

Chapter 8 Review

1. A polygon is regular if it is equiangular and equilateral.

2. The sum of the measures of the interior angles of a pentagon is $\frac{(5-2)180}{540^\circ}$ degrees.

3. Each interior angle of a regular pentagon is 108° degrees. Each exterior angle of a regular pentagon is 72° degrees.

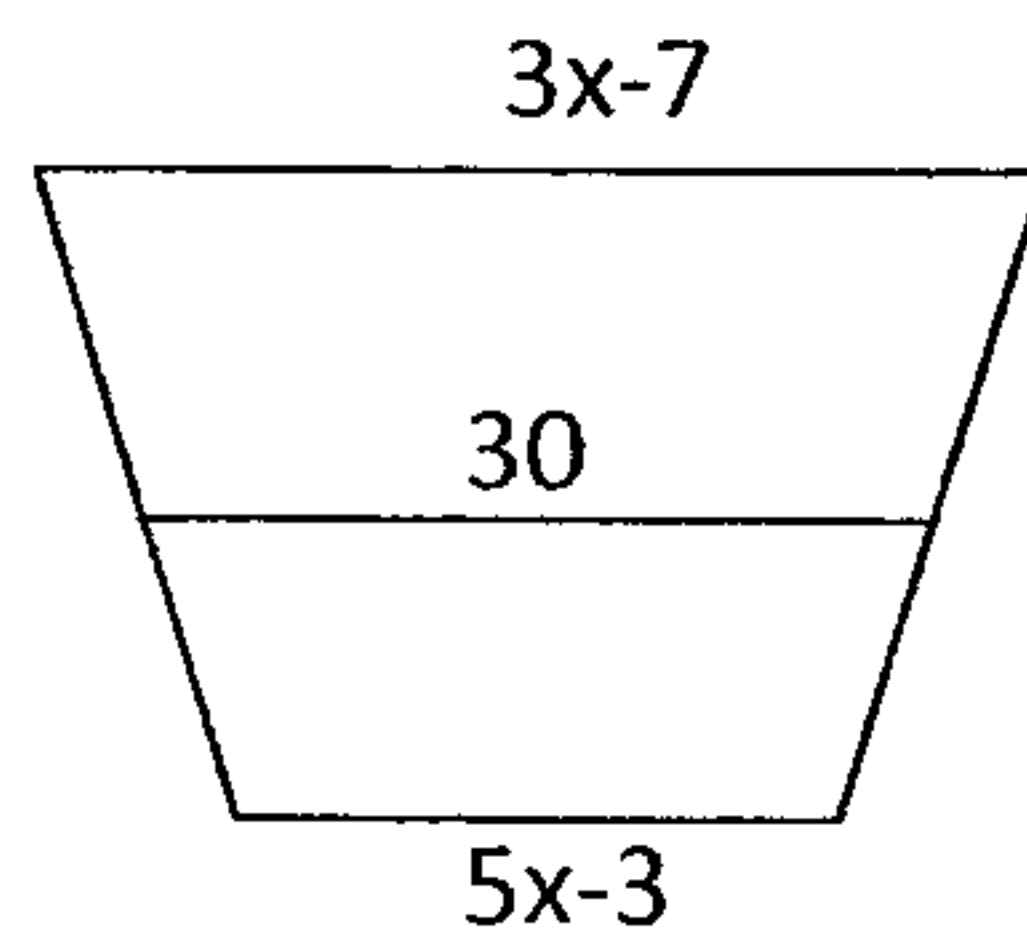
4. Find the value of x in the trapezoid below. $x = \frac{35}{4}$

$$\frac{70}{8}$$

$$30 = \frac{1}{2}(3x-7 + 5x-3)$$

$$60 = 8x - 10$$

$$\frac{70}{8} = 8x$$



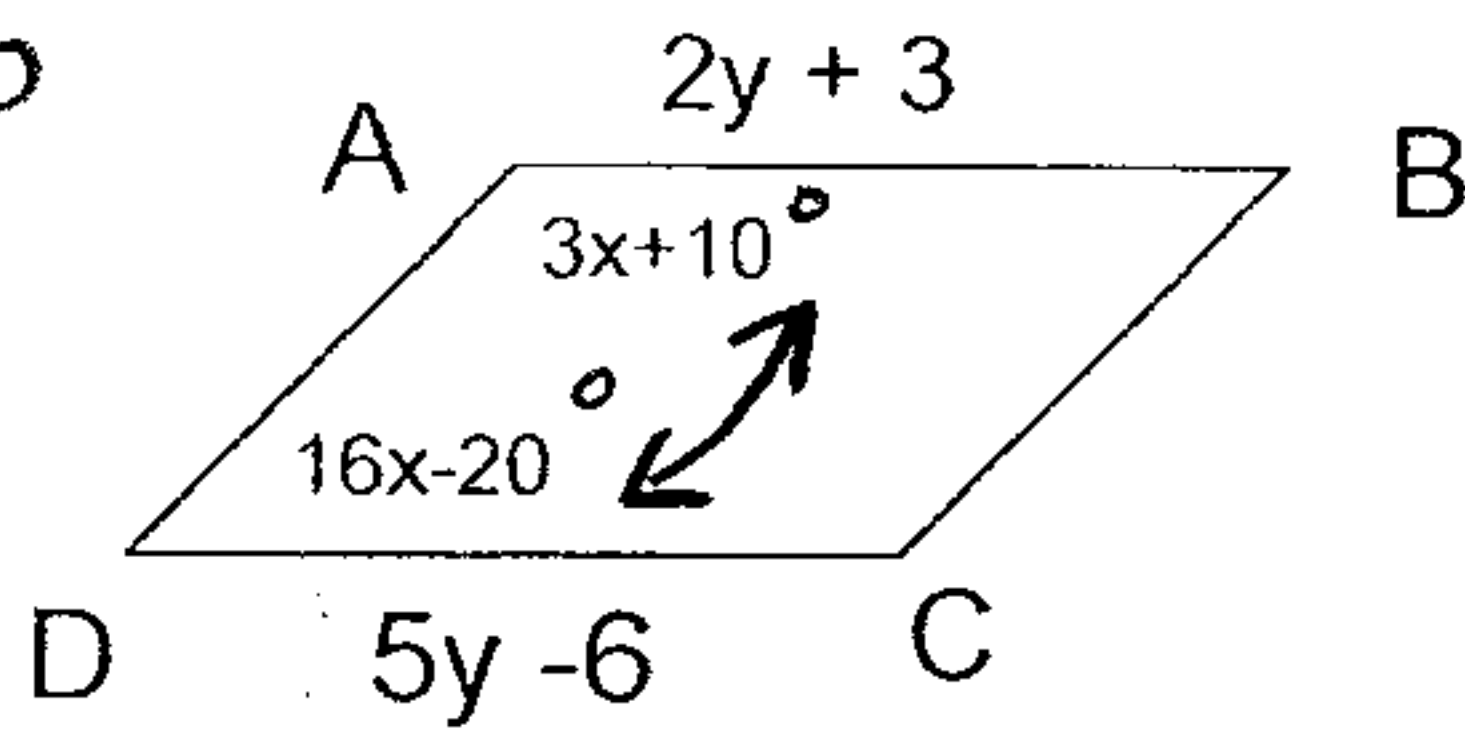
5. Given parallelogram ABCD, find:

