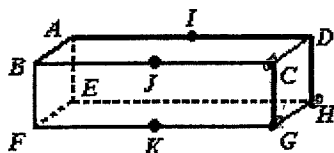


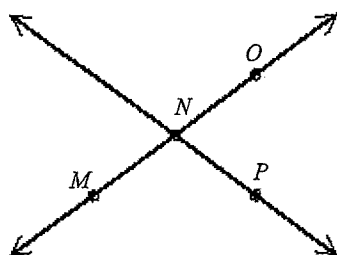
Geometry A Final Exam Review 2015-16

1. Are points C, G, and H collinear or noncollinear?



non collinear

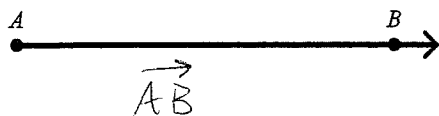
2. Are M, N, and O collinear? If so, name the line on which they lie.



yes,

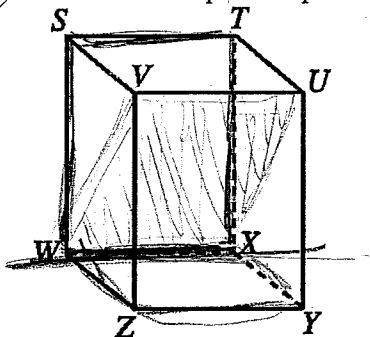
\overleftrightarrow{MN} or
 \overleftrightarrow{NO} or
 \overleftrightarrow{MO}

3. Name the ray in the figure.



\overrightarrow{AB}

4. Name a fourth point in plane WXY.



U

what is the intersection of plane wxyz and plane STxw?

\overleftrightarrow{WX}

\overleftrightarrow{TU}

5. If $EF = 3x - 14$, $FG = 4x - 19$, and $EG = 16$, find the values of x , EF , and FG . The drawing is not to scale.



$x = 7$
 $EF = 7$
 $FG = 9$

$EF = 3(7) - 14 = 7$ 16

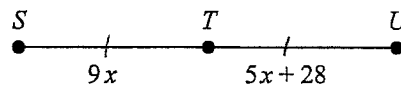
$FG = 4(7) - 19 = 9$

$EF + FG = EG$

$3x - 14 + 4x - 19 = 16$

$7x - 33 = 16$

6. If T is the midpoint of SU, what are ST, TU, and SU? $7x = 49$
 $x = 7$



$ST = TU$

$9x = 5x + 28$

$4x = 28$

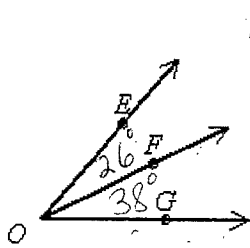
$x = 7$

$ST = 9(7) = 63$

$TU = 5(7) + 28 = 63$

$SU = 126$

7. If $m\angle EOF = 26$ and $m\angle FOG = 38$, then what is the measure of $\angle EOG$? The diagram is not to scale.



$m\angle EOG = 26 + 38$
 $m\angle EOG = 64^\circ$

8. Supplementary angles are two angles whose measures have a sum of 180° . Complementary angles are two angles whose measures have a sum of 90° .

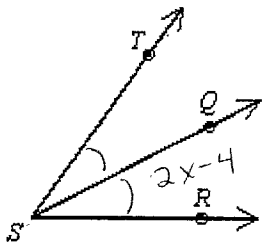
9. $\angle DFG$ and $\angle JKL$ are complementary angles. $m\angle DFG = x + 2$, and $m\angle JKL = x - 4$. Find the measure of each angle. $x + 2 + x - 4 = 90^\circ$

$\angle DFG = 48^\circ$
 $\angle JKL = 42^\circ$
 $2x - 2 = 90 \rightarrow 2x = 92 \rightarrow x = 46$

10. $\angle 1$ and $\angle 2$ are a linear pair. $m\angle 1 = x - 15$, and $m\angle 2 = x + 77$. Find the measure of each angle.

$m\angle 1 + m\angle 2 = 180^\circ$
 $x - 15 + x + 77 = 180^\circ$
 $2x + 62 = 180$
 $2x = 118$
 $x = 59$

11. SQ bisects $\angle RST$, and $m\angle RSQ = 2x - 4$. Write an expression for $\angle RST$. The diagram is not to scale.



