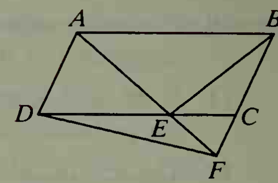
22. The area of parallelogram $ABCD$ is 48 cm^2 and $DE = 2 \cdot EC$. Find the area of:

a. $\triangle ABE$ b. $\triangle BEC$ c. $\triangle ADE$
d. $\triangle CEF$ e. $\triangle DEF$ f. $\triangle BEF$

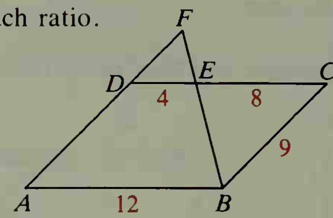


23. $ABCD$ is a parallelogram. Find each ratio.

a. $\dfrac{\text{Area of } \triangle DEF}{\text{Area of } \triangle ABF}$

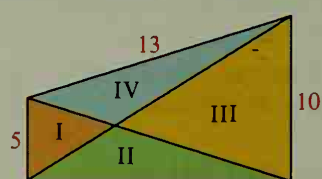
b. $\dfrac{\text{Area of } \triangle DEF}{\text{Area of } \triangle CEB}$

c. $\dfrac{\text{Area of } \triangle DEF}{\text{Area of trap. } DEBA}$

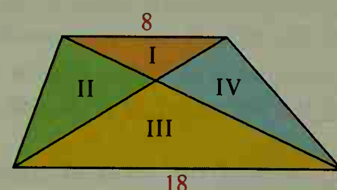


The figures in Exercises 24 and 25 are trapezoids. Find the ratio of the areas of (a) $\triangle$I and $\triangle$III, (b) $\triangle$I and $\triangle$II, (c) $\triangle$I and $\triangle$IV, (d) $\triangle$II and $\triangle$IV, and (e) $\triangle$I and the trapezoid.

24.

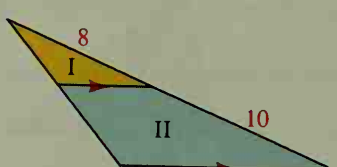


25.

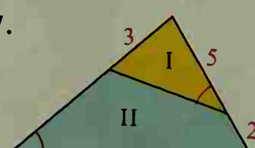


Find the ratio of the areas of regions I and II.

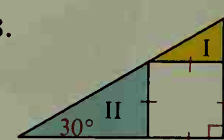
26.



27.



28.



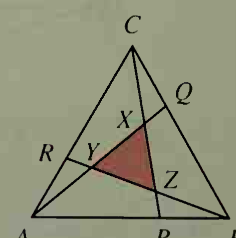
C 29. G is the intersection point of the medians of $\triangle ABC$. A line through G parallel to $\overline{BC}$ divides the triangle into two regions. What is the ratio of their areas? (*Hint*: See Theorem 10-4, page 387.)

30. In $\triangle LMN$, altitude $\overline{LK}$ is 12 cm long. Through point J of $\overline{LK}$ a line is drawn parallel to $\overline{MN}$, dividing the triangle into two regions with equal areas. Find LJ.

31. If you draw the three medians of a triangle, six small triangles are formed. Prove whatever you can about the areas of these six triangles.

★ 32. $\triangle ABC$ is equilateral; $\dfrac{AP}{PB} = \dfrac{BQ}{QC} = \dfrac{CR}{RA} = \dfrac{2}{1}$.

Prove: Area of $\triangle XYZ = \dfrac{1}{7}$(area of $\triangle ABC$)



Ex. 32