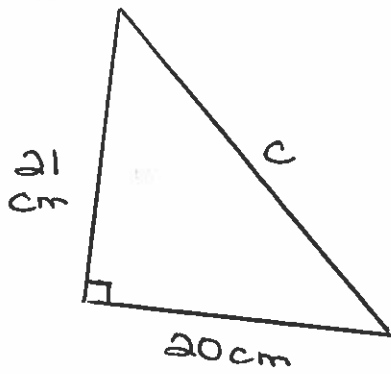
V = (16) 90° opp

W = (14) 90° Δ

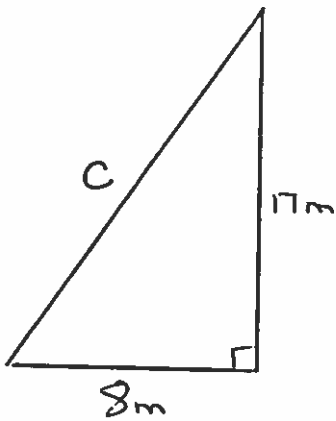
X = (12) 40° alt

Y = (13) 50° supp

FIND THE LENGTH OF THE HYPOTENUSE.

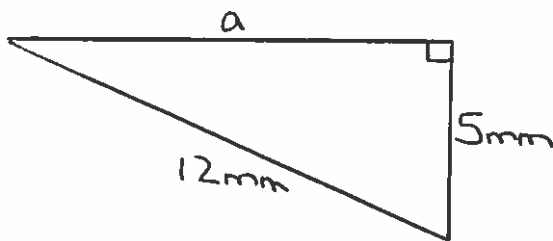


$$\begin{aligned} a^2 + b^2 &= c^2 \\ 21^2 + 20^2 &= c^2 \\ 441 + 400 &= c^2 \\ 841 &= c^2 \\ \sqrt{841} &= c \\ 29 &= c \\ &\text{cm} \end{aligned}$$

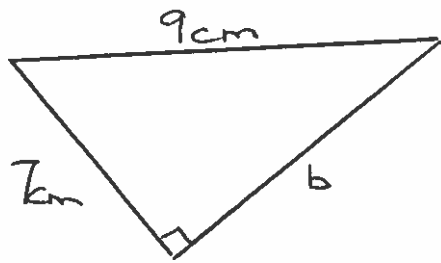


$$\begin{aligned} a^2 + b^2 &= c^2 \\ 17^2 + 8^2 &= c^2 \\ 289 + 64 &= c^2 \\ 353 &= c^2 \\ \sqrt{353} &= c \\ 18.79 &= c \\ &\text{m} \end{aligned}$$

FIND THE LENGTH OF THE MISSING SIDE



$$\begin{aligned} a^2 + b^2 &= c^2 \\ a^2 + 5^2 &= 12^2 \\ a^2 + \cancel{25} &= 144 \\ &\quad -25 \quad -25 \\ a^2 &= 144 - 25 \\ a^2 &= 119 \\ a &= \sqrt{119} \\ a &= 10.91 \text{ mm} \end{aligned}$$



$$a^2 + b^2 = c^2$$

$$a^2 + 7^2 = 9^2$$

$$a^2 + 49 = 81$$

$$-49 \quad -49$$

$$a^2 = 81 - 49$$

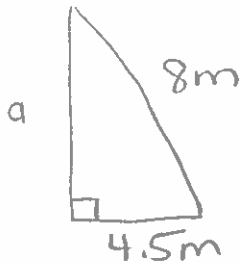
$$a^2 = 32$$

$$a = \sqrt{32}$$

$$a = 5.66 \text{ cm}$$

13.02

- * A 8m ladder is leaning against a house. It is 4.5m from the base of the wall. How high does the ladder reach? (hint... draw a diagram).



$$a^2 + b^2 = c^2$$

$$a^2 + 4.5^2 = 8^2$$

$$a^2 + 20.25 = 64$$

$$-20.25 \quad -20.25$$

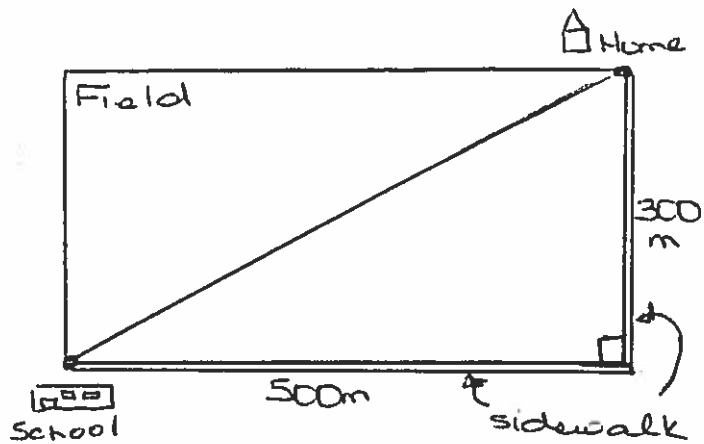
$$a^2 = 43.75$$

$$a = \sqrt{43.75}$$

$$a = 6.61 \text{ m}$$

∴ The ladder reaches 6.61 m high.

