

# TRIANGLE + PERPENDICULAR BISECTOR THEOREMS QUIZ

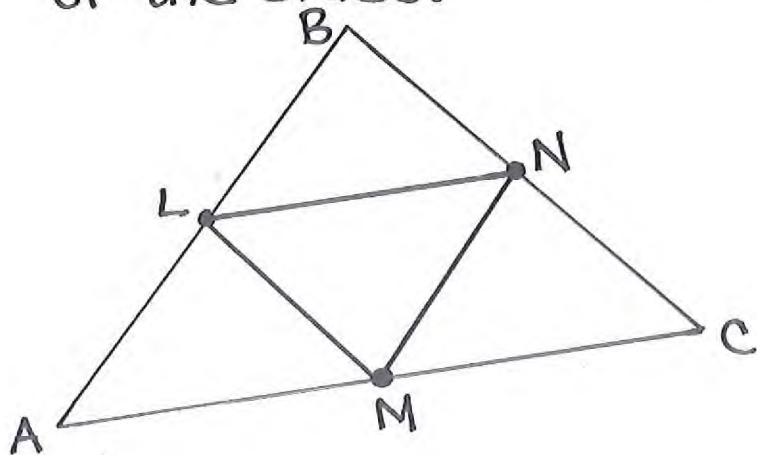
#23

NAME \_\_\_\_\_

Fill in the blanks.

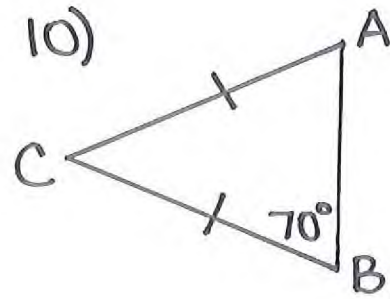
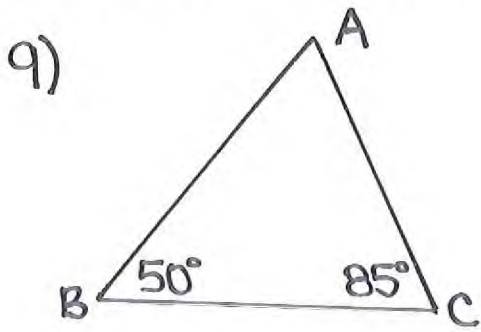
- 1) The \_\_\_\_\_ Theorem states that the sum of the interior angles of a triangle is \_\_\_\_\_.
- 2) The \_\_\_\_\_ Theorem states that a midsegment is \_\_\_\_\_ to the third side of the triangle and is \_\_\_\_\_ as long as the third side.
- 3) The \_\_\_\_\_ Theorem states that a point on the perpendicular bisector of a segment is \_\_\_\_\_ from the endpoints of the segment.
- 4) The \_\_\_\_\_ Theorem states that the base angles of an isosceles triangle are \_\_\_\_\_.

Use  $\triangle ABC$ , where  $L$ ,  $M$ , and  $N$  are midpoints of the sides.

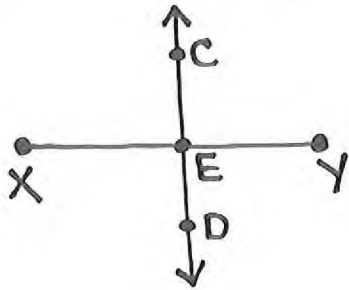


- 5) Name one of the midsegments. \_\_\_\_\_
- 6)  $\overline{LM} \parallel$  \_\_\_\_\_
- 7) If  $AC = 20$ , then  $LN =$  \_\_\_\_\_
- 8) If  $MN = 7$ , then  $AB =$  \_\_\_\_\_

Find the  $m\angle A$ . Show your work when necessary.



$\overleftrightarrow{CD}$  is the perpendicular bisector of  $\overline{XY}$ .



11)  $\overline{EY} \cong$  \_\_\_\_\_

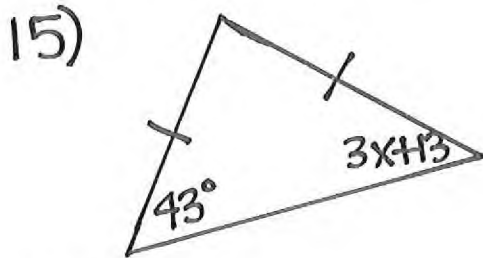
12)  $\overline{XD} \cong$  \_\_\_\_\_

13)  $\overline{CY} \cong$  \_\_\_\_\_

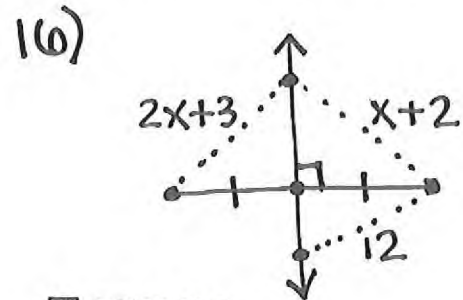
14)  $m\angle XEC =$  \_\_\_\_\_

← Your answer should be a degree measure.

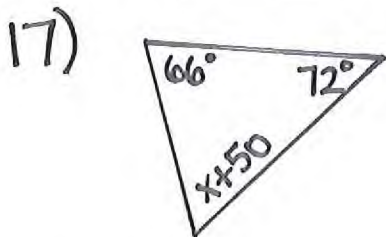
State the theorem that you would use to find  $x$ . Then find  $x$ . (Show your work when necessary.)



