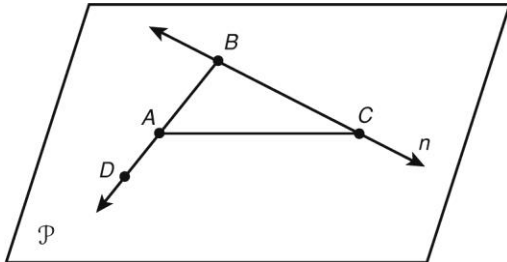# Geometry

1st Semester Review

Circle the best answer.

Use the figure for Exercises 1–4.
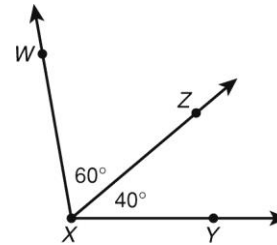

1. What is another name for plane P ?

   A plane *B*   C plane *ABC*

   B plane *n*   D plane *BAD*

2. Which segment is on line *n*?

   A $\overline{DA}$

   B $\overline{BC}$

3. Which is the name of a ray with endpoint B?

   A $\overrightarrow{AB}$ C $\overline{DB}$

   B $\overleftrightarrow{BC}$ D $\overrightarrow{BA}$

4. Name the intersection of line *n* and $\overline{AC}$.

   A point *B*

   B point *C*

5. *F* is between *E* and *G*, *EF* = 7, and *FG* = 6. Find *EG*.

   A 6   C 13

   B 7   D 26

6. $\overline{LM} \cong \overline{QP}$ and *LM* = 12. Find *QP*.

   A 6

   B 12
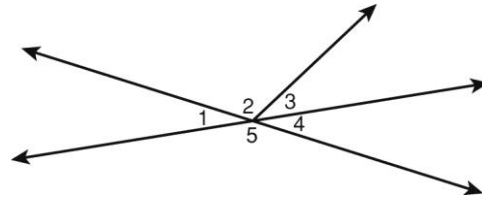
7. Which term describes ∠*LMP*?
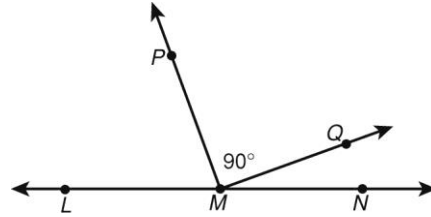
   A acute

   B obtuse

8. What is m∠*WXY*?

   A 20°   C 60°

   B 40°   D 100°

9. Which pair of angles is adjacent?

   A ∠1 and ∠2

   B ∠1 and ∠3

10. If m∠*A* = 47°, what is the measure of a complement of ∠*A*?

   A 43°

   B 133°

11. If $m\angle B = x°$, what is the measure of a supplement of $\angle B$?

   A 90°   C $(90 - x)°$

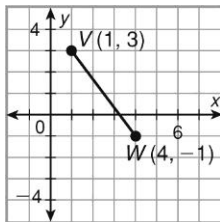   B 180°   D $(180 - x)°$

12. What are the coordinates of the midpoint of $\overline{GH}$ with endpoints $G(-2, 5)$ and $H(4, 1)$?

   A $(-6, 4)$ C $(-3, 2)$

   B $(1, 3)$ D $(2, 6)$

13. M is the midpoint of $\overline{RS}$ and R has coordinates $(2, 5)$. M has coordinates $(6, 9)$. Find the coordinates of S.
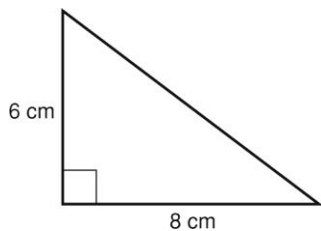
   A $(4.5, 6.5)$ C $(4, 4)$

   B $(10, 13)$ D $(16, 16)$

14. Use the Distance Formula to find VW.

   A 5   C 9

   B $\sqrt{29}$ D 25

15. Use the Pythagorean Theorem to find the length of the hypotenuse.

   A 10   C 48

   B 14   D 100

16. What group of items is next in the pattern?

A ●●●●

B ●●●

17. Which conjecture is true?

   A An even number plus 3 is always even.

   B An even number plus 3 is always prime.

   C An even number plus 3 is always odd.

   D A prime number plus 3 is always even.

18. Which conditional statement is true?

   A If two angles are acute, then they are complementary.

   B If an angle is acute, then its measure is less than 90°.

19. What is the converse of "If there are clouds in the sky, then it is raining"?

   A If it is raining, then there are clouds in the sky.

   B If it is not raining, then there are clouds in the sky.

   C If it is raining, then there are no clouds in the sky.

   D If it is not raining, then there are no clouds in the sky.

20. Given: If two angles are complementary, then both angles measure less than 90°. Angles that measure less than 90° are acute. $\angle 1$ and $\angle 2$ are complementary. What conclusion can be drawn?

   A Only $\angle 1$ is acute.

   B Only $\angle 2$ is acute.

   C Both angles are acute.

   D Neither angle is acute.

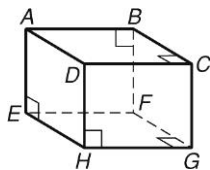21. Which item can be given as a statement in a proof?

A Given

B Def. of comp. $\angle\!s$

C $m\angle 1 + m\angle 2 = 180°$

D Trans. Prop. of $=$

22. Given the partially completed two-column proof, which is the reason for Step 3?

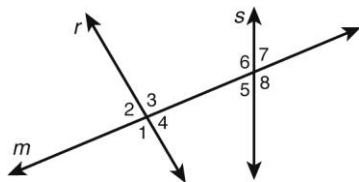| Statements	Reasons
1. $\overline{AE} \cong \overline{FB}$	1. Given
2. $\overline{FB} \cong \overline{EF}$	2. Given
3. $\overline{AE} \cong \overline{EF}$	3. ___?___

    A Def. of midpoint

    B Trans. Prop. of $\cong$

23. Classify $\overline{AB}$ and $\overline{CD}$.

    A skew segments

    B parallel segments

    C perpendicular segments

   D intersecting segments

Use the figure for Exercises 24–26.

24. How are line m and line s related?

    A intersecting   C perpendicular

    B parallel   D skew

25. Identify the transversal.

    A line m B line s

26. What type of angle pair are $\angle 3$ and $\angle 5$?

    A alternate interior angles

B corresponding angles

C alternate exterior angles

D same-side interior angles

27. Which correctly completes the sentence? If two parallel lines are cut by a transversal, then the pairs of corresponding angles are _____.

    A complementary

    B congruent

Use the figure for Exercises 28 and 29.
