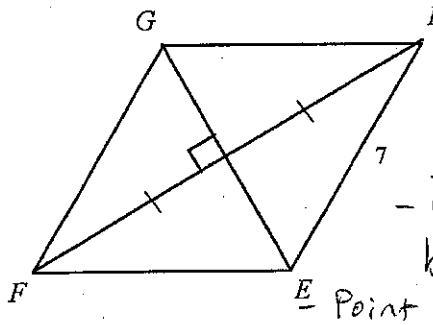
Name: Key Class: _____ Date: _____ ID: C

Honors Integrated Math 2 **Chapter 4 Test** REVIEW

Multiple Choice
Identify the choice that best completes the statement or answers the question.

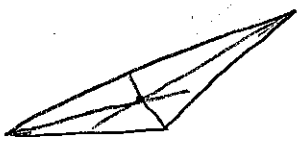
C 1. The length of $\overline{DE}$ is shown. What other length can you determine for this diagram?



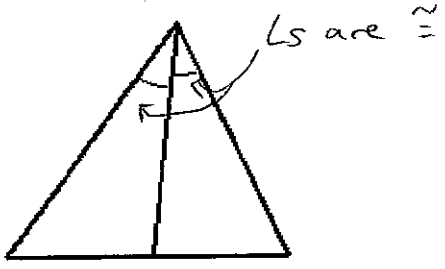
- $\overline{GE}$ is a ⊥ bisector.
- Point E is on $\overline{GE}$.
- A point on ⊥ bisector is equidistant to endpoints of segment it bisects.

A. $DG = 7$
B. $DF = 14$
C. $EF = 7$
D. No other length can be determined.

D 2. Where can the bisectors of the angles of an obtuse triangle intersect?
I. inside the triangle
II. on the triangle
III. outside the triangle
A. III only
B. I, II, or II
C. I or III only
D. I only

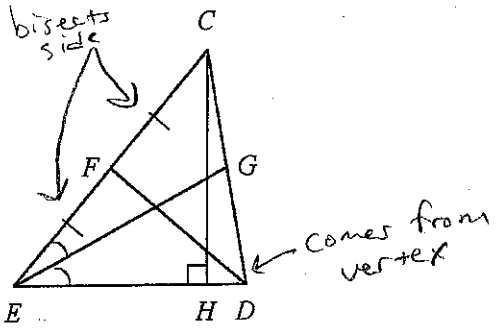


A 3. What is the name of the segment inside the large triangle?



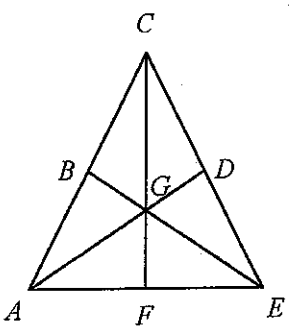
A. angle bisector
B. median
C. midsegment
D. perpendicular bisector

D 4. Name a median for ΔCDE.



A. $\overline{EG}$
B. $\overline{CF}$
C. $\overline{CH}$
D. $\overline{DF}$

B 5. In ΔACE, G is the centroid and $BE = 15$. Find BG and GE.



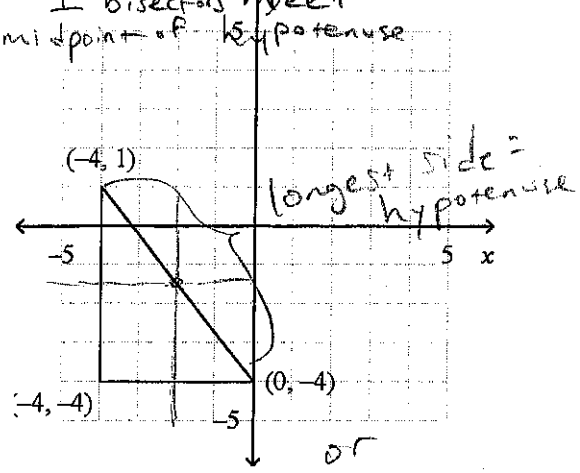
$GE = \frac{2}{3}(BE)$
$GE = \frac{2}{3}(15) = 10$
$BG = \frac{1}{3}(BE)$
$BG = \frac{1}{3}(15) = 5$

A. $BG = 10, GE = 5$
B. $BG = 5, GE = 10$
C. $BG = 7\frac{1}{2}, GE = 7\frac{1}{2}$
D. $BG = 3\frac{3}{4}, GE = 11\frac{1}{4}$

Name: _____ **ID: C**

B 6. Find the circumcenter of the triangle.

