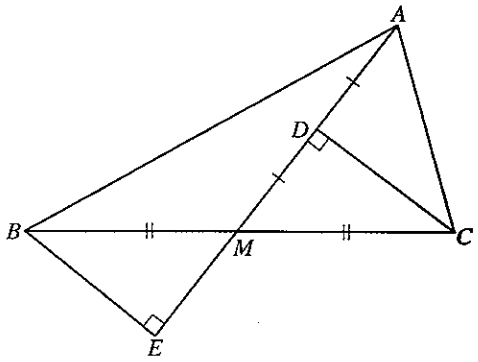
15.



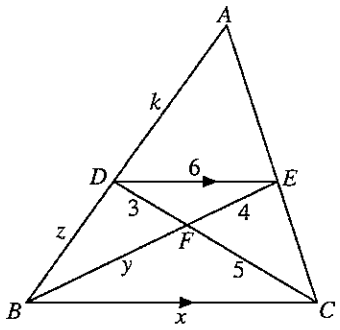
In the diagram, M is the midpoint of BC, $ADME$ is a straight line, $AD = DM$ and $\angle CDM = \angle BEM = 90°$.

(a) Is $\triangle ACD$ congruent to $\triangle MCD$? Explain briefly.

(b) Is $\triangle MCD$ congruent to $\triangle MBE$? Explain briefly.

(c) If $\angle CAD = 56°$, find $\angle MBE$.

16. In the diagram, DE // BC, BE and CD intersect at F, $AD = k$ cm, $DE = 6$ cm, $DF = 3$ cm, $EF = 4$ cm, $CF = 5$ cm, $BC = x$ cm, $BF = y$ cm and $BD = z$ cm.



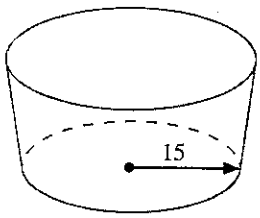
(a) Show that $\triangle DEF$ is similar to $\triangle CBF$.

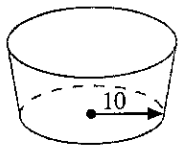
(b) Find the values of x and y.

(c) Express z in terms of k.

(d) If the area of $\triangle DEF$ is t cm^2, what is the area of $\triangle CBF$?

17. **(a)**



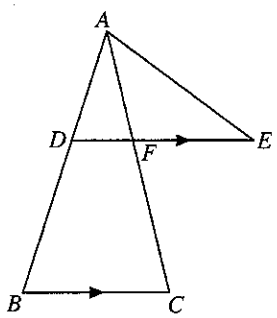


The diagram shows two similar basins whose base radii are 15 cm and 10 cm respectively.

(i) If the cost of the material used to manufacture the base of the small basin is \$2, what is the cost of using the same material to manufacture the base of the big basin?

(ii) If the capacity of the big basin is 11 151 cm^3, what is the capacity of the small one?

(b) In the diagram, DE // BC, $AB = AC = 24$ cm, $AE = DE = 15$ cm and $BC = 10$ cm.



(i) Find the length of BD.

(ii) Find the ratio of the area of $\triangle ADE$ to the area of $\triangle ABC$.