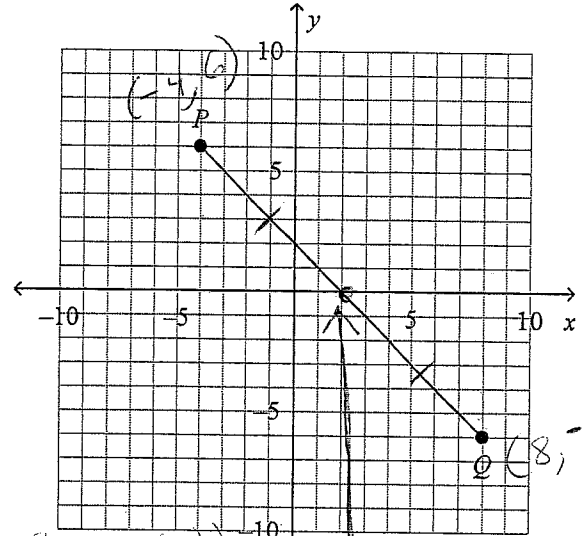
$\angle RST = 2x - 4 + 2x - 4$

$\angle RST = 4x - 8$

$m\angle 1 = 44$
 $m\angle 2 = 136^\circ$

12. Find the midpoint of \overline{PQ} .

$M = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$

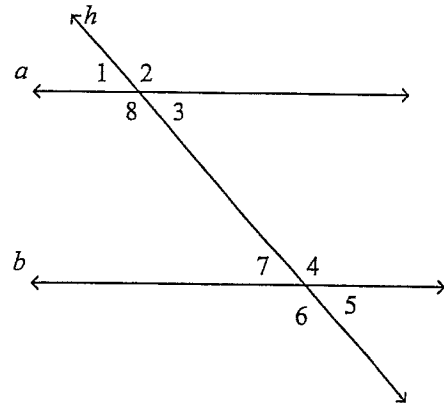


$M = \left(\frac{-4 + 8}{2}, \frac{6 + (-6)}{2} \right)$
 $M = (2, 0)$

13. Find the distance between points $P(8, 2)$ and $Q(3, 8)$ to the nearest tenth.

$\sqrt{(8-3)^2 + (2-8)^2}$
 $= \sqrt{25 + 36} = \sqrt{61} \approx 7.8$

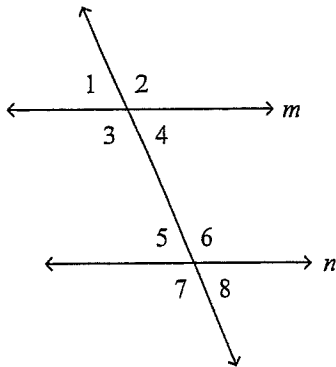
Use the diagram below for #14.



14. Identify a pair of alternate exterior angles.

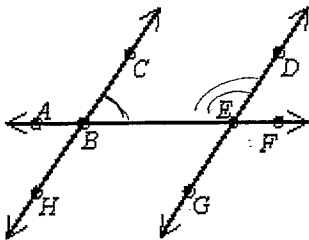
~~4 and 5~~
 $\angle 1$ and $\angle 5$
 or
 $\angle 2$ and $\angle 6$

15. What is the relationship between $\angle 4$ and $\angle 5$?



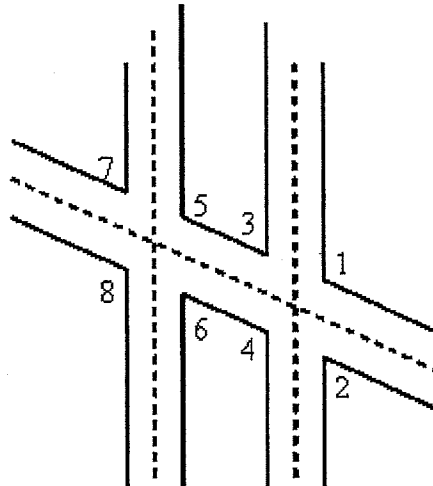
alternate interior angles

16. Which statement is true?



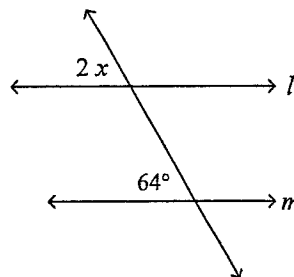
- A. $\angle FEG$ and $\angle CBE$ are alternate angles.
- B. $\angle CBE$ and $\angle DEB$ are alternate angles.
- C. $\angle CBE$ and $\angle DEB$ are same-side interior angles.
- D. $\angle FEG$ and $\angle DEB$ are same-side interior angles.

