**Midterm Exam**

**Constructions**

1. Construct a perpendicular bisector of using a compass and straight edge. (3 points)

*A B C*

2. Construct an angle bisector of the given angle. (3 points)

**3.** The measure of angle *T* is 70°.

a. What is the measure of an angle that is complementary to angle *T*? (1 point)

b. What is the measure of an angle that is supplementary to angle *T*? (1 point)

**4.** True or false: If *M* is the midpoint of , then *.* (1 point)

**5.** In the figure, line *x* is parallel to line *y* and . Determine the measure of angle 5. (1 point)



**6**. Sketch and label each of the following geometric figures.

a. Adjacent, complementary anglesand *.* (1 point)

b. Two intersecting lines with vertical angles 1 and 2 and vertical angles 3 and 4. (1 point)

**7.** Write the letter of the description in front of each term. (1 point each)



1. \_\_\_\_\_\_
2. \_\_\_\_\_\_
3. \_\_\_\_\_\_
4. \_\_\_\_\_\_
5. \_\_\_\_\_\_

(*for credit, you must write the correct letters in the blanks*)

**8.**



True or false: the points  *E, F, G,* and *H* coplanar. (1 point)

**9.** (1 point)



**10.** Given the diagram at right. (1 point each)

a. As a pair,  and are called what kind of angles?

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b.  and have what relationship?

c. What would you call the angle pair  and?

d. Name a pair of adjacent angles.

**11.** In the construction at right, name two perpendicular lines or line segments. Use proper notation.

(1 point)

**12.** (1 point)



**13.**

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a. Name an obtuse angle. (1 point)

b. Name two angles that make up a linear pair. (1 point)

**14.** If ∠ *A* and ∠ *B* are supplementary angles and the *m*∠*A* is three times the *m*∠*B*, find *m*∠*A* and *m*∠*B*.

(2 points)



**15.** At right, name two angles that form linear pairs with .   
(1 point each)

a. b.

**16**. In the given diagram the lines *x* || *y*, and  and .   
Solve for *x* (2 points)

**17.**

Given . What is ?

(1 point)

**18.** Of two supplementary angles, one has a measure of 150 degrees. What is the measure of the other angle? (1 point)

**19.** In the diagram at right, two parallel lines intersect a transversal line

a. Name two supplementary angles. (1 point)

1

2

3

b. What is the sum of the measures of  and?

(1 point)

**20.** True or false: If  and are complementary angles, then the sum of and is 180 degrees. (1 point)

**21.** Given  as shown in the figure. Solve for *x* and the measures of the two angles. Show the steps and check your result. (6 points)

Geometry:

1 2

Substitute:

Solve algebra:

*x =*

**

**

Check:

**22.** The measures of two interior angles of a triangle are 50 degrees and 35 degrees. What is the measure of the third angle? (1 point)

**23.** The measures of the angles of triangle are represented by *x*, 3*x*+10, and 2*x*+110. Solve for *x*.

(2 points)

24.



Given . What must be true for lines *m* and *n* to be parallel? (1 point)

(1)  (3)  are complementary

(2)  (4)  are vertical angles

25. Right triangle *ABC* shown at right. and.   
  
What is the measure of angle C? (1 point)