$$3x+10 + 16x-20 = 180$$

$$19x - 10 = 180$$

$$19x = 190$$

$$x = 10$$



$$2y+3 = 5y-6$$

$$9 = 3y$$

$$y = 3$$

A. $x = \underline{10}$

D. $y = \underline{3}$

B. $m\angle D = \underline{40^\circ}$

E. $CD = \underline{9}$

C. $m\angle B = \underline{40^\circ}$

F. $AB = \underline{9}$

6. ABCD is a rectangle, $AB = 8$, perimeter = 24, 26
 $EC = 5$, $m\angle AED = 60$

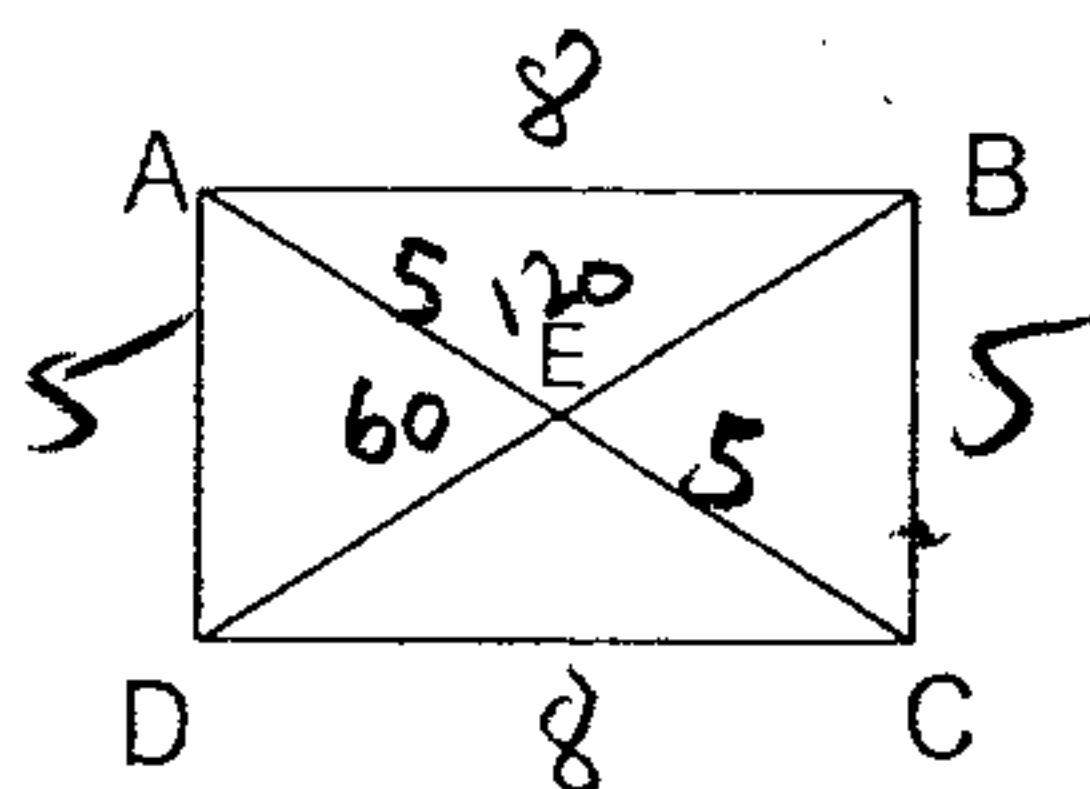
A. $AD = \underline{5}$

B. $AE = \underline{5}$

C. $m\angle ADC = \underline{90^\circ}$

D. $m\angle AEB = \underline{120^\circ}$

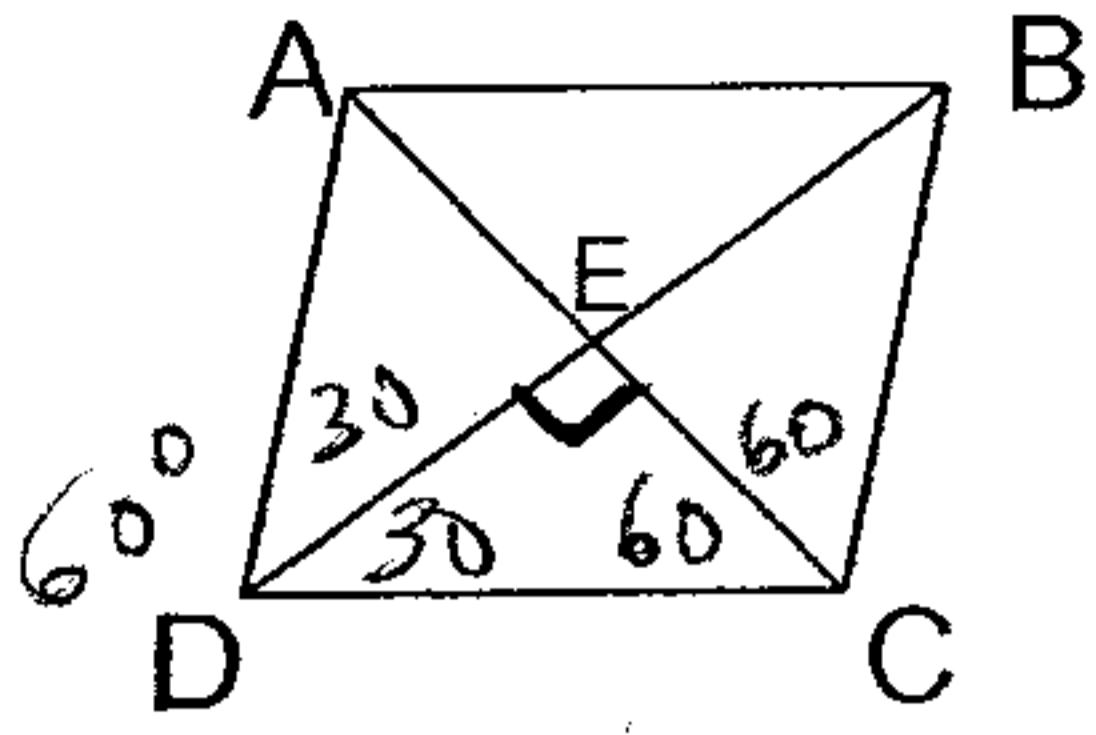
$BE = \underline{5}$



$$\frac{26}{-16}$$

$$\frac{10}{2} = 5$$

7. ABCD is a rhombus, $m\angle ADC = 60^\circ$, $AC = 6$, find:
 A. $m\angle ACD = 60^\circ$ B. $m\angle DEC = 90^\circ$ C. $EC = 3$



Questions 8-17 are multiple choice.