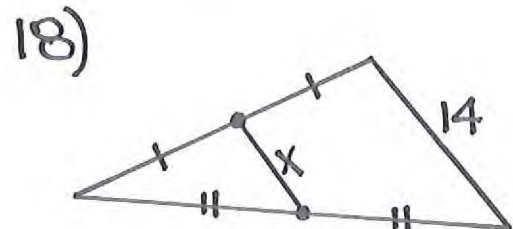
Theorem: \_\_\_\_\_  
 $x =$  \_\_\_\_\_



Theorem: \_\_\_\_\_  
 $x =$  \_\_\_\_\_



Theorem: \_\_\_\_\_  
 $x =$  \_\_\_\_\_



Theorem: \_\_\_\_\_  
 $x =$  \_\_\_\_\_

# TRIANGLE + PERPENDICULAR BISECTOR THEOREMS QUIZ

Key  
NAME \_\_\_\_\_

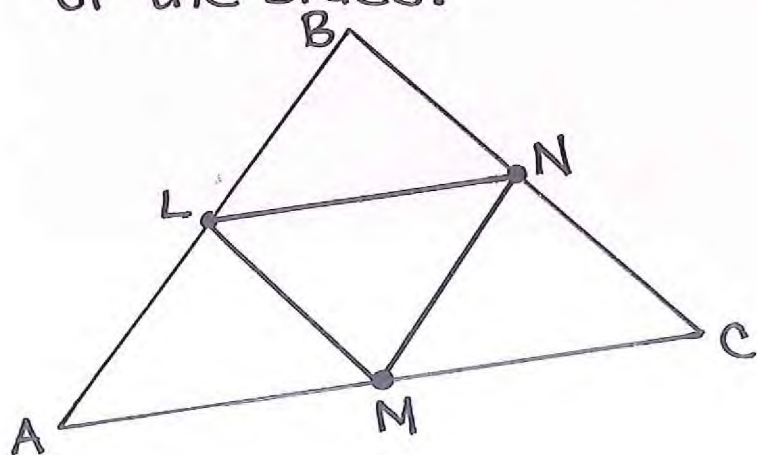
#23

Fill in the blanks.

35 pts

- 3pt 1) The Triangle Sum Theorem states that the sum of the interior angles of a triangle is  $180^\circ$ .
- 4pt 2) The Triangle Midsegment Theorem states that a midsegment is parallel to the third side of the triangle and is half as long as the third side.
- 3pt 3) The Perpendicular Bisector Theorem states that a point on the perpendicular bisector of a segment is equidistant from the endpoints of the segment.
- 3pt 4) The Isosceles Triangle Theorem states that the base angles of an isosceles triangle are congruent.

4pt Use  $\triangle ABC$ , where L, M, and N are midpoints of the sides.



5) Name one of the midsegments.  $\overline{LN}$ ,  $\overline{NM}$ ,  $\overline{ML}$

6)  $\overline{LM} \parallel$   $\overline{BC}$

7) If  $AC = 20$ , then  $LN =$  10

8) If  $MN = 7$ , then  $AB =$  14

17 pts

Find the  $m\angle A$ . Show your work when necessary.

2 pt  
9)

$$\begin{array}{r} 85 \\ +50 \\ \hline 135 \end{array}$$

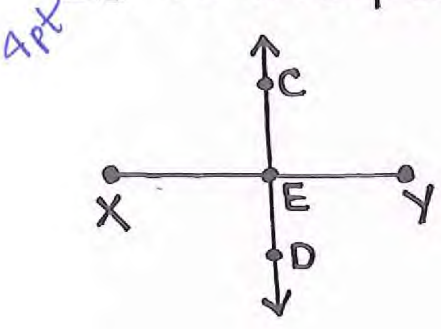
$$\begin{array}{r} 180 \\ -135 \\ \hline 45 \end{array}$$

$50 + 85 + m\angle A = 180$   
 $135 + m\angle A = 180$   
 $m\angle A = 45^\circ$

1 pt  
10)

$m\angle A = 70^\circ$

$\overleftrightarrow{CD}$  is the perpendicular bisector of  $\overline{XY}$ .



- 11)  $\overline{EY} \cong \underline{\overline{XE}}$   
 12)  $\overline{XD} \cong \underline{\overline{YD}}$   
 13)  $\overline{CY} \cong \underline{\overline{XC}}$   
 14)  $m\angle XEC = \underline{90^\circ}$

← Your answer should be a degree meas.

State the theorem that you would use to find  $x$ . Then find  $x$ . (show your work when necessary.)

3 pt  
15)

$$\begin{array}{r} 3x+13 = 43 \\ -13 \quad -13 \\ \hline 3x = 30 \\ x = 10 \end{array}$$

Theorem: Isosceles Triangle Thm  
 $x = \underline{10}$

3 pt  
16)

$$\begin{array}{r} 2x+3 = x+2 \\ x+3 = 2 \\ -3 \quad -3 \\ \hline x = -1 \end{array}$$

Theorem: Perpendicular Bisector Thm  
 $x = \underline{-1}$

3 pt  
17)

$$\begin{array}{r} 66 \\ 72 \\ +50 \\ \hline 188 \end{array}$$

$$\begin{array}{r} 66 + 72 + x + 50 = 180 \\ 188 + x = 180 \\ -188 \quad -188 \\ \hline x = -8 \end{array}$$

Theorem: Triangle Sum Thm  
 $x = \underline{-8}$

2 pt  
18)

Theorem: Triangle Midsegment Thm  
 $x = \underline{7}$