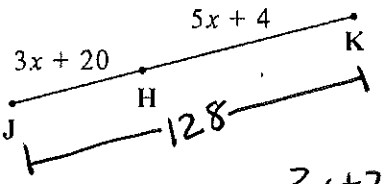
Geom Sem 1 Practice Final Name Solutions

1. Find the length of $\overline{JH}$, given that $\overline{JK} = 128$.



A. $JH = 13$

B. $JH = 8$

C. $JH = 54$

(D.) $JH = 59$

$3x+20+5x+4=128$

$8x+24=128$

$8x=104$

$x=13$

$3(13)+20=JH$

2. Find the midpoint of $\overline{XY}$ if $X(-6,4)$ and $Y(-2,3)$.

(A.) $(-4, 3.5)$

B. $(-2, 0.5)$

C. $(-8,7)$

D. $(-2, 3.5)$

$\left(\frac{-6-2}{2}, \frac{4+3}{2}\right)$

$\left(\frac{-8}{2}, \frac{7}{2}\right)$

$(-4, 3.5)$

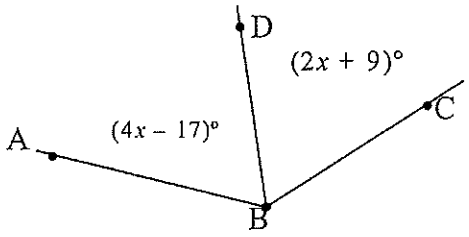
3. $\overrightarrow{DB}$ bisects $\angle ABC$. What is the value of x?

(A.) $x = 13$

B. $x = 1.7$

C. $x = 4$

D. $x = 9$



$4x-17=2x+9$

$2x=26$

$x=13$

4. Given that $m\angle D = (5x + 30)°$ and $m\angle E = (3x - 40)°$. If $\angle D$ is supplementary to $\angle E$, then find x.

A. $x = 10$

B. $x = 12.5$

C. $x = 21.25$

(D.) $x = 23.75$

$5x+30+3x-40=180$

$8x-10=180$

$8x=190$

$x=23.75$

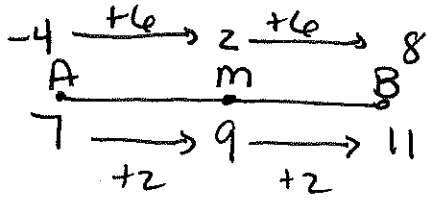
5. M is the midpoint of $\overline{AB}$. Find the coordinates of the missing endpoint B if $A(-4,7)$ and $M(2,9)$.

A. $(-1, 8)$

B. $(-10, 5)$

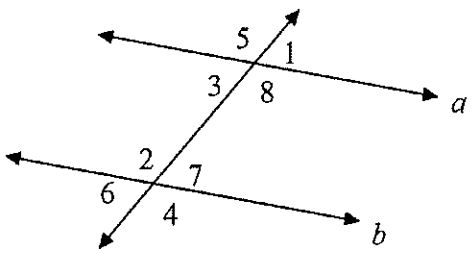
(C.) $(8, 11)$

D. $(-2, 2)$



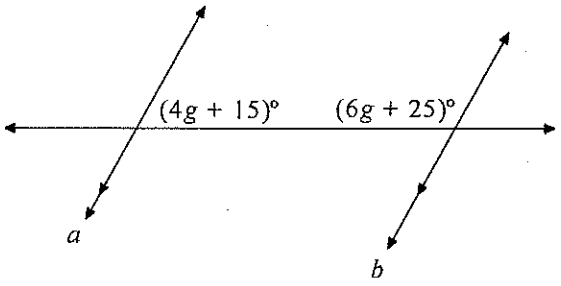
6) Given the diagram as shown, which statements below are true? **Select all that apply.**

A) ∠3 and ∠7 are alternate interior angles.
B) ∠8 and ∠4 are corresponding angles.
C) ∠8 and ∠2 are consecutive interior angles.
D) ∠3 and ∠2 are consecutive interior angles.



7) Find the value of g if $a \parallel b$.