8. A polygon cannot be both a _____ and a _____.

- a. Parallelogram, trapezoid
 b. Rhombus, square
 c. Parallelogram, rectangle
 d. Rhombus, rectangle

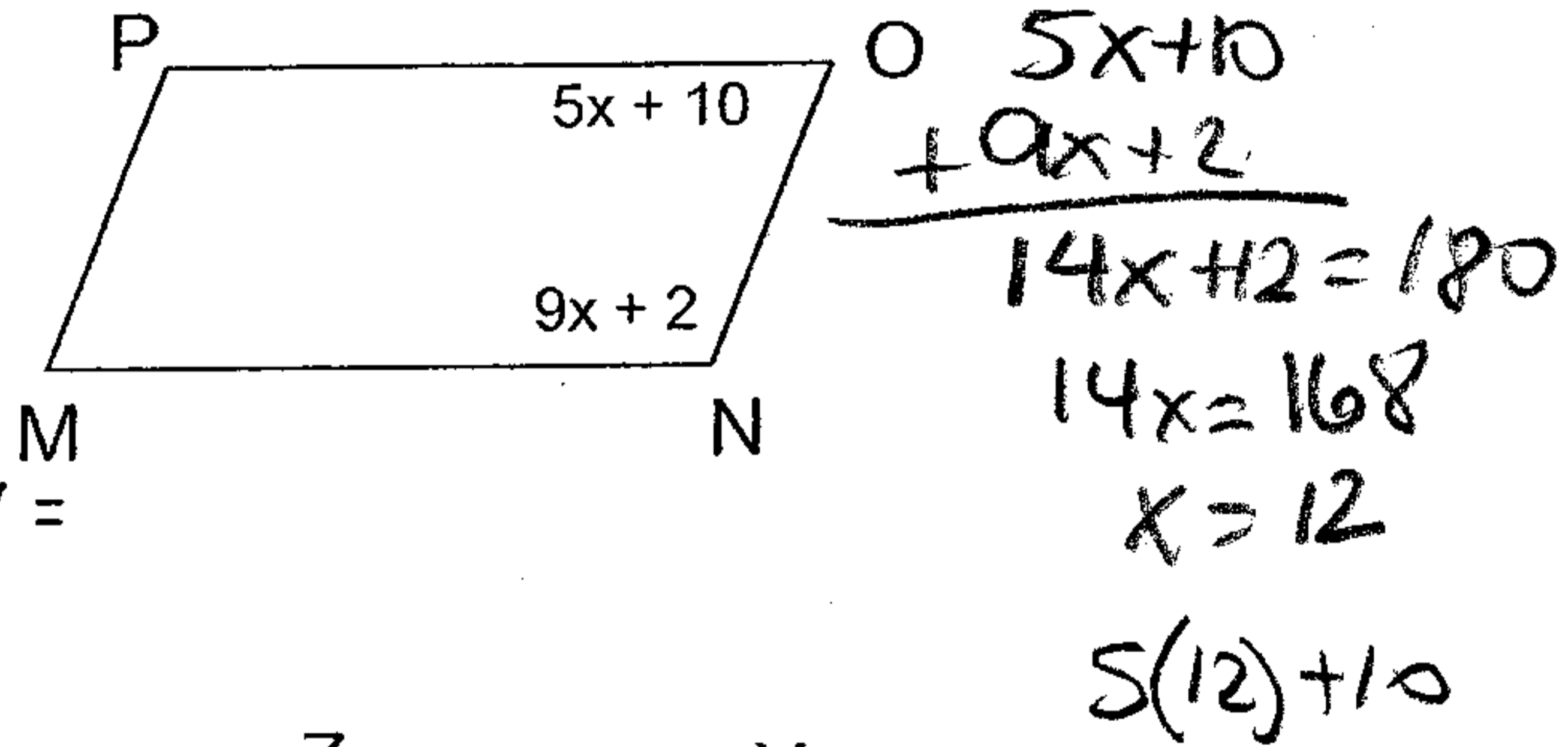
A

9. The perimeter of a rhombus is 60. The length of a side is:

- A. 30 B. 20 **C. 15** D. 12

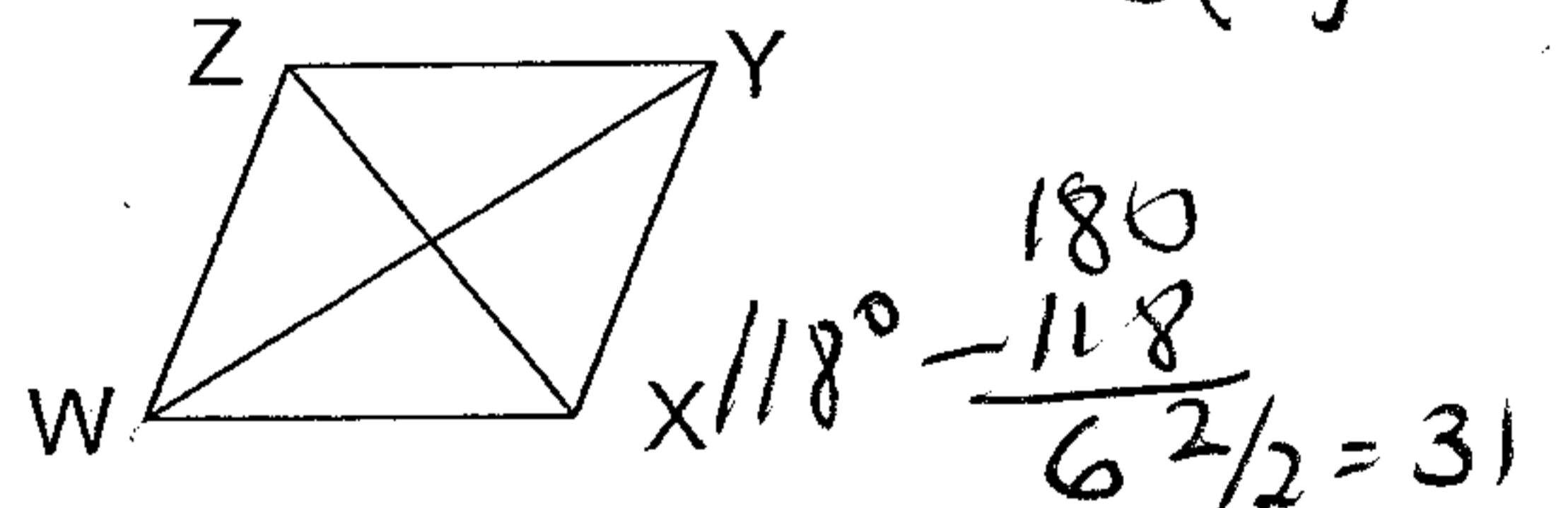
10. If MNOP is a parallelogram, then $m\angle M$ is:

- A. 12 **C. 70**
 B. 55 D. 110



11. If WXYZ is a rhombus and $m\angle WXY = 118$, then $m\angle ZWY =$

- A. 28 **B. 31**
 C. 59 D. more information is needed



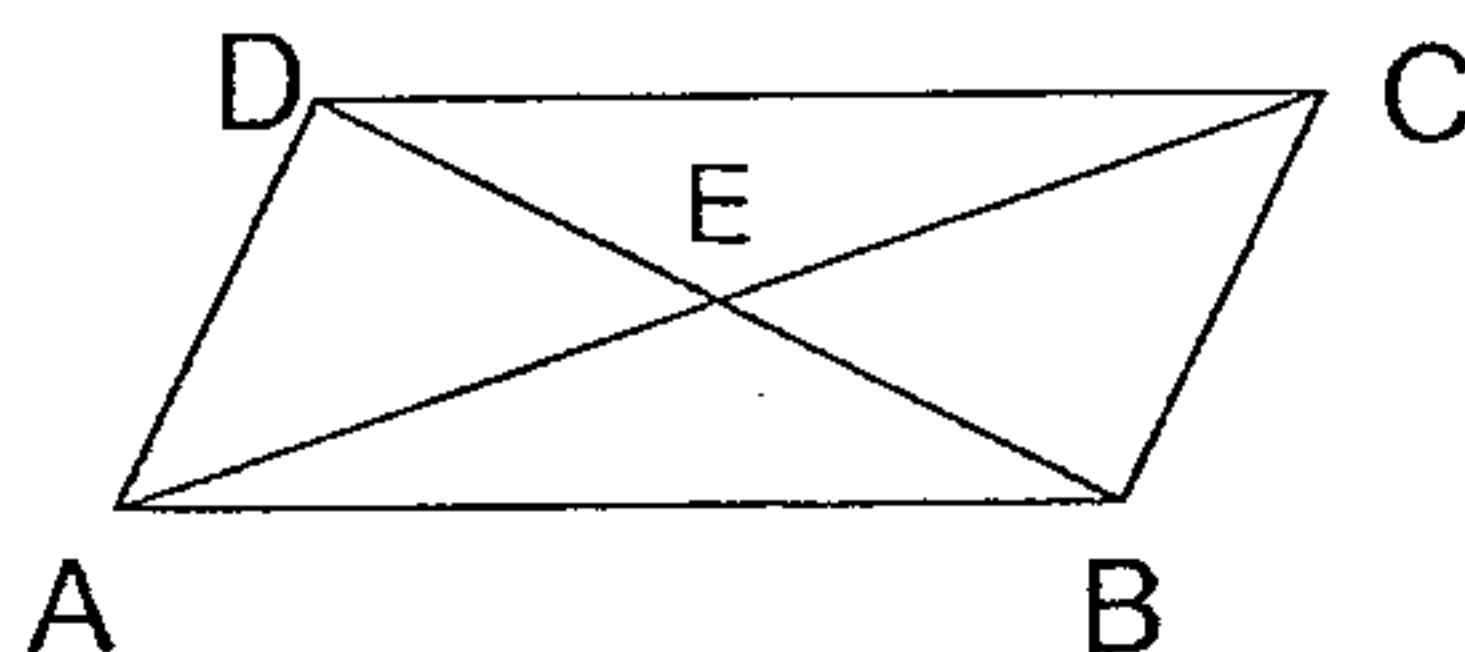
12. In parallelogram ABCD, if $AE = x + 3$ and $CE = 3x - 27$, then $x =$

- A. 15** C. 12
 B. 18 D. 6

$$x + 3 = 3x - 27$$

$$30 = 2x$$

$$x = 15$$



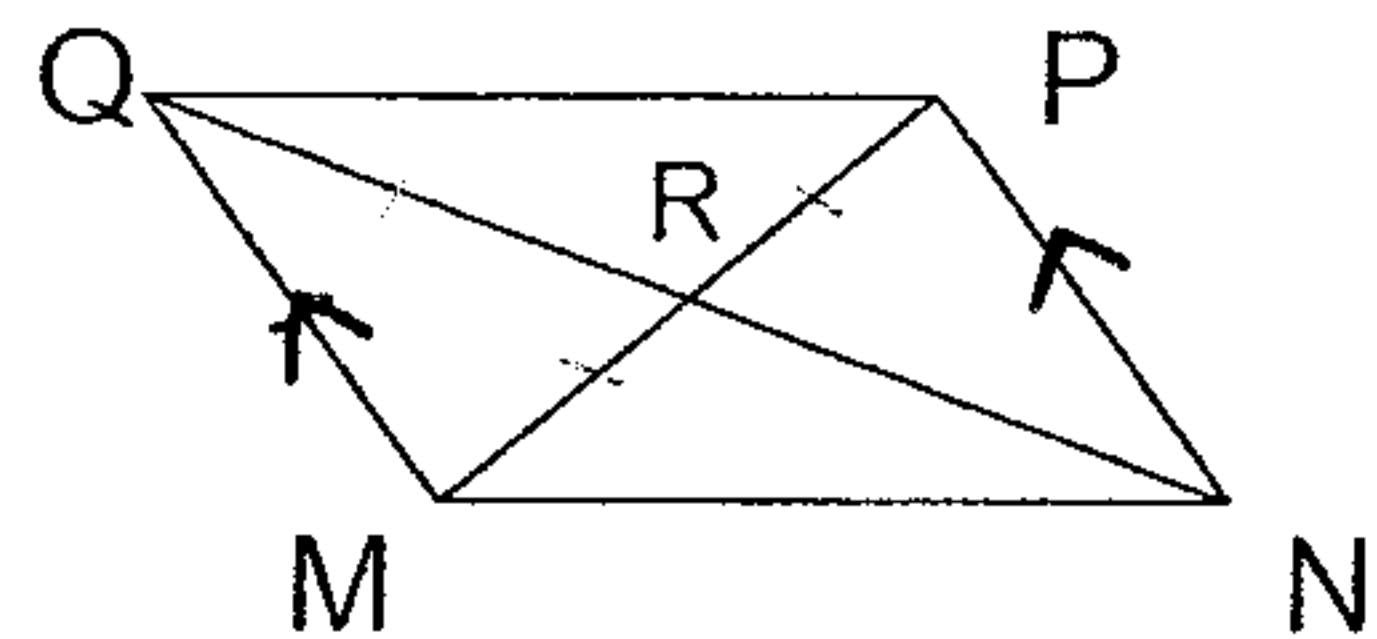
13. If $\overline{MR} \cong \overline{PR}$, and _____, then MNPQ is a parallelogram

A. $\overline{QP} \cong \overline{MN}$

C. $\overline{QR} \cong \overline{RN}$

B. $\overline{QP} \parallel \overline{MN}$

D. $\overline{MQ} \parallel \overline{NP}$



14. If $\overline{MQ} \parallel \overline{NP}$ and _____, then MNPQ is a parallelogram

A. $\overline{NP} \cong \overline{MQ}$

C. $\overline{MN} \cong \overline{NP}$

B. $\overline{MN} \cong \overline{PQ}$

D. $\overline{NR} \cong \overline{RQ}$

Given: For #15 - 17, WXYZ is a parallelogram. In each of the following, which of the statements is not necessarily true?