* Joanna usually uses the sidewalk when she walks home from school. Today she is late, and so she cuts through the field. How much shorter is Joanna's shortcut



$$a^2 + b^2 = c^2$$

$$500^2 + 300^2 = c^2$$

$$250\,000 + 90\,000 = c^2$$

$$340\,000 = c^2$$

$$\sqrt{340\,000} = c$$

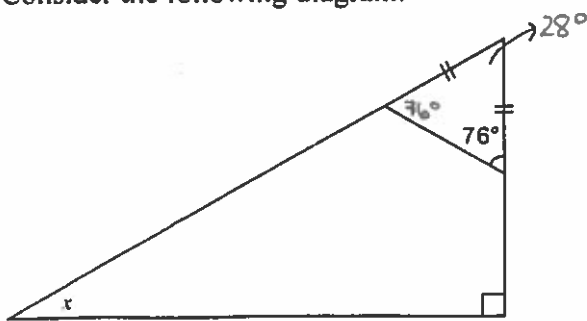
$$583.1\text{m} = c$$

School to home on sidewalk
 $500 + 300 = 800\text{m}$

cut through field
 $800 - 583.1 = 216.9$

∴ The shortcut is 216.9m shorter.

* Consider the following diagram.



What is the value of x ?

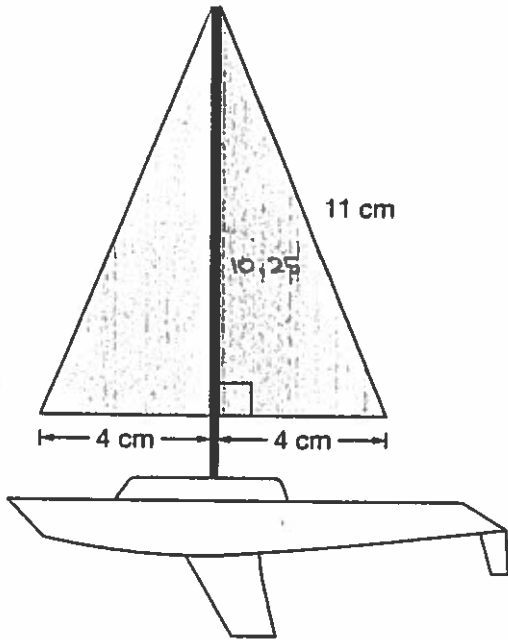
isosceles = 2 equal angles
 $\rightarrow 76^\circ + 76^\circ$
 $\Delta = 180^\circ - 76 - 76$
 $= 28^\circ$ (missing \angle in small Δ)

Large $\Delta = 180^\circ$
 $180 - 28 - 90 = 62^\circ$

∴ 62° is the value of x .

* Toy Sailboats

Emelina makes toy sailboats as shown below.



$$\begin{aligned}
 a^2 + b^2 &= c^2 \\
 a^2 + 4^2 &= 11^2 \\
 a^2 + 16 &= 121 \\
 -16 & \quad -16 \\
 a^2 &= 121 - 16 \\
 a^2 &= 105 \\
 a &= \sqrt{105} \\
 a &= 10.25
 \end{aligned}$$

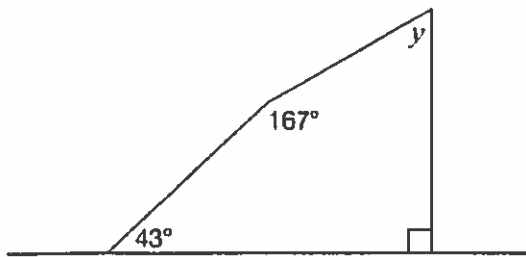
$$\begin{aligned}
 \text{area of } \Delta & \\
 &= \frac{b \times h}{2} \\
 &= \frac{4 \times 10.25}{2} \\
 &= \frac{41}{2} \\
 &= 20.5 \\
 & \quad (-1 \text{ sale})
 \end{aligned}$$

$$\begin{aligned}
 2 \text{ sales} &= 20.5 \times 2 \\
 &= 41 \text{ cm}^2
 \end{aligned}$$

Determine the total area of the shaded sails.