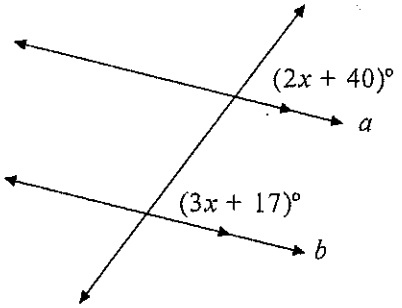
A) 4
B) 14
C) 5
D) 18



$4g+15+6g+25=180$
$10g+40=180$
$10g=140$
$g=14$

8) Solve for x if $a \parallel b$.

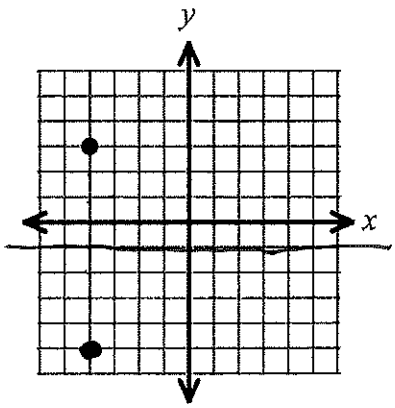
A. $x = 7$
B. $x = 11.2$
C. $x = 57$
D. $x = 23$



$2x+40=3x+17$
$23=x$

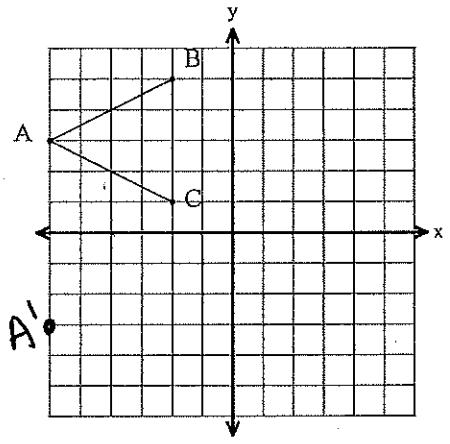
9) Find the coordinates of the image of the point $B(-4, 3)$ when it is reflected across the line $y = -1$.

A. $(-4, -5)$
B. $(-4, -3)$
C. $(2, 3)$
D. $(-5, -3)$



10) ΔABC is reflected across the x-axis. What are the coordinates of the image of A?

A. $A'(-3, 6)$
B. $A'(-6, -3)$
C. $A'(6, 3)$
D. $A'(6, -3)$



11. Which description below correctly describes the movement of a translation along the vector $\langle -2, 5 \rangle$?

A. Down 2, right 5
B. Right 2, down 5
C. Left 2, up 5
D. Left 2, down 5

12. Find the length of PQ if $P(4, 1)$ and $Q(8, -3)$. Write your answer as a decimal rounded to one decimal place, if needed. Use the distance formula or the Pythagorean Theorem.

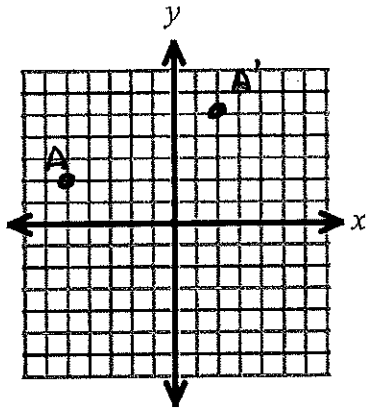
A. 8
B. 4
C. 4.5
D. 5.7

$\sqrt{(8-4)^2+(-3-1)^2}$

$\sqrt{16+16}$

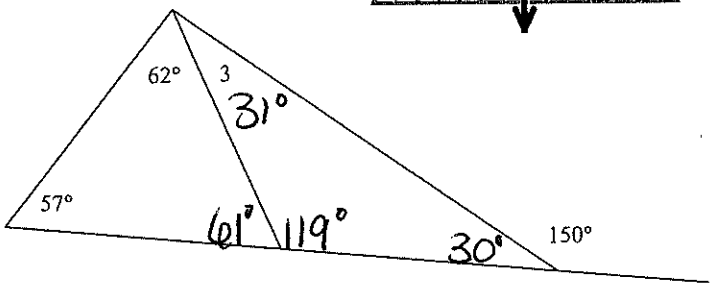
$\sqrt{32} \approx 5.6569$

13. Given point A at $(-5, 2)$. If A is rotated 90 degrees clockwise about the origin, then what are the coordinates of A'?