⊥ bisectors meet or midpoint of hypotenuse



or $\left(\frac{-4+0}{2}, \frac{1+(-4)}{2}\right)$

$= \left(-2, -\frac{3}{2}\right)$

A. $(-2, -4)$

(B.) $(-2, -\frac{3}{2})$

C. $(-4, -\frac{3}{2})$

D. $(-\frac{3}{2}, -2)$

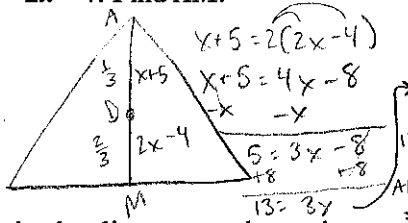
A 7. In ΔABC, centroid D is on median $\overline{AM}$. $AD = x + 5$ and $DM = 2x - 4$. Find AM.

(A) 14

B. 7

C. 15

D. $\frac{13}{3}$



$x+5 = 2(2x-4)$

$x+5 = 4x-8$

$-x \quad -x$

$5 = 3x - 8$

$+8 \quad +8$

$13 = 3x$

$\frac{13}{3} = \frac{3x}{3}$

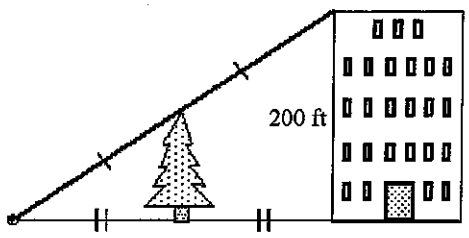
$13/3 = x$

Smallest

$AM = \frac{13}{3} + 5 + 2(\frac{13}{3}) - 4$

$= 14$

C 8. Use the information in the diagram to determine the height of the tree. The diagram is not to scale.



A. 200 ft

B. 48 ft

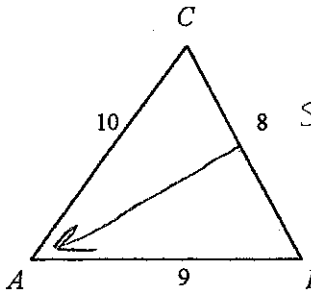
(C.) 100 ft

D. 50 ft

Tree is a midsegment

$\frac{1}{2}(200) = 100$

B 9. Name the smallest angle of ΔABC. The diagram is not to scale.



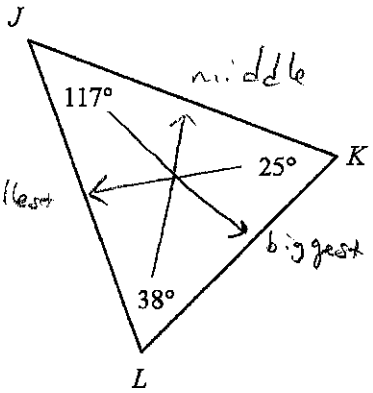
A. $\angle C$

(B.) $\angle A$

C. $\angle B$

D. Two angles are the same size and smaller than the third.

C 10. List the sides in order from shortest to longest. The diagram is not to scale.



A. $\overline{LK}, \overline{JK}, \overline{LJ}$

B. $\overline{LJ}, \overline{LK}, \overline{JK}$

(C.) $\overline{LJ}, \overline{JK}, \overline{LK}$

D. $\overline{LK}, \overline{LJ}, \overline{JK}$

A 11. Which three lengths CANNOT be the lengths of the sides of a triangle?

(A) 19 m, 5 m, 10 m $10+5 \not> 19$

B. 13 m, 10 m, 14 m

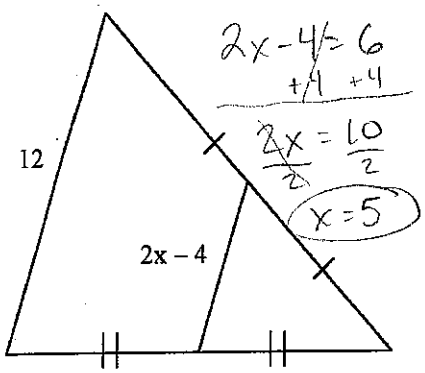
C. 7 m, 9 m, 13 m

D. 23 m, 21 m, 13 m

Name: _____ ID: C

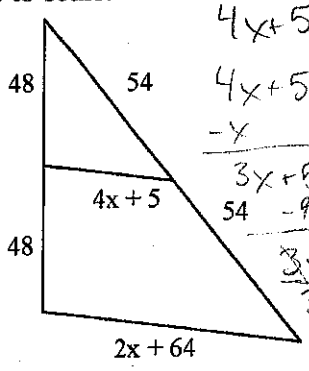
Gridded Response

12. Find the value of x. $2x-4=\frac{1}{2}(12)$



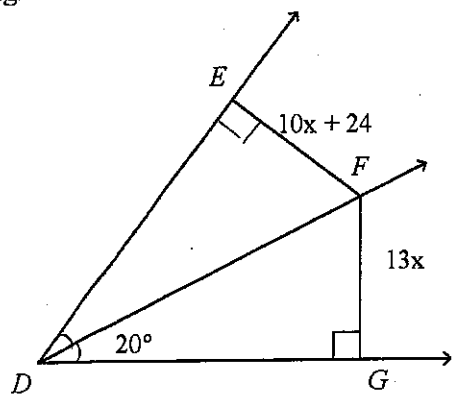
$2x-4=6$
$+4 \quad +4$
$\frac{2x}{2}=\frac{10}{2}$
$x=5$

