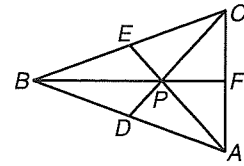


5-1 Practice

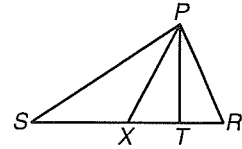
Bisectors, Medians, and Altitudes

ALGEBRA In $\triangle ABC$, \overline{BF} is the angle bisector of $\angle ABC$, \overline{AE} , \overline{BF} , and \overline{CD} are medians, and P is the centroid.



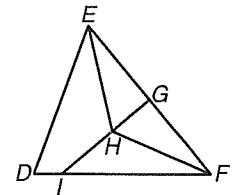
- Find x if $DP = 4x - 3$ and $CP = 30$.
- Find y if $AP = y$ and $EP = 18$.
- Find z if $FP = 5z + 10$ and $BP = 42$.
- If $m\angle ABC = x$ and $m\angle BAC = m\angle BCA = 2x - 10$, is \overline{BF} an altitude? Explain.

ALGEBRA In $\triangle PRS$, \overline{PT} is an altitude and \overline{PX} is a median.



- Find RS if $RX = x + 7$ and $SX = 3x - 11$.
- Find RT if $RT = x - 6$ and $m\angle PTR = 8x - 6$.

ALGEBRA In $\triangle DEF$, \overline{GI} is a perpendicular bisector.



- Find x if $EH = 16$ and $FH = 6x - 5$.
- Find y if $EG = 3.2y - 1$ and $FG = 2y + 5$.
- Find z if $m\angle EGH = 12z$.

COORDINATE GEOMETRY The vertices of $\triangle STU$ are $S(0, 1)$, $T(4, 7)$, and $U(8, -3)$. Find the coordinates of the points of concurrency of $\triangle STU$.

- | | | |
|-----------------|--------------|------------------|
| 10. orthocenter | 11. centroid | 12. circumcenter |
|-----------------|--------------|------------------|

- MOBILES** Nabuko wants to construct a mobile out of flat triangles so that the surfaces of the triangles hang parallel to the floor when the mobile is suspended. How can Nabuko be certain that she hangs the triangles to achieve this effect?