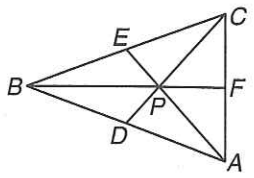
NAME _____ DATE _____ PERIOD ____

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.



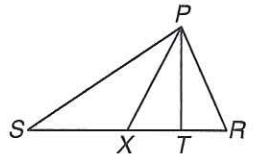
1. Find x if $DP = 4x - 3$ and $CP = 30$.

2. Find y if $AP = y$ and $EP = 18$.

3. Find z if $FP = 5z + 10$ and $BP = 42$.

4. If $m\angle ABC = x$ and $m\angle BAC = m\angle BCA = 2x - 10$, is $\overline{BF}$ an altitude? Explain.

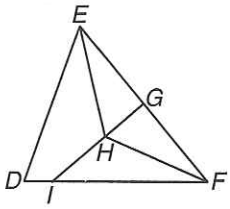
ALGEBRA In $\triangle PRS$, $\overline{PT}$ is an altitude and $\overline{PX}$ is a median.



5. Find RS if $RX = x + 7$ and $SX = 3x - 11$.

6. Find RT if $RT = x - 6$ and $m\angle PTR = 8x - 6$.

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



7. Find x if $EH = 16$ and $FH = 6x - 5$.

8. Find y if $EG = 3.2y - 1$ and $FG = 2y + 5$.

9. 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

13. 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?

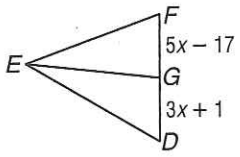
NAME _____ DATE _____ PERIOD _____

5-1 Skills Practice

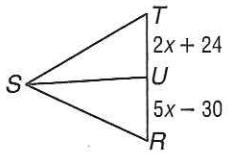
Bisectors, Medians, and Altitudes

ALGEBRA For Exercises 1–4, use the given information to find each value.

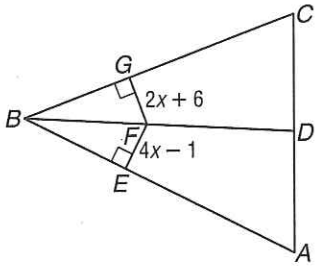
1. Find x if $\overline{EG}$ is a median of $\triangle DEF$.



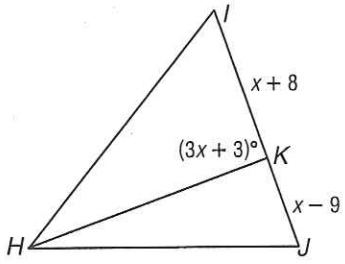
2. Find x and RT if $\overline{SU}$ is a median of $\triangle RST$.



3. Find x and EF if $\overline{BD}$ is an angle bisector.

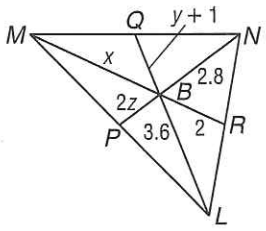


4. Find x and IJ if $\overline{HK}$ is an altitude of $\triangle HIJ$.



ALGEBRA For Exercises 5–7, use the following information.

In $\triangle LMN$, P, Q, and R are the midpoints of $\overline{LM}$, $\overline{MN}$, and $\overline{LN}$, respectively.

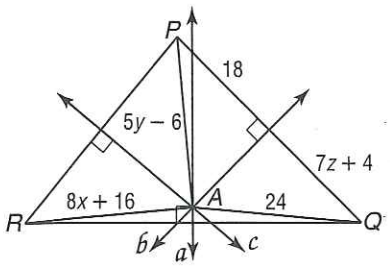


5. Find x.

6. Find y.

7. Find z.

ALGEBRA Lines *a*, *b*, and *c* are perpendicular bisectors of $\triangle PQR$ and meet at *A*.



8. Find x.

9. Find y.

10. Find z.

COORDINATE GEOMETRY The vertices of $\triangle HIJ$ are $G(1, 0)$, $H(6, 0)$, and $I(3, 6)$. Find the coordinates of the points of concurrency of $\triangle HIJ$.

11. orthocenter

12. centroid

13. circumcenter

Lesson 5-1