13. Find the length of the midsegment. The diagram is not to scale.



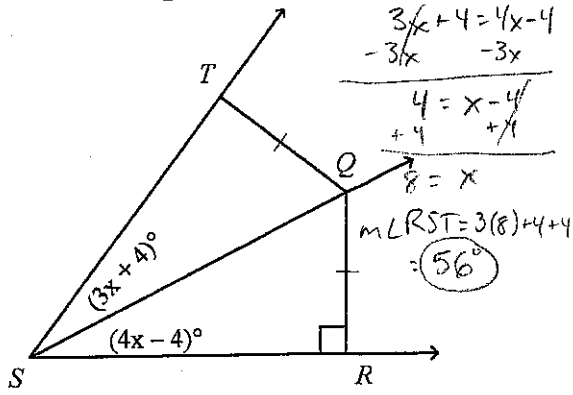
$4x+5=\frac{1}{2}(2x+64)$
$4x+5=x+32$
$-x \quad -x$
$3x+5=32$
$-5 \quad -5$
$\frac{3x}{3}=\frac{27}{3}$
$x=9$
Midsegment $=4(9)+5=41$

14. $\overrightarrow{DF}$ bisects $\angle EDG$. Find the value of x. The diagram is not to scale.



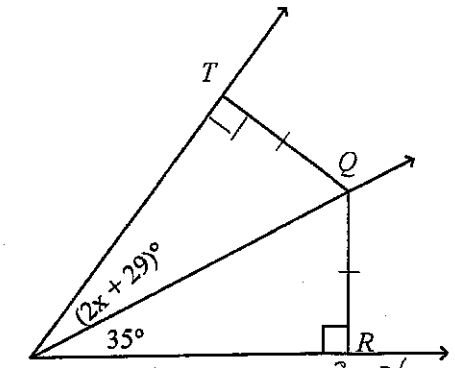
$10x+24=13x$
$-10x \quad -10x$
$\frac{24}{3}=\frac{3x}{3}$
$8=x$

15. Q is equidistant from the sides of $\angle TSR$. Find $m\angle RST$. The diagram is not to scale.



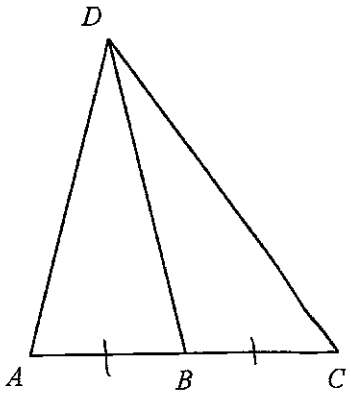
$3x+4=4x-4$
$-3x \quad -3x$
$4=x-4$
$+4 \quad +4$
$8=x$
$m\angle RST=3(8)+4+4(8)-4$
$=56°$

16. Q is equidistant from the sides of $\angle TSR$. Find the value of x. The diagram is not to scale.



$2x+29=35$
$-29 \quad -29$
$2x=6$
$\frac{2x}{2}=\frac{6}{2}$
$x=3$

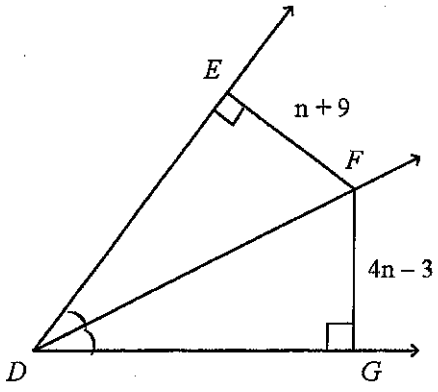
17. Find the length of $\overline{AB}$, given that $\overline{DB}$ is a median of the triangle and $AC = 54$.



$54 \div 2 = 27$

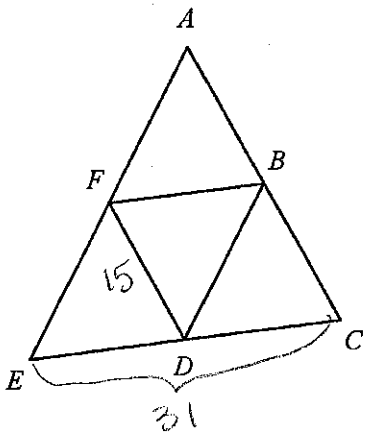
Name: _____ **ID: C**

18. $\overrightarrow{DF}$ bisects $\angle EDG$. Find FG. The diagram is not to scale.