This diagram of airport runway intersections shows two parallel runways. A taxiway crosses both runways.



17. How are $\angle 8$ and $\angle 4$ related?
- A. alternate interior angles
 - B. corresponding angles
 - C. same-side interior angles
 - D. none of these

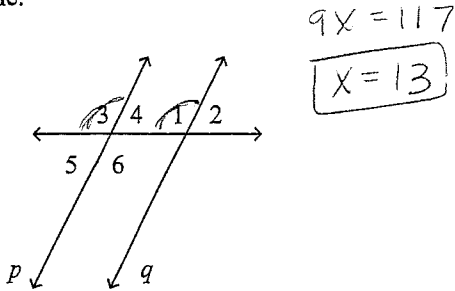
18. Find the value of x . $l \parallel m$. The diagram is not to scale.



$$2x = 64$$

$$x = 32$$

19. Find the value of x for which p is parallel to q , if $m\angle 1 = (9x)$ and $m\angle 3 = 117$. The diagram is not to scale.



20. Is the line through points $P(2, -10)$ and $Q(-4, -13)$ perpendicular to the line through points $R(4, -2)$ and $S(1, 4)$? Explain.

- A. No, their slopes are not opposite reciprocals.
- B. No; their slopes are not equal.
- C. Yes; their slopes are equal.
- D. Yes; their slopes have product -1 .

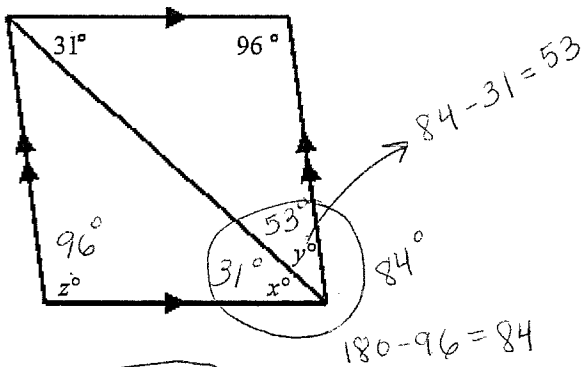
$$m(PQ) = \frac{-10 + 13}{2 + 4} = \frac{3}{6} = \frac{1}{2}$$

$$m(RS) = \frac{-2 - 4}{4 - 1} = \frac{-6}{3} = -2$$

(opposite reciprocals)

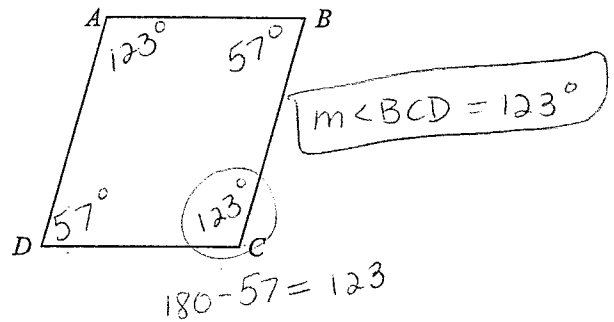
21. What must be true about the slopes of two perpendicular lines, neither of which is vertical?
- A. The slopes are equal.
 - B. The slopes are reciprocals
 - C. The slopes are opposite reciprocals
 - D. One of the slopes must be 0.

22. Find the values of the variables in the parallelogram. The diagram is not to scale.

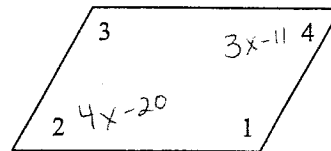


$x = 31^\circ$
 $y = 53^\circ$
 $z = 96^\circ$

23. $ABCD$ is a parallelogram. If $m\angle CDA = 57$, then $m\angle BCD = ?$. The diagram is not to scale.



24. For the parallelogram, if $m\angle 2 = 4x - 20$ and $m\angle 4 = 3x - 11$, find $m\angle 1$. The diagram is not to scale.



