

Exercice 21b

1. $AC^2 = AB^2 + BC^2$ (Pythagoras' theorem)

$$= 8^2 + 6^2$$
$$= 64 + 36$$
$$AC^2 = 100$$

$$AC = \sqrt{100}$$

$$AC = 10 \text{ cm.}$$

5) $LN^2 = LM^2 + MN^2$ (Pythagoras' theorem)

$$= 9^2 + 6^2$$
$$= 81 + 36$$
$$LN^2 = 117$$
$$LN = 10.816$$
$$= \underline{\underline{10.8 \text{ cm}}}$$

10) $YZ^2 = XY^2 + XZ^2$ (Pythagoras' theorem)

$$= 10^2 + 3^2$$
$$= 100 + 9$$
$$YZ^2 = 109$$
$$YZ = \sqrt{109}$$
$$= \underline{\underline{10.4 \text{ cm}}}$$

12.

$$DF^2 = DE^2 + EF^2$$

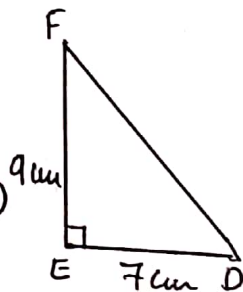
(Pythagoras' theorem)

$$= 7^2 + 9^2$$
$$= 49 + 81$$

$$DF^2 = 130$$

$$DF = \sqrt{130}$$

$$= \underline{\underline{11.4 \text{ cm}}}$$



15)

$$YZ^2 = XY^2 + XZ^2$$
 (Pythagoras' theorem)

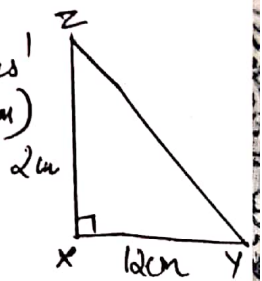
$$= 12^2 + 2^2$$

$$= 144 + 4$$

$$YZ^2 = 148$$

$$YZ = \sqrt{148}$$

$$= \underline{\underline{12.2 \text{ cm}}}$$



16)

$$AC^2 = AB^2 + BC^2$$
 (Pythagoras' theorem)

$$= (3.4)^2 + (4.2)^2$$
$$= 11.56 + 17.64$$

$$AC^2 = 29.2$$

$$AC = \sqrt{29.2}$$

$$= \underline{\underline{5.40 \text{ cm}}}$$

21)

$$DF^2 = DE^2 + EF^2$$
 (Pythagoras' theorem)

$$= (0.2)^2 + (0.3)^2$$
$$= 0.04 + 0.09$$

$$DF^2 = 0.13$$

$$DF = \sqrt{0.13}$$

$$= 0.361 \text{ cm.}$$

22)

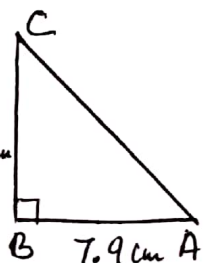
$$AC^2 = AB^2 + BC^2$$
 (Pythagoras' theorem)

$$= (7.9)^2 + (3.5)^2$$
$$= 62.41 + 12.25$$

$$AC^2 = 74.66$$

$$AC = \sqrt{74.66}$$

$$= \underline{\underline{8.64 \text{ cm}}}$$



Exercice 21c

1.

$$BC = 6 \times 3 \text{ cm}$$

$$AB = 6 \times 4 \text{ cm}$$

$$AC = 6 \times 5 \text{ cm } (3, 4, 5 \Delta)$$

$$= \underline{\underline{30 \text{ cm}}}$$

3)

$$AB = 10 \times 5 \text{ mm}$$

$$BC = 10 \times 12 \text{ mm}$$

$$AC = 10 \times 13 \text{ mm } (5, 12, 13 \Delta)$$

$$= \underline{\underline{130 \text{ mm}}}$$

5)

$$xz = 2 \times 5 \text{ m}$$

$$xy = 2 \times 12 \text{ m}$$

$$yz = 2 \times 13 \text{ m } (5, 12, 13 \Delta)$$

$$= \underline{\underline{26 \text{ m}}}$$

7

$$DE = \frac{1}{2} \times 3 \text{ cm}$$

$$EF = \frac{1}{2} \times 4 \text{ cm}$$

$$DF = \frac{1}{2} \times 5 \text{ cm } (3, 4, 5 \Delta)$$

$$= \underline{\underline{2\frac{1}{2} \text{ cm}}}$$

$$\text{or } \underline{\underline{2.5 \text{ cm}}}$$

8

$$PR^2 = PQ^2 + QR^2 \text{ (Pythagoras' theorem)}$$

$$= 8^2 + 10^2$$

$$= 164$$

$$PR = \sqrt{164}$$

$$= \underline{\underline{12.8 \text{ cm}}}$$

Exercice 21d

1.

$$AC^2 = AB^2 + BC^2 \text{ (Pythagoras' theorem)}$$

$$\downarrow^2 \quad \downarrow^2 \quad \downarrow^2$$
$$20^2 = 16^2 + BC^2$$

$$400 = 256 + BC^2$$

$$400 - 256 = BC^2$$

$$144 = BC^2$$

$$BC = \sqrt{144}$$

$$= \underline{\underline{12 \text{ cm}}}$$

4

$$xz^2 = xy^2 + yz^2 \text{ (Pythagoras' theorem)}$$

$$26^2 = 24^2 + yz^2$$

$$676 = 576 + yz^2$$

$$676 - 576 = yz^2$$

$$100 = yz^2$$

$$yz^2 = 100$$

$$yz = \sqrt{100}$$

$$= \underline{\underline{10 \text{ cm}}}$$

$$7) \quad AC^2 = BC^2 + AB^2 \text{ (Pythagoras' theorem)}$$

$$2^2 = 1^2 + AB^2$$

$$4 = 1 + AB^2$$

$$4 - 1 = AB^2$$

$$3 = AB^2$$

$$AB^2 = 3$$

$$AB = \sqrt{3} \\ = \underline{\underline{1.73 \text{ m}}}$$

$$9) \quad DP^2 = DE^2 + EP^2 \text{ (Pythagoras' theorem)}$$

$$9^2 = 5^2 + EP^2$$

$$81 = 25 + EP^2$$

$$81 - 25 = EP^2$$

$$56 = EP^2$$

$$EP^2 = 56$$

$$EP = \sqrt{56} \\ = \underline{\underline{7.48 \text{ m}}}$$

$$12) \quad PR^2 = PQ^2 + QR^2 \text{ (Pythagoras' theorem)}$$

$$20^2 = 12^2 + QR^2$$

$$400 = 144 + QR^2$$

$$400 - 144 = QR^2$$

$$256 = QR^2$$

$$QR^2 = 256$$

$$QR = \sqrt{256} \\ = \underline{\underline{16 \text{ m}}}$$

$$14) \quad QR^2 = PR^2 + PQ^2 \text{ (Pythagoras' theorem)}$$

$$17^2 = 10^2 + PQ^2$$

$$289 = 100 + PQ^2$$

$$289 - 100 = PQ^2$$

$$189 = PQ^2$$

$$PQ = \sqrt{189} \\ = \underline{\underline{13.7 \text{ m}}}$$