A

B

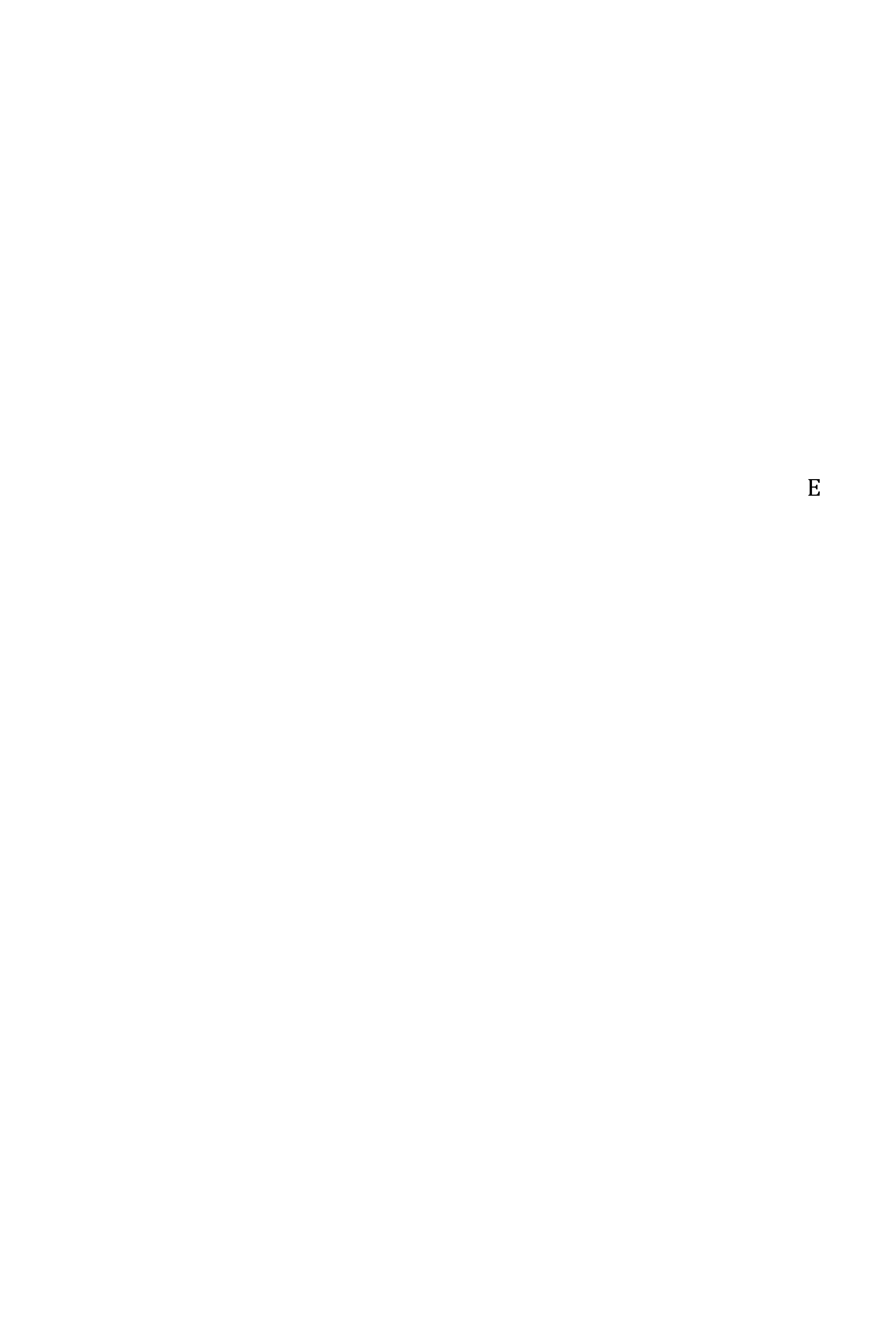
C

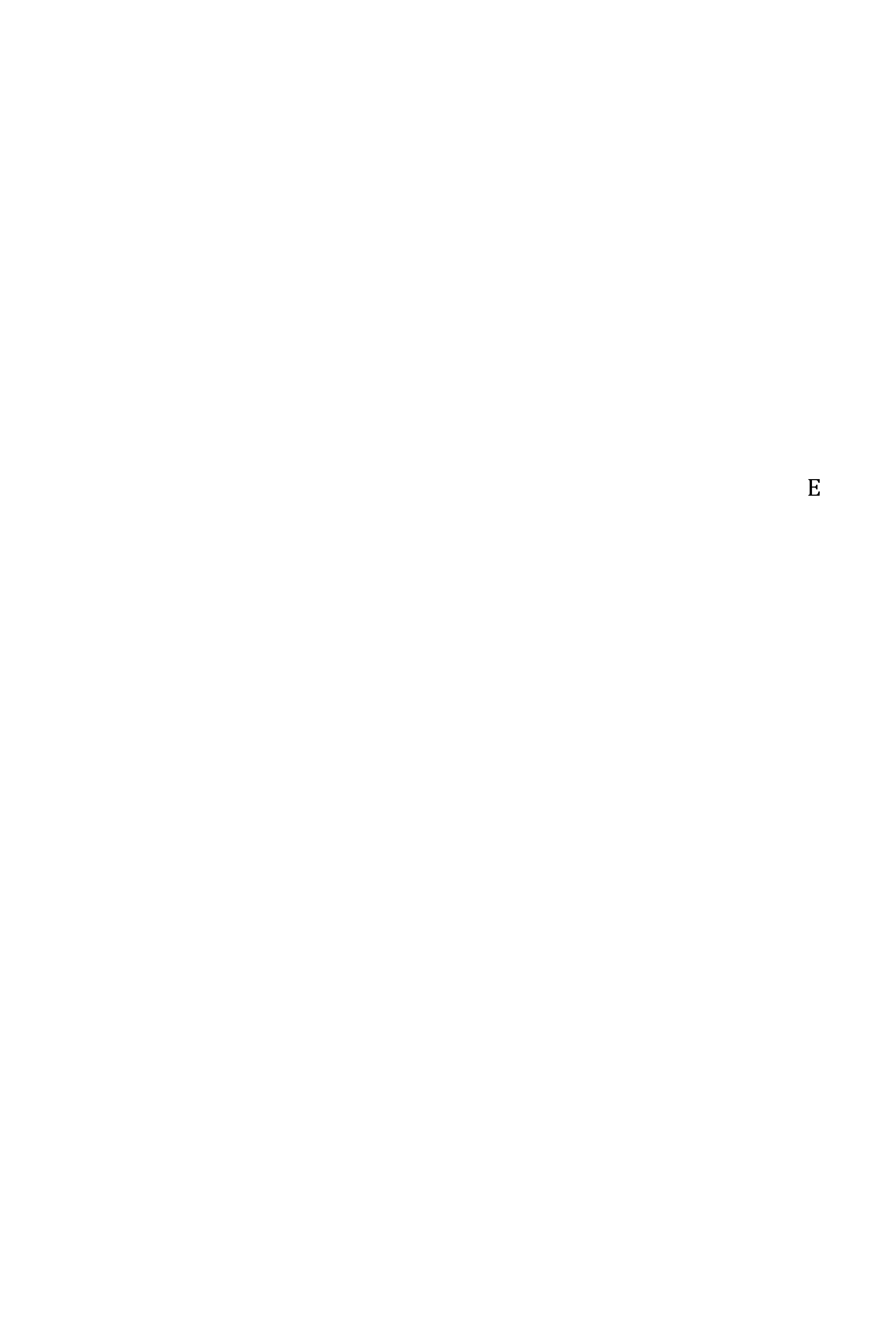
(1) 155 (3) 25

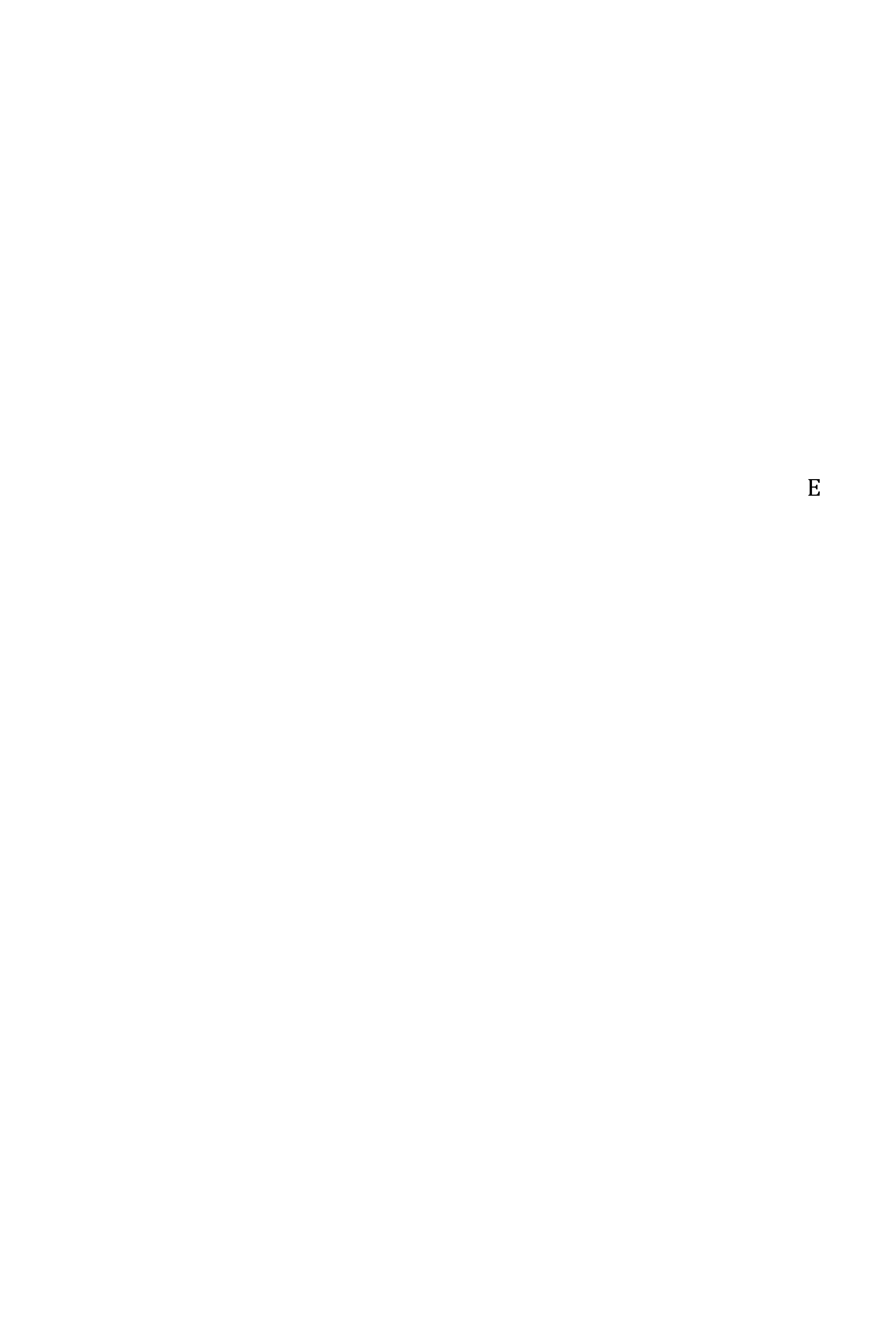
(2) 145 (4) 65

26. In the diagram of  at right,  is extended through *H.* (1 point)

E

F

G

H



(1) 165 (3) 15

(2) 65 (4) 50

27. with the given angle measures. Solve for *x.* (2 points)



1

2

3

**Construct an angle bisector of the given angle.**

A