$$4x - 20 = 3x - 11$$

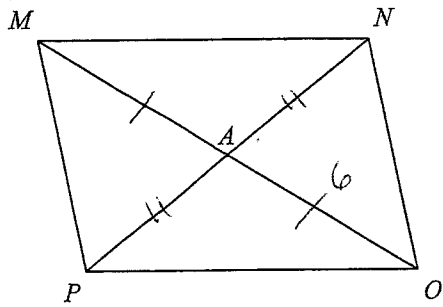
$$x = 9$$

$$m\angle 2 = 4(9) - 20 = 16^\circ$$

$$m\angle 1 = 180 - 16 = 164^\circ$$

25. Find AM in the parallelogram if $PN=15$ and $AO=6$. The diagram is not to scale.

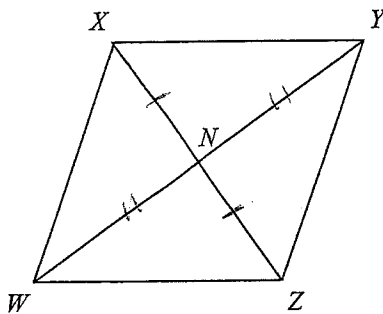
extra - don't need this



$AM = AO = 6$

26. Based on the information given, can you determine that the quadrilateral must be a parallelogram? Explain.

Given: $\overline{XN} \cong \overline{NZ}$ and $\overline{NY} \cong \overline{NW}$



yes; the diagonals of a parallelogram bisect each other (in all parallelograms).

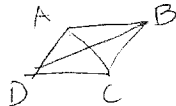
27. Which description does NOT guarantee that a quadrilateral is a square?

- A. has all sides congruent and all angles congruent
- B. is a parallelogram with perpendicular diagonals
- C. has all right angles and has all sides congruent
- D. is both a rectangle and a rhombus

could be a rhombus too

28. What is the most precise name for quadrilateral ABCD with vertices $A(-5, 2)$, $B(-3, 5)$, $C(4, 5)$, and $D(2, 2)$?

- A. rectangle
- B. parallelogram
- C. quadrilateral
- D. rhombus



sides

$AB = \sqrt{(-5+3)^2 + (2-5)^2} = \sqrt{4+9} = \sqrt{13}$

$CD = \sqrt{(4-2)^2 + (5-2)^2} = \sqrt{4+9} = \sqrt{13}$

$AD = \sqrt{(-5-2)^2 + (2-2)^2} = \sqrt{49+0} = \sqrt{49}$

$BC = \sqrt{(-3-4)^2 + (5-5)^2} = \sqrt{49+0} = \sqrt{49}$

rectangle or parallelogram

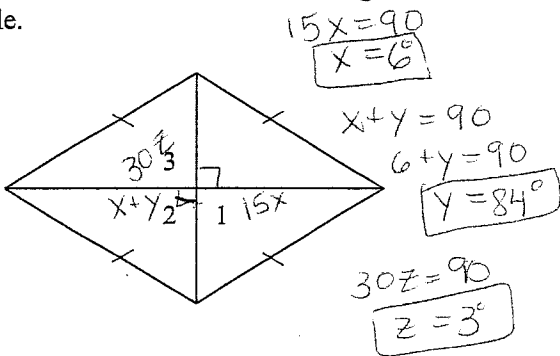
diagonals

$AC = \sqrt{(-5-4)^2 + (2-5)^2} = \sqrt{81+9} = \sqrt{90}$

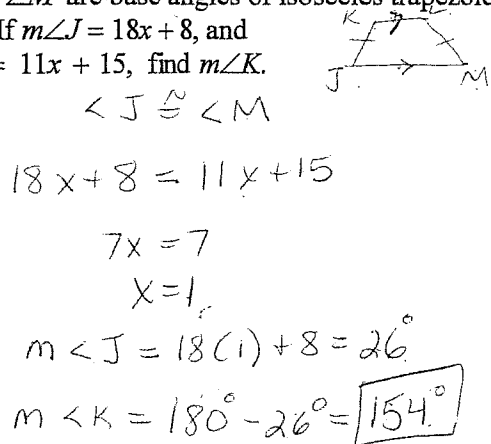
$DB = \sqrt{(-3-2)^2 + (5-2)^2} = \sqrt{25+9} = \sqrt{34}$

parallelogram ✓

29. In the rhombus, $m\angle 1 = 15x$, $m\angle 2 = x + y$, and $m\angle 3 = 30z$. Find the value of each variable. The diagram is not to scale.

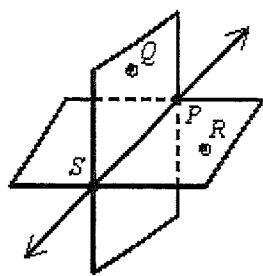


30. $\angle J$ and $\angle M$ are base angles of isosceles trapezoid $JKLM$. If $m\angle J = 18x + 8$, and $m\angle M = 11x + 15$, find $m\angle K$.