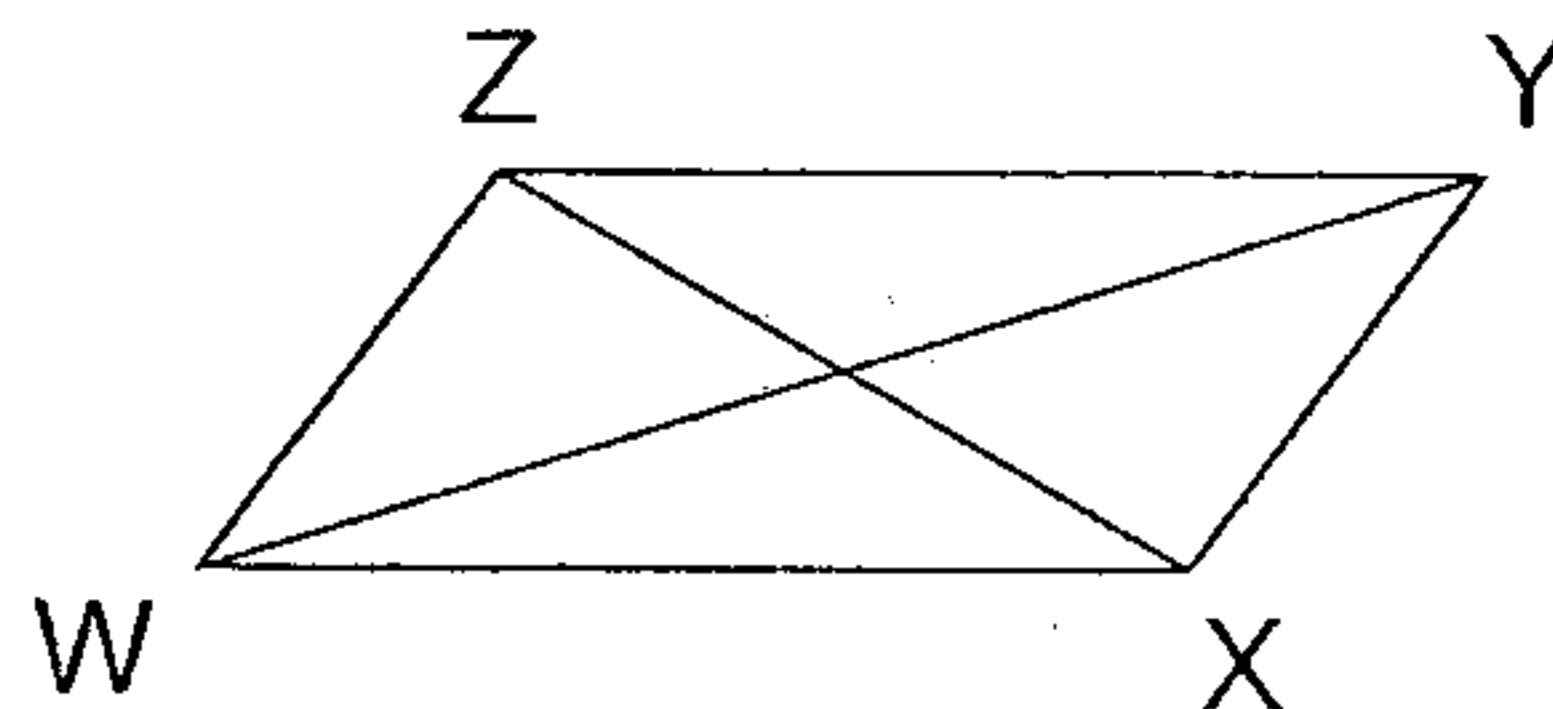
15. If WXYZ is a rectangle, then

A. \overline{WY} bisects \overline{XZ} ✓

C. $\overline{WY} \perp \overline{XZ}$

B. $WY = XZ$ ✓

D. $\overline{WX} \perp \overline{WZ}$ ✓



16. If WXYZ is a square, then

A. $WZ < ZY$

C. $WY = XZ$

B. $\overline{WY} \perp \overline{XZ}$

D. $\overline{WZ} \perp \overline{WX}$

17. If WXYZ is a rhombus, then

A. $WZ = WX$ ✓

C. $\overline{WY} \perp \overline{XZ}$ ✓

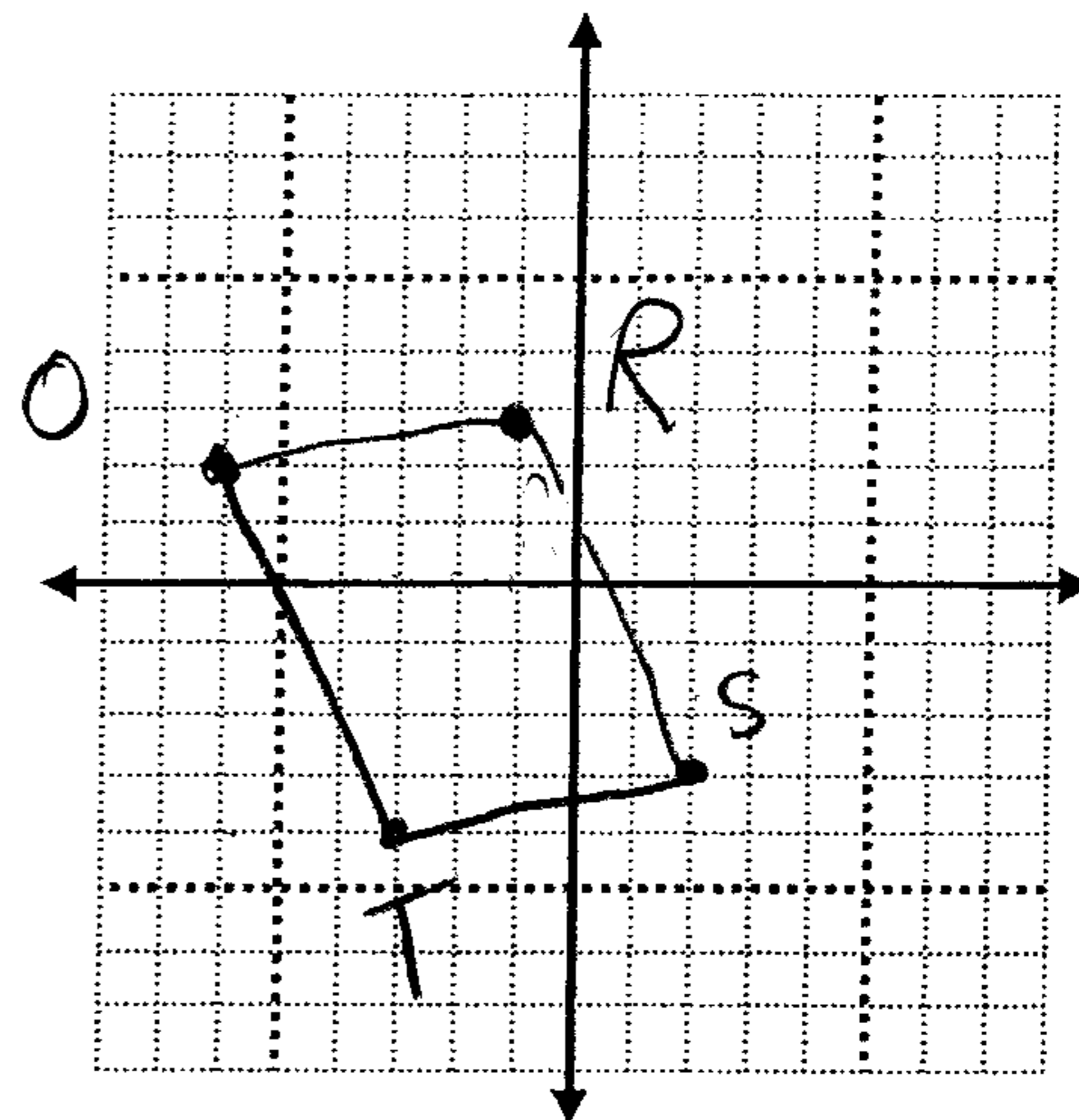
B. $WY = ZX$

D. $WZ = XY$

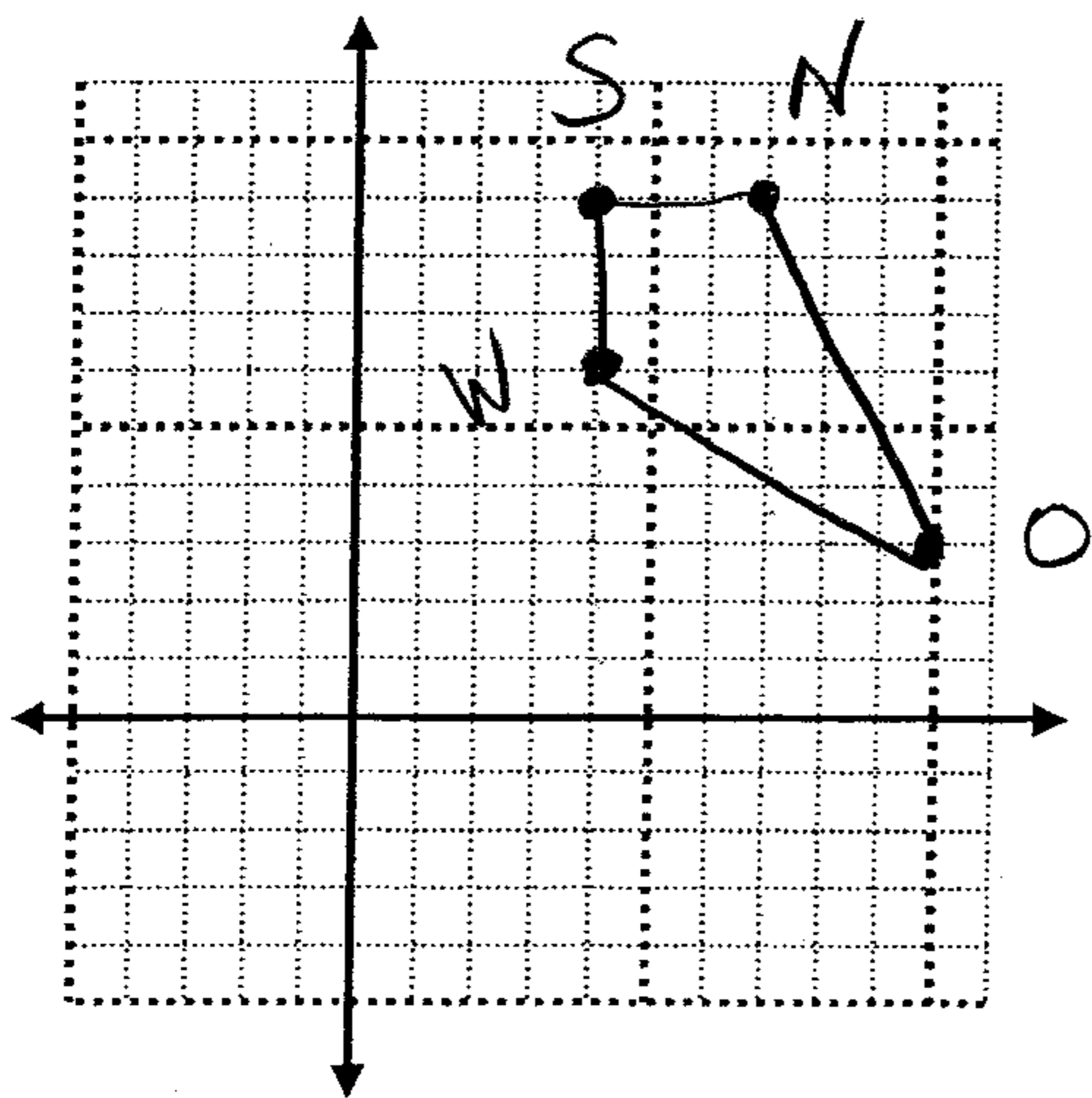
18. Use coordinate geometry to show that $O(-6, 2)$, $R(-1, 3)$, $S(2, -3)$, $T(-3, -4)$, are the vertices of a parallelogram.

$$\begin{array}{l}
 m\overline{OR} = \frac{1}{5} \\
 m\overline{TS} = \frac{1}{5} \\
 m\overline{OT} = -2 \\
 m\overline{RS} = -2
 \end{array}
 \left| \begin{array}{l}
 \text{Distance} \\