A. (-2, 5)
B. (5, 2)
C. (2, 5)
D. (-5, -2)

14. Find $m\angle 3$ in the diagram at the right.



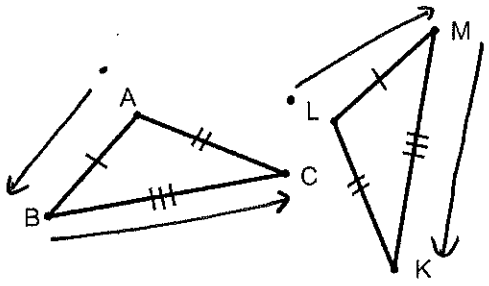
A. 30°
B. 31°
C. 119°
D 61°

15. Given that $\Delta ECD \cong \Delta PQR$, then complete this statement: $\angle C \cong$ _____

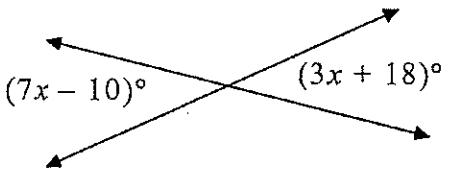
A. $\angle Q$ **B.** $\angle E$ **C.** $\angle P$ **D.** $\angle R$

16. Refer to the figure to complete the congruence statement, $\Delta ABC \cong$ _____.

A. ΔLKM
B. ΔMLK
C. ΔKLM
D. ΔLMK



17. Find x in the diagram shown.



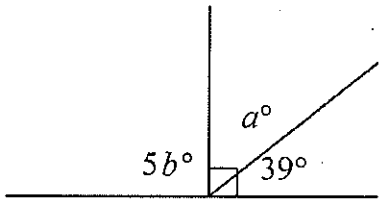
A. 17.2
B. 7
C. 14.8
D. 13

$7x-10=3x+18$
$4x=28$
$x=7$

18. Find a and b.

A. $a = 51; b = 90$
B. $a = 61; b = 90$
C. $a = 61; b = 18$
D. $a = 51; b = 18$

$5b=90$
$b=18$



$a+39=90$
$a=51$

19. Complete the syllogism below.

- If Michelle gets all As and Bs, then she will get to choose where to go to dinner.
- If Michelle gets to choose where to go to dinner, then she will choose an Italian restaurant for dinner.

A. If Michelle gets all As and Bs, then she will choose an Italian restaurant for dinner.
B. If Michelle will choose an Italian restaurant for dinner, then she gets all As and Bs.
C. If Michelle gets to choose where to go to dinner, then she will choose an Italian restaurant.
D. If Michelle gets all As and Bs, then she will get to choose where to go to dinner.

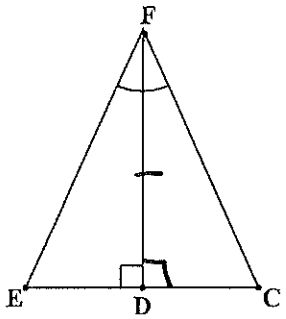
20. Which of the sets of sides below would form a real triangle? Select all that apply.

A. 3, 3, 3
B. 5, 5, 10
C. 7, 8, 9
D. 3, 7, 11

$3+3>3$ $6>3$ ✓
$5+5>10$ $10>10$ ×
$7+8>9$ $15>9$ ✓
$3+7>11$ $10>11$

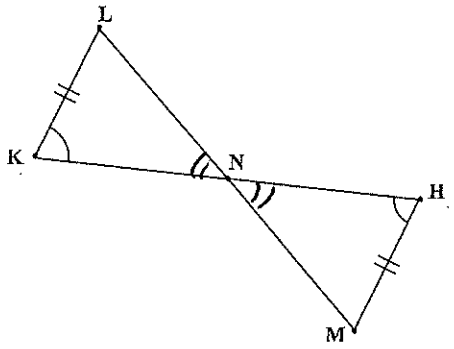
21. What postulate or theorem could be used to prove that the triangles shown are congruent?