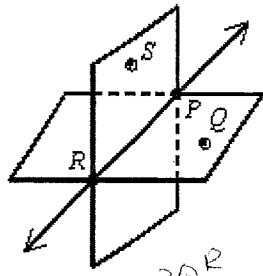


31. Which diagram shows plane PQR and plane QRS intersecting only in \overleftrightarrow{QR} ?

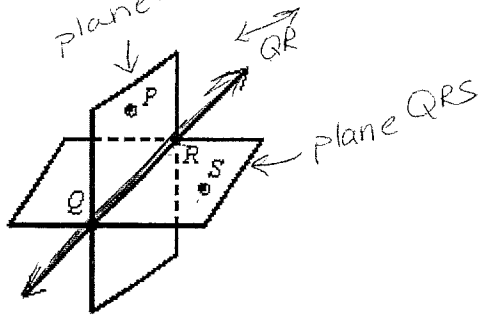
A.



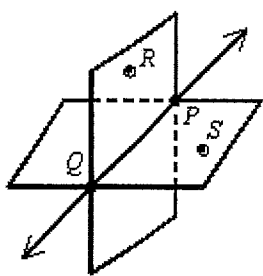
B.



C.



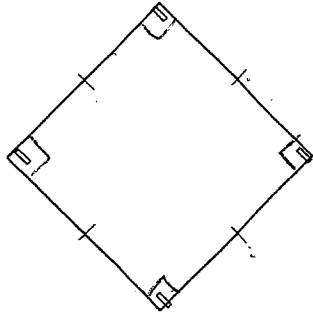
D.



Name: _____

ID: A

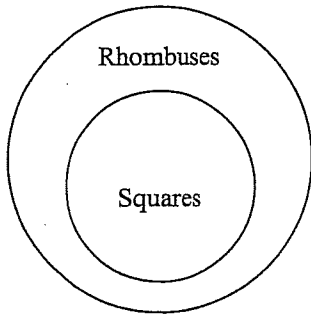
32. Classify the figure in as many ways as possible.



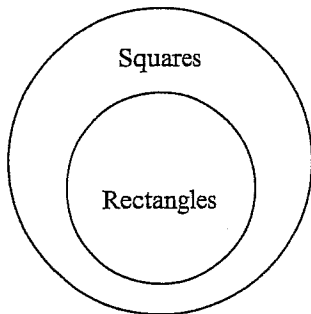
- A. rectangle, square, quadrilateral, parallelogram, rhombus
- B. rectangle, square, parallelogram
- C. rhombus, quadrilateral, square
- D. square, rectangle, quadrilateral

33. Which Venn diagram is NOT correct? (make sure you look at all 4 choices!)

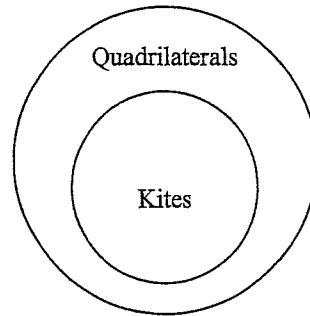
A.



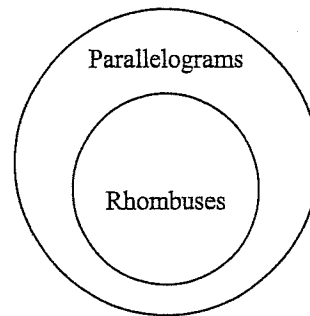
B.



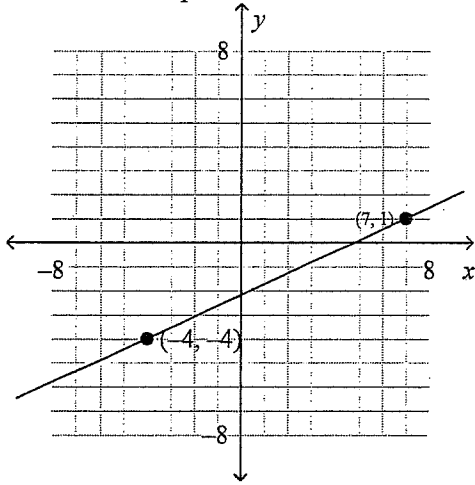
C.



D.