Show your work.

* Consider the diagram below.



What is the value of y ?

- a 43°
- b 60°**
- c 137°
- d 150°

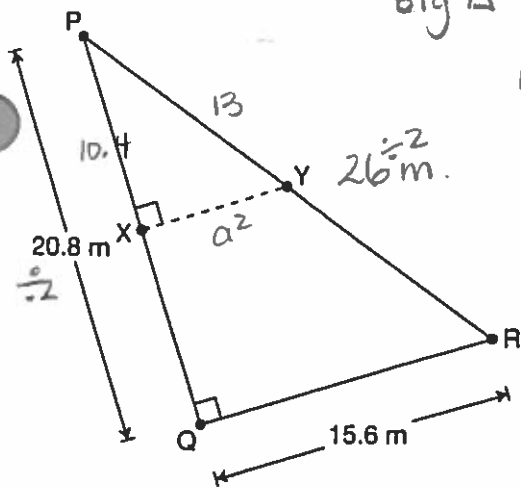
* Show your work.

$$\begin{aligned}
 \square &= 360^\circ \\
 \therefore 360 - 90 - 43 - 167 & \\
 &= 60^\circ
 \end{aligned}$$

$$\therefore y = 60^\circ$$

* Consider the right triangle below.

Big Δ



$$\begin{aligned}
 a^2 + b^2 &= c^2 \\
 20.8^2 + 15.6^2 &= c^2 \\
 432.64 + 243.36 &= c^2 \\
 676 &= c^2 \\
 \sqrt{676} &= c \\
 26 &= c
 \end{aligned}$$

Line segment XY connects the midpoint of PQ to the midpoint of PR.

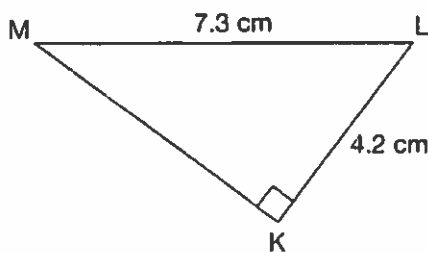
What is the length of XY?

Sm. $\Delta = a^2 + b^2 = c^2$

$$\begin{aligned}
 a^2 + 10.4^2 &= 13^2 \\
 a^2 + 108.16 &= 169 \\
 \underline{-108.16} \quad \underline{-108.16} \\
 a^2 &= 60.84 \\
 a &= \sqrt{60.84} \\
 a &= 7.8
 \end{aligned}$$

\therefore the length of XY is 7.8 m.

* Triangle KLM is shown below.

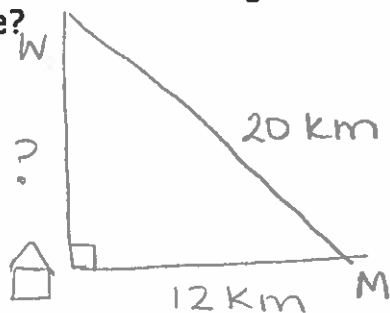


$$\begin{aligned}
 a^2 + b^2 &= c^2 \\
 a^2 + 4.2^2 &= 7.3^2 \\
 a^2 + 17.64 &= 53.29 \\
 \underline{-17.64} \quad \underline{-17.64} \\
 a^2 &= 53.29 - 17.64 \\
 a^2 &= 35.65 \\
 a &= \sqrt{35.65} \\
 a &= 5.97 \text{ cm}
 \end{aligned}$$

What is the perimeter of this triangle?

$$\begin{aligned}
 \text{Perim } \Delta &= s + s + s \\
 &= 7.3 + 4.2 + 5.97 \\
 &= 17.47 \text{ cm}
 \end{aligned}$$

Jonah's house is due west of Marshfield and due south of Wildgrove. Marshfield is 12 kilometres from Jonah's house and 20 kilometres from Wildgrove. How far is Wildgrove from Jonah's house, measured in a straight line?



$$a^2 + b^2 = c^2$$

$$a^2 + 12^2 = 20^2$$

$$a^2 + 144 = 400$$

$$\begin{array}{r} -144 \\ -144 \end{array}$$

$$a^2 = 400 - 144$$

$$a^2 = 256$$

$$a = \sqrt{256}$$

$$a = 16$$

∴ Wildgrove is 16 km from Jonah's house.