Written Exercises

On your paper, draw two segments roughly like those shown. Use these segments in Exercises 1–4 to construct a segment having the indicated length.

A **1.** $a + b$ **2.** $b - a$ **3.** $3a - b$ **4.** $a + 2b$

5. Using any convenient length for a side, construct an equilateral triangle.

6. a. Construct a 30° angle. **b.** Construct a 15° angle.

7. Draw any acute $\triangle ACU$. Use a method based on the SSS Postulate to construct a triangle congruent to $\triangle ACU$.

8. Draw any obtuse $\triangle OBT$. Use the SSS method to construct a triangle congruent to $\triangle OBT$.

9. Repeat Exercise 7, but use the SAS method.

10. Repeat Exercise 8, but use the ASA method.

On your paper, draw two angles roughly like those shown. Then for Exercises 11–14 construct an angle having the indicated measure.

11. $x + y$ **12.** $x - y$ **13.** $\frac{3}{4}x$ **14.** $180 - 2y$

B **15. a.** Draw any acute triangle. Bisect each of the three angles.
b. Draw any obtuse triangle. Bisect each of the three angles.
c. What do you notice about the points of intersection of the bisectors in parts (a) and (b)?

16. Construct a six-pointed star using the following procedure.
1. Draw a ray, $\overrightarrow{AB}$. On $\overrightarrow{AB}$ mark off, in order, points C and D such that $AB = BC = CD$.
2. Construct equilateral $\triangle ADG$.
3. On $\overline{AG}$ mark off points E and F so that both AE and EF equal AB.
4. On $\overline{GD}$ mark off points H and I so that both GH and HI equal AB.
5. To complete the star, draw the three lines $\overleftrightarrow{FH}$, $\overleftrightarrow{EB}$, and $\overleftrightarrow{CI}$.

Construct an angle having the indicated measure.

17. 120 **18.** 150 **19.** 165 **20.** 45

21. Draw any $\triangle ABC$. Construct $\triangle DEF$ so that $\triangle DEF \sim \triangle ABC$ and $DE = 2AB$.

22. Construct a $\triangle RST$ such that $RS:ST:TR = 4:6:7$.