34. What is the slope of the line shown?



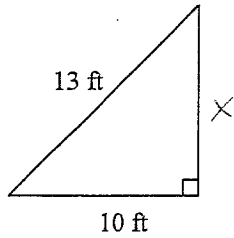
$$m = \frac{y_1 - y_2}{x_1 - x_2}$$

$$m = \frac{-4 - 1}{-4 - 7} = \frac{-5}{-11} = \frac{5}{11}$$

- A. $\frac{13}{6}$
- B. $\frac{5}{12}$
- C. $\frac{5}{11}$
- D. $\frac{11}{5}$

Find the length of the missing side. Leave your answer in simplest radical form.

35.

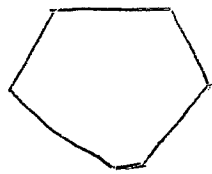


Not drawn to scale

$$\begin{aligned} x^2 + 10^2 &= 13^2 \\ x^2 + 100 &= 169 \\ x^2 &= 69 \\ x &= \sqrt{69} \end{aligned}$$

- A. $\sqrt{69}$ ft
- B. $\sqrt{269}$ ft
- C. $\sqrt{23}$ ft
- D. $\sqrt{3}$ ft

36. Find the sum of the interior angles of the figure.



6 sides

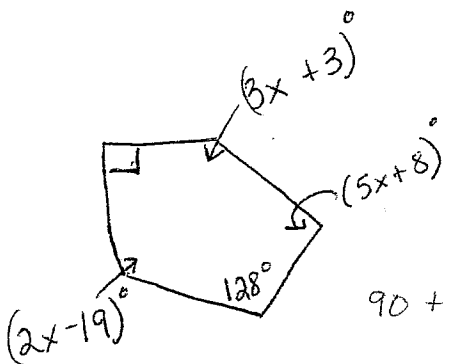
$$\begin{aligned}
 S &= 180(n-2) \\
 &= 180(6-2) \\
 &= 180(4) \\
 &= \boxed{720}
 \end{aligned}$$

37. What is the measure of one angle in a 20-gon?

$$\begin{aligned}
 S &= 180(20-2) \\
 &= 3240
 \end{aligned}$$

$$\frac{3240}{20} = \boxed{162^\circ}$$

38.



$$\begin{aligned}
 S &= 180(5-2) \\
 &= 540
 \end{aligned}$$

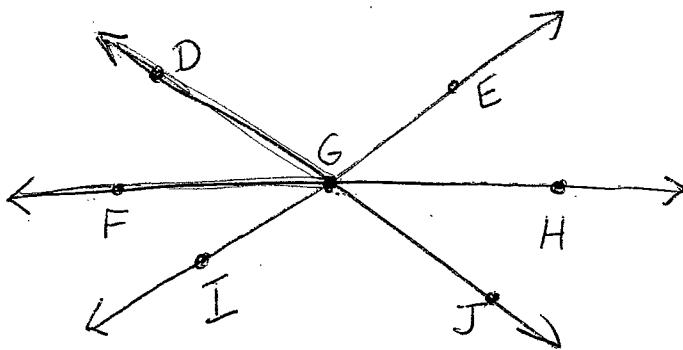
$$90 + 3x + 3 + 5x + 8 + 128 + 2x - 19 = 540$$

$$10x + 210 = 540$$

$$10x = 330$$

$$\boxed{x = 33}$$

39. Name an angle supplementary to $\angle DGF$.



$\angle DGH$

or

$\angle FGJ$

40. Use the picture above to name an angle vertical to $\angle DGF$.

$\angle H G J$

41. Are $\frac{7y}{3} = 4 + 3x$ and $7y - 3x = -1$ parallel lines?

$$7y = 3x - 1$$

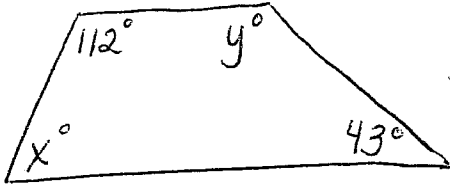
Yes

same slopes

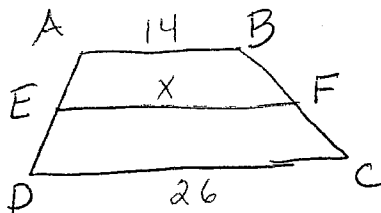
42. Find the values of x and y .

$$x \rightarrow 180 - 112 = \boxed{68^\circ = x}$$

$$y \rightarrow 180 - 43 = \boxed{137^\circ = y}$$



43. EF is the midsegment of $\square ABCD$.
 $AB = 14$ and $DC = 26$, find EF .



$$\frac{14 + 26}{2} = \frac{40}{2} = \boxed{20}$$