A. SSS
B. SAS
C. ASA
D. AAS
E. HL



22. What postulate or theorem could be used to prove that the triangles shown are congruent?

A. SSS
B. SAS
C. ASA
D. AAS
E. HL



23) Write the equation of the line, in (h, k) form, that is perpendicular to $y = -\frac{2}{5}(x - 1) + 4$ and passes through $(8, -11)$.

$y = \frac{5}{2}(x - 8) - 11$

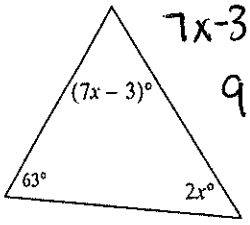
A. $y = -\frac{2}{5}(x - 8) - 11$
B. $y = \frac{5}{2}(x - 8) - 11$
C. $y = \frac{2}{5}(x + 8) + 11$
D. $y = -\frac{5}{2}(x + 8) + 11$

24) Write the equation of the line, in (h, k) form, that is parallel to $y = 3(x + 2) - 5$ and passes through $(-7, -6)$.

$y = 3(x+7) - 6$

A. $y = -3(x + 7) - 6$
B. $y = \frac{1}{3}(x + 7) = 6$
C. $y = 3(x - 7) + 6$
D. $y = 3(x + 7) - 6$

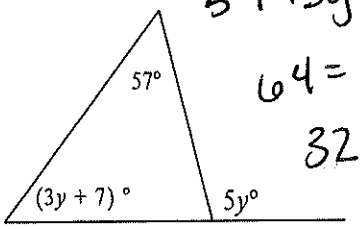
25) Find x.



$7x - 3 + 63 + 2x = 180$
$9x + 60 = 180$
$9x = 120$
$x = 13.\overline{3}$

A. $13.\overline{3}$
B. $10.\overline{3}$
C. $7.\overline{3}$
D. $3.\overline{3}$

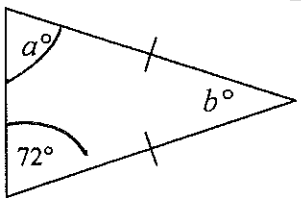
26) Find y.



$57 + 3y + 7 = 5y$
$64 = 2y$
$32 = y$

A. 32
B. 14.5
C. 23
D. 7.5

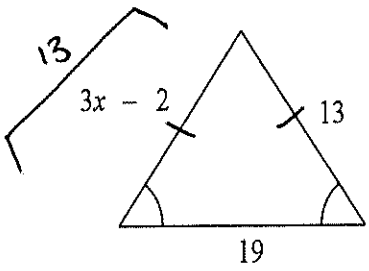
27) Find a and b in the triangle shown. **Select all that apply.**



$72 + 72 + b = 180$
$b = 36$
$a = 72$

A. $a = 108$
B. $a = 72$
C. $a = 36$
D. $b = 108$
E. $b = 72$
F. $b = 36$

28) Find x in the triangle shown below.



$3x - 2 = 13$
$3x = 15$
$x = 5$

A. 5
B. 6
C. 7
D. 13

29) Find the perimeter of the triangle from #28.

$13 + 13 + 19$
45

A. 27
B. 45
C. 51
D. 180

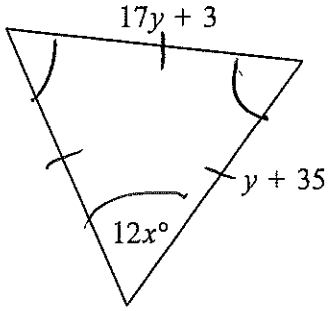
For #30 – 31: use the equilateral triangle shown to the right.

30) Find x.

A. 60
B. 32
C. 16
D. 5

$12x = 60$

$x = 5$



31) Find y.