 \sqrt{26} \\
 3\sqrt{5}
 \end{array} \right.$$

$\frac{6}{3}$
36+9



19. Use coordinate geometry to show that $S(4, 9)$, $N(7, 9)$, $O(10, 3)$, $W(4, 6)$, are the vertices of a kite.



$$\begin{array}{l}
 SN = 3 \\
 SW = 3 \\
 NO = \sqrt{6^2 + 3^2} = 3\sqrt{5} \\
 WO = \sqrt{3^2 + 6^2} = 3\sqrt{5}
 \end{array}$$

20. Given: $\overline{AB} \parallel \overline{EF}$, \overline{CD} is a midsegment, $AE = 6$, and $BD = 4$, find:

A. $x = \underline{20}$

B. $EC = \underline{3}$

C. $BF = \underline{8}$

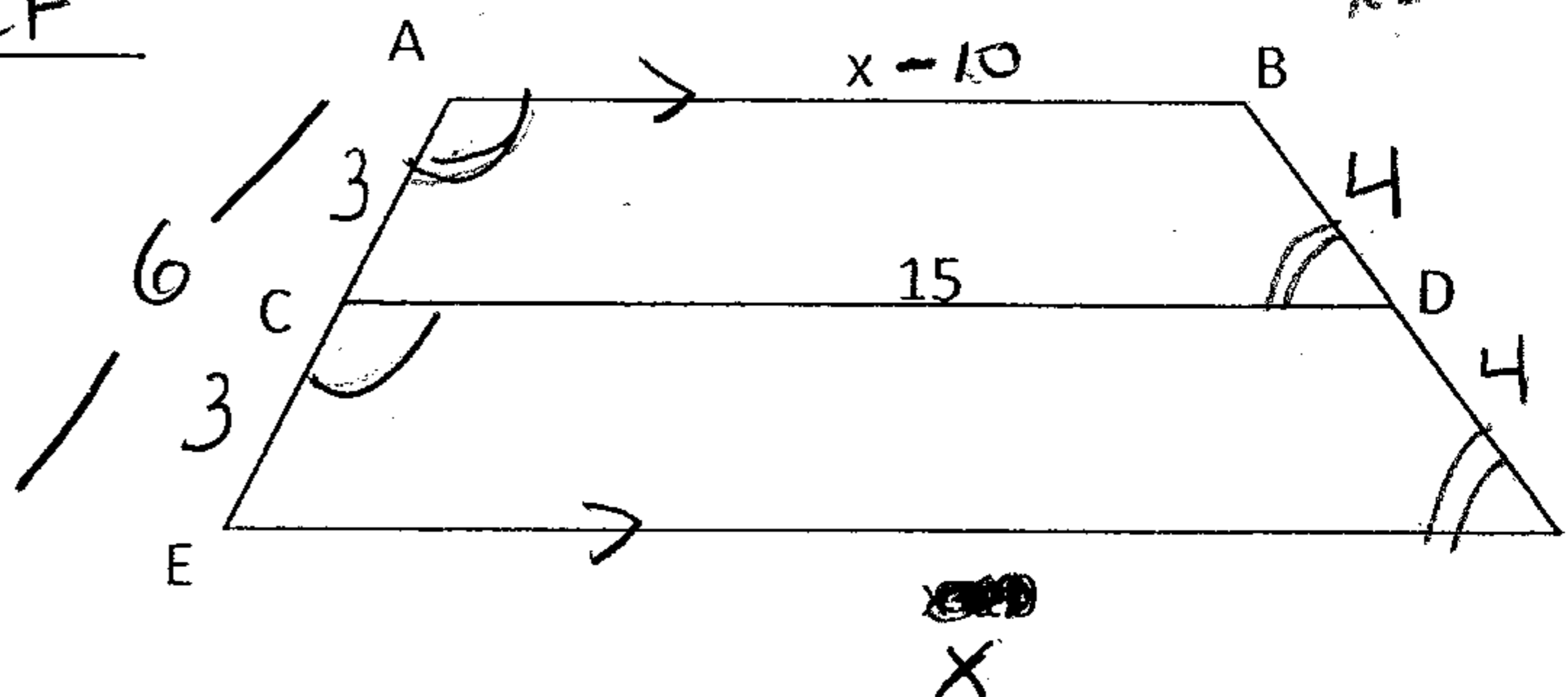
D. $m\angle ECD = m\angle \underline{A}$

E. $\angle A$ & $\angle \underline{E}$ are supplementary

F. $\overline{CD} \parallel \overline{AB}$ & \overline{EF}

G. $\angle F \cong \angle \underline{BDC}$

$$\begin{aligned}
 15 &= \frac{1}{2}(x + x - 10) \\
 30 &= 2x - 10 \\
 2x &= 40 \\
 x &= 20
 \end{aligned}$$



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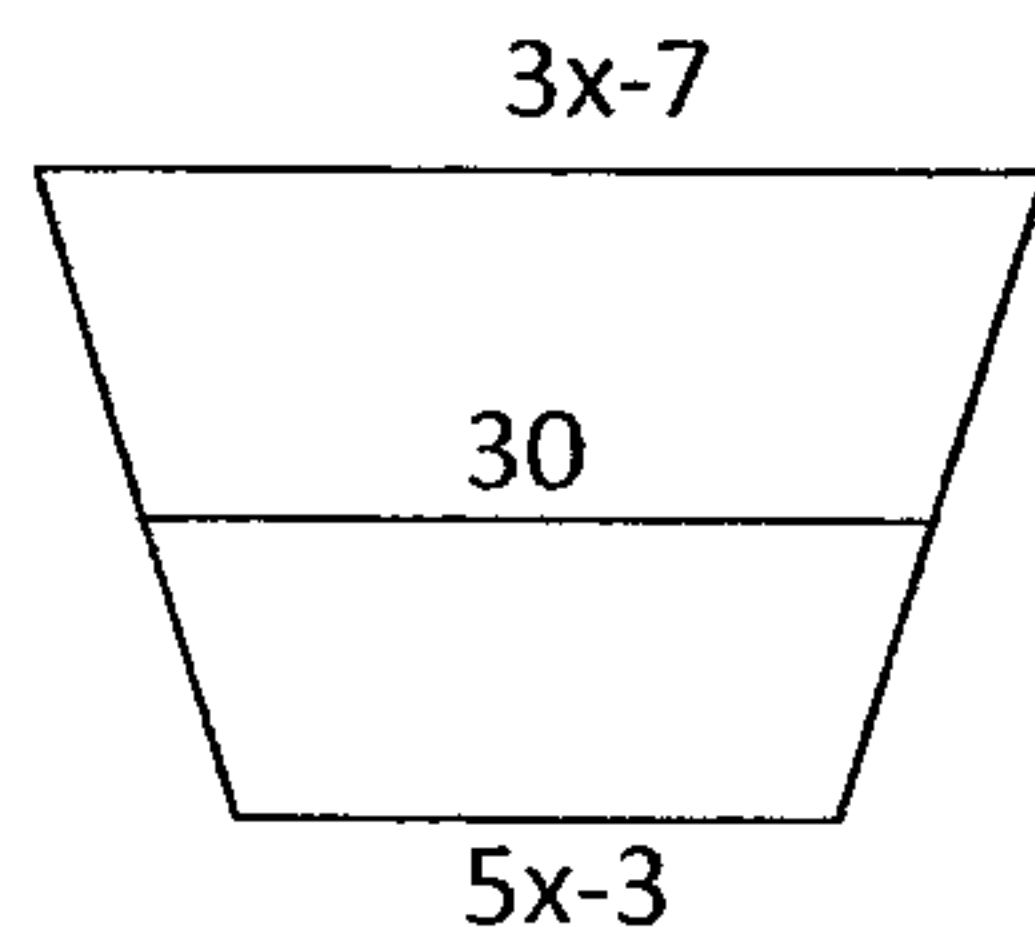
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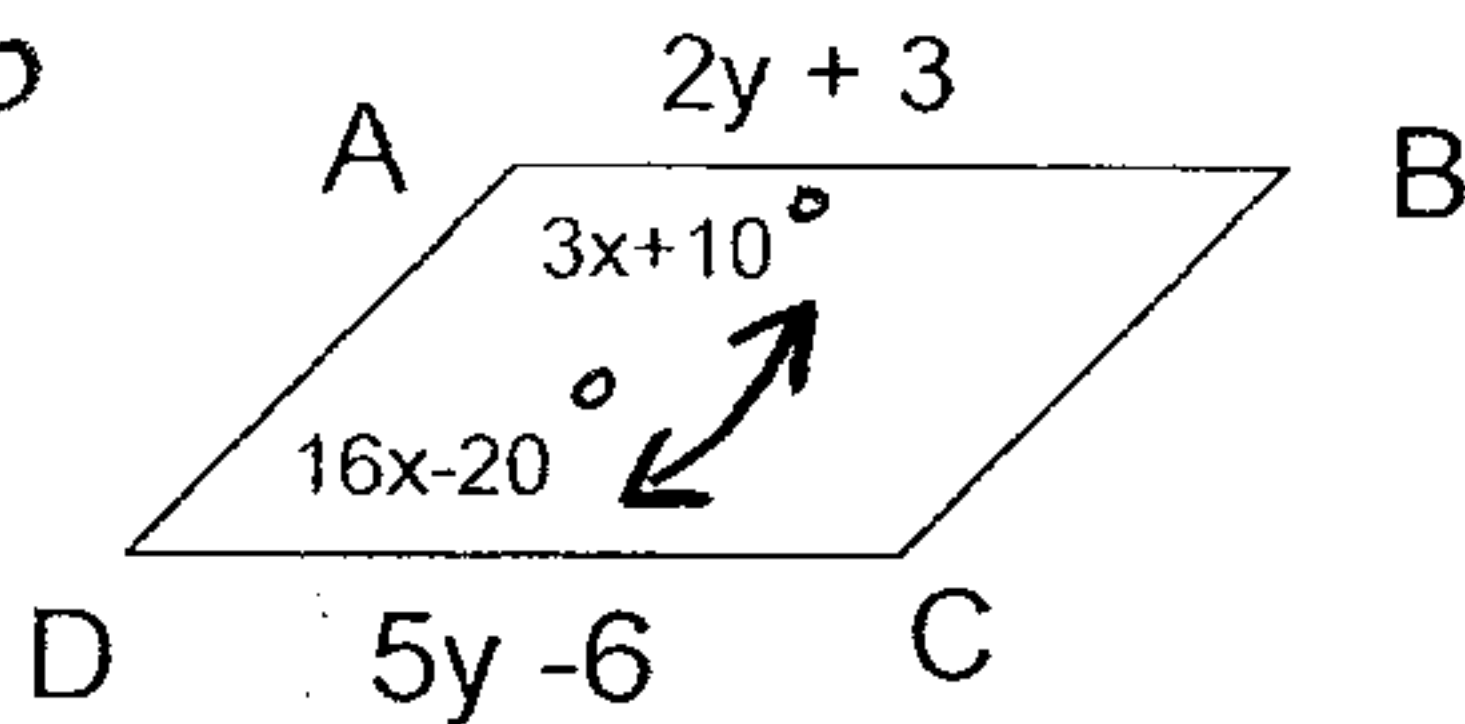
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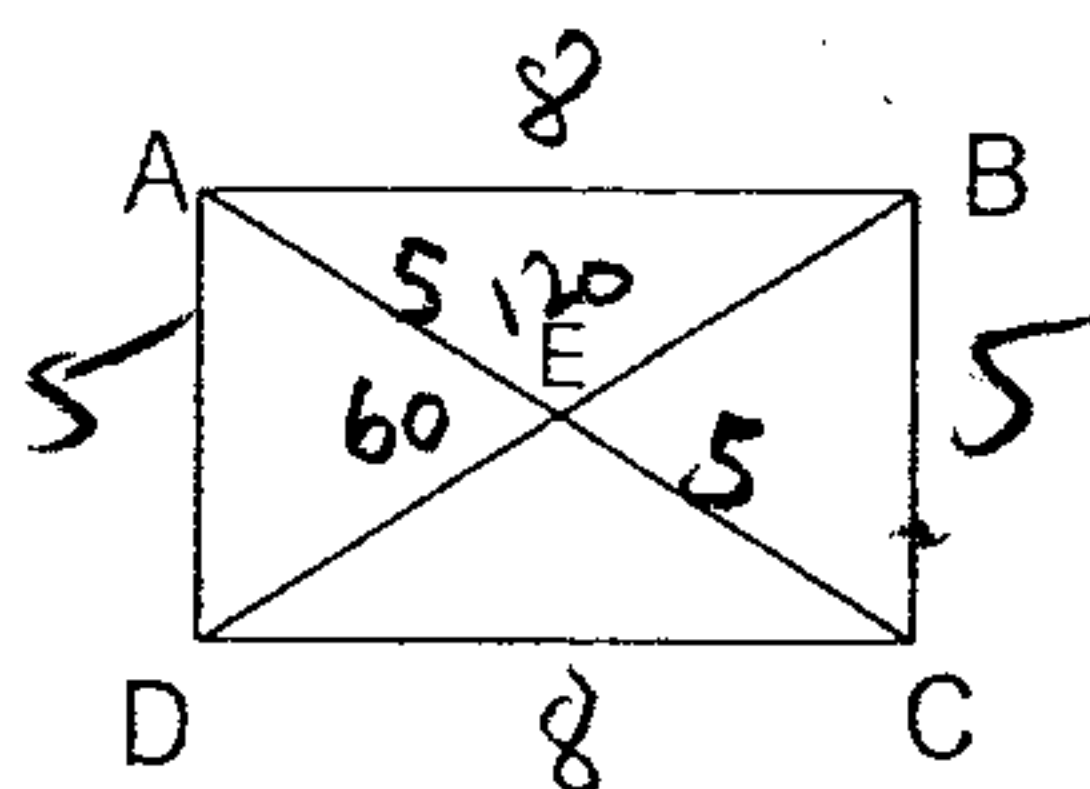
$$9 = 3y$$

$$y = 3$$

- | | |
|---------------------------------------|-------------------------|
| A. $x = \underline{10}$ | D. $y = \underline{3}$ |
| B. $m\angle D = \underline{40^\circ}$ | E. $CD = \underline{9}$ |
| C. $m\angle B = \underline{40^\circ}$ | F. $AB = \underline{9}$ |

6. ABCD is a rectangle, $AB = 8$, perimeter = 24, 26
 $EC = 5$, $m\angle AED = 60$

- A. $AD = \underline{5}$
- B. $AE = \underline{5}$
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$$\frac{26}{-16}$$

$$\frac{10}{2} = 5$$

BE = 5

29. State the definition of an isosceles trapezoid. *A trapezoid with \cong legs*

30. State the definition of a rhombus. *A \square with 4 \cong sides*

31. Given: Parallelogram ABCD. $m\angle ADC = 65$, $m\angle BDC = 35$, $m\angle AEB = 100$, find:

a. $m\angle B = \underline{65^\circ}$

b. $m\angle A = \underline{115^\circ}$

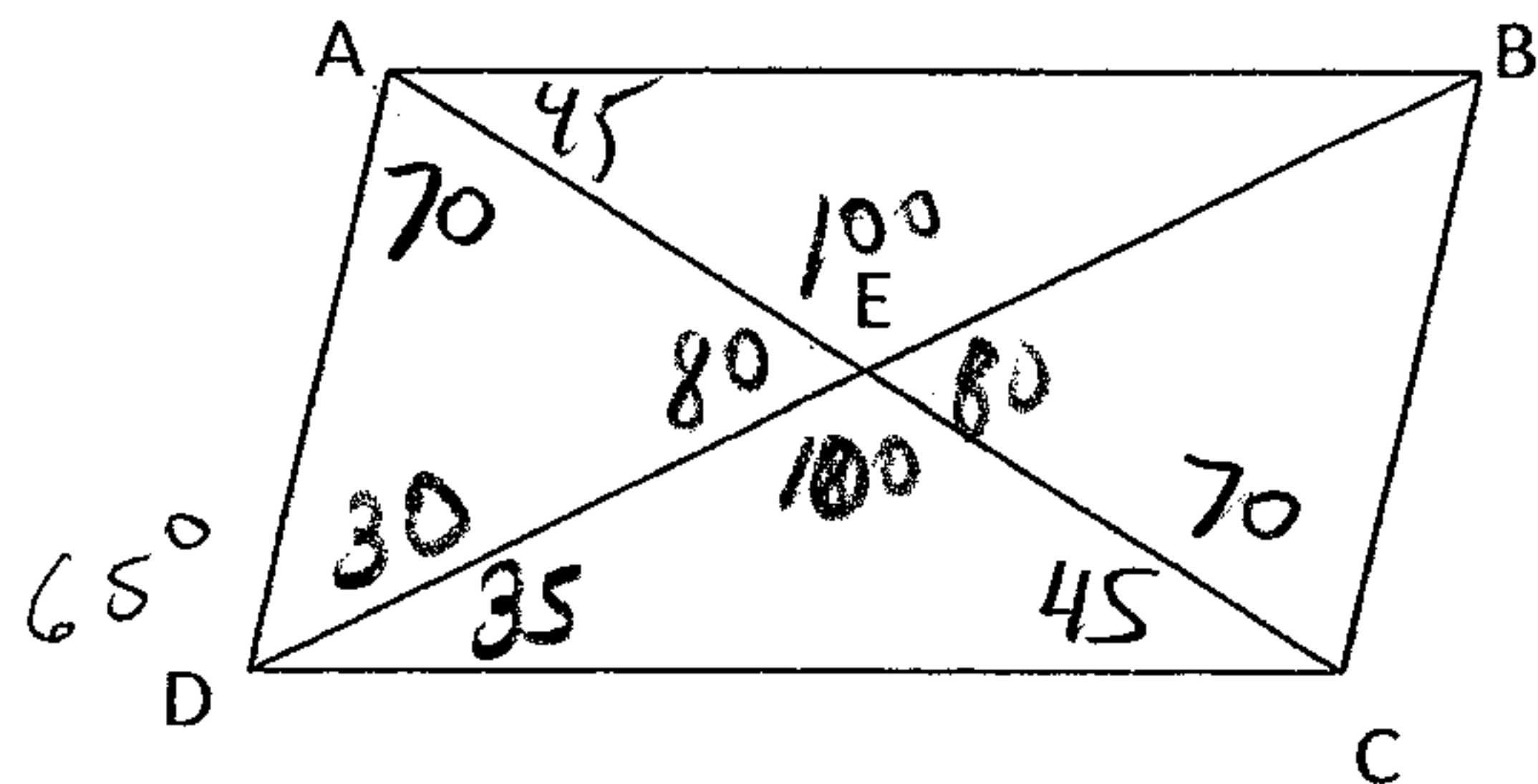
c. $m\angle BAE = \underline{45^\circ}$

d. $m\angle AED = \underline{80^\circ}$

e. $m\angle BEC = \underline{80^\circ}$

f. $m\angle DAE = \underline{70^\circ}$

$$\begin{array}{r} 180 \\ - 65 \\ \hline 115 \end{array}$$



32. Given: Rectangle PQRS. $m\angle PTS = 53^\circ$, $PT = 5$, find:

a. $m\angle P = \underline{90}$

b. $m\angle QTR = \underline{53}$

c. $TQ = \underline{5}$

d. Can you find $m\angle QPT$ with the given information? yes If so, what is it? 26.5

e. $PR = \underline{10}$

f. $m\angle SPT = \underline{63.5}$