$n + 9 = 4n - 3$
$+3 \quad +3$
$n + 12 = 4n$
$-n \quad -n$
$12 = 3n$
$\frac{12}{3} = \frac{3n}{3}$
$4 = n$
$FG = 4(4) - 3 = 13$

19. Points B, D, and F are midpoints of the sides of ΔACE. $EC = 31$ and $DF = 15$. Find AC. The diagram is not to scale.

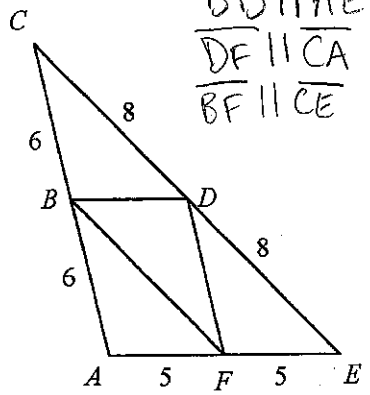


$AC = 2(15) = 30$

Name: _____ ID: C

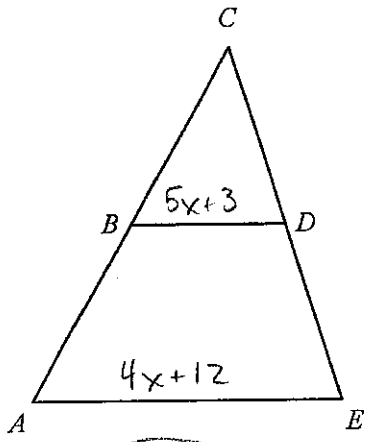
Short Answer

20. Identify parallel segments in the diagram.



$\overline{BD} \parallel \overline{AE}$
$\overline{DF} \parallel \overline{CA}$
$\overline{BF} \parallel \overline{CE}$

21. B is the midpoint of $\overline{AC}$ and D is the midpoint of $\overline{CE}$. Solve for x, given $BD = 5x + 3$ and $AE = 4x + 12$.



$5x+3 = \frac{1}{2}(4x+12)$

$5x+3 = 2x+6$

$-2x \quad -2x$

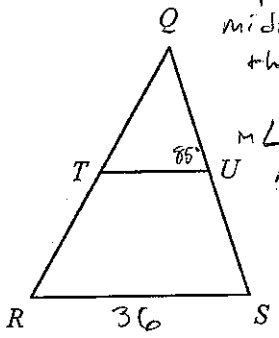
$3x+3 = 6$

$-3 \quad -3$

$\frac{3x}{3} = \frac{3}{3}$

$x = 1$

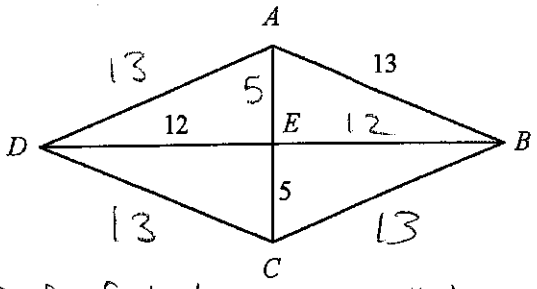
22. T is the midpoint of $\overline{QR}$. U is the midpoint of $\overline{QS}$. $RS = 36$ and $m\angle QUT = 85$. What are TU and $m\angle QSR$? Explain.



$TU = \frac{1}{2}(36) = 18$ midsegments are half the 3rd side

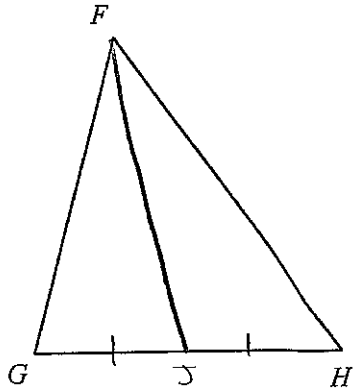
$m\angle QSR = 85°$ midsegments make corresponding $\angle$s, which are $\cong$

23. $\overline{AC}$ and $\overline{BD}$ are perpendicular bisectors of each other. Find BC, AE, DB, and DC. Justify your answers.



Def. of $\perp$ bisectors, see #1

24. In ΔFGH, draw median $\overline{FJ}$ from F to the side opposite F.



25. Two sides of a triangle have lengths 6 and 8. What lengths are possible for the third side? Explain.

$6+8 > x$

$6+x > 8$

$8+x > 6$ ✓

$14 > x$

$x > 2$