A. 3.18
B. 25
C. 2
D. 4

$17y + 3 = y + 35$

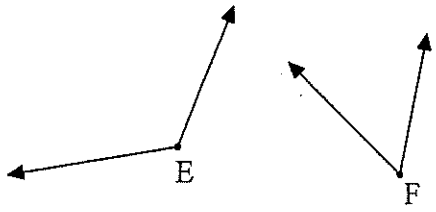
$16y = 32$

$y = 2$

32) Multiple Choice: What is the reason for Step 2?

Given: $\angle E$ is supplementary to $\angle F$.

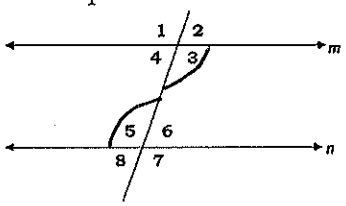
Prove: $m\angle E + m\angle F = 180°$



Statement	Reason
1. $\angle E$ is supplementary to $\angle F$.	1. Given
2. $m\angle E + m\angle F = 180°$	2.

A) If two angles form a linear pair, then they are supplementary.
B) If two angles are supplementary, then they have a sum of 180 degrees.
C) If two angles have a sum of 180 degrees, then they are supplementary.
D) If two angles are supplementary, then they form a linear pair.

For #33 – 35: Complete the proof. Use the choices below.

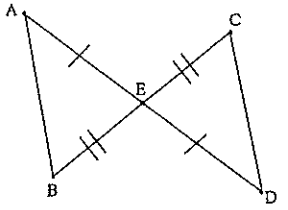


Given: $\angle 3 \cong \angle 5$
Prove: $m \parallel n$

Statement	Reason
1. #33 C	1. #34 A
2. $m \parallel n$	2. #35 H

Options for #33 – 35: Select the correct statement or reason. Not all options will be used. Write the letter of your answer in proof above.

A) Given B) $m \parallel n$ C) $\angle 3 \cong \angle 5$
D) If lines are parallel, then corresponding angles are congruent.
E) If lines are parallel, then alternate interior angles are congruent.
F) If lines are parallel, then consecutive interior angles are supplementary.
G) If corresponding angles are congruent, then lines are parallel.
H) If alternate interior angles are congruent, then lines are parallel.
I) If consecutive interior angles are supplementary, then lines are parallel.



For #36 – 38: Complete the proof. Use the choices below.

Given: $\overline{BE} \cong \overline{EC}$; $\overline{AE} \cong \overline{ED}$

Prove: $\overline{AE} \cong \overline{ED}$

Statement	Reason
1) $\overline{BE} \cong \overline{EC}$; $\overline{AE} \cong \overline{ED}$	1) Given
2) $\angle AEB \cong \angle DEC$	2) **#36)**
3) $\Delta ABE \cong \Delta DCE$	3) **#37)**
4) $\overline{AE} \cong \overline{ED}$	4) **#38)**

36) Multiple Choice: Select the correct reason.

A) If lines are perpendicular, then right angles are formed.
B) If a point is a midpoint, then the segment is divided into two congruent segments.
C) If two angles are vertical, then they are congruent.
D) If a ray bisects an angle, then it is divided into two congruent angles.

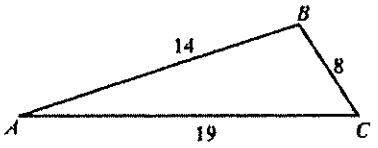
37) Multiple Choice: Select the correct reason.

A) SSS B) SAS C) ASA
D) AAS E) HL F) CPCTC

38) Multiple Choice: Select the correct reason.

A) SSS B) SAS C) ASA
D) AAS E) HL F) CPCTC

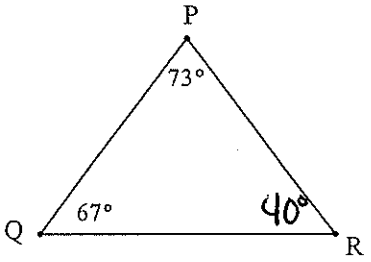
39) Which angle is the smallest in the triangle shown to the right?



A) $\angle A$
B) $\angle B$
C) $\angle C$
D) Not enough information is given to answer this question.

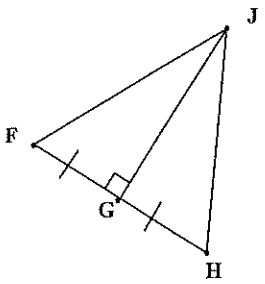
40) What is the smallest side in the triangle shown to the right?

Note: The triangle might not be drawn to scale.



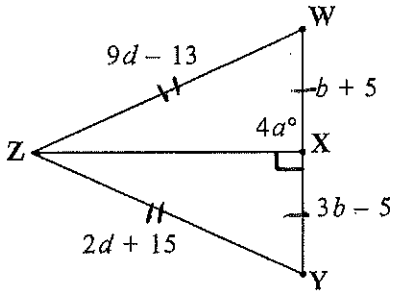
A) $\overline{PR}$
B) $\overline{QR}$
C) $\overline{QP}$
D) Not enough information is given to answer this question.

41) Which statement below is true for the diagram shown?



A) $\overline{FJ}$ is the perpendicular bisector of $\overline{GH}$.
B) $\overline{FH}$ is the perpendicular bisector of $\overline{GJ}$.
C) $\overline{JG}$ is the perpendicular bisector of $\overline{GH}$.
D) $\overline{JG}$ is the perpendicular bisector of $\overline{FH}$.

For #42 – 44, use the diagram shown, where $\overline{ZX}$ is the perpendicular bisector of $\overline{WY}$.



42) Find a.

A) 90 B) 45
C) 22.5 D) 12.5

$4a = 90$
$a = 22.5$

43) Find b.

A) 22.5 B) 5
C) 2.5 D) 45

$b + 5 = 3b - 5$
$10 = 2b$
$5 = b$

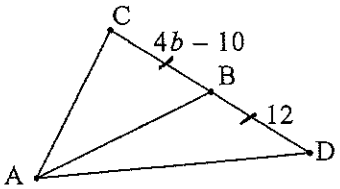
44) Find d.

A) 2 B) 4
C) 6 D) 8

$9d - 13 = 2d + 15$
$7d = 28$
$d = 4$

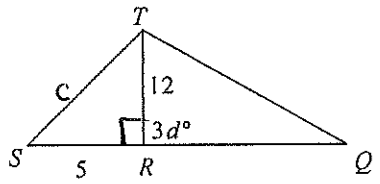
45) Find b if $\overline{AB}$ is a median.

A) 5.5
B) 0.67
C) 0.5
D) 4.5



$4b - 10 = 12$
$4b = 22$
$b = 5.5$

For #46 – 48: Find the requested values if $\overline{TR}$ is an altitude.



46) Find TS.

A) 5 B) 10
C) 12 D) 13

$5^2 + 12^2 = c^2$
$25 + 144 = c^2$
$\sqrt{169} = \sqrt{c^2}$
$13 = c$

47) Find d.

A) 4 B) 15
C) 30 D) 90

$3d = 90$
$d = 30$

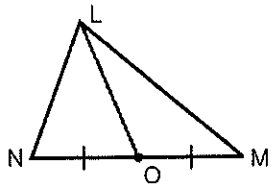
48) Find the area of ΔRST.

A) 17 B) 25
C) 30 D) 60

$\frac{1}{2}(5)(12)$
30

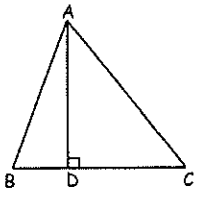
49) What is the best name for segment $\overline{LO}$?

A) altitude B) median C) midpoint D) perpendicular bisector



50) What is the best name for segment $\overline{AD}$?

A) altitude B) median C) midpoint D) perpendicular bisector



Answers:

1) D	2) A	3) A	4) D	5) C	6) A, B, D	7) B
8) D	9 A	10) B	11) C	12) D	13) C	14) B
15) A	16) D	17) B	18) D	19) A	20) A, C	21) C
22) D	23) B	24) D	25) A	26) A	27) B, F	28) C
29) B	30) D	31) C	32) B	33) C	34) A	35) H
36) C	37) B	38) F	39) A	40) C	41) D	42) C
43) B	44) B	45) A	46) D	47) C	48) C	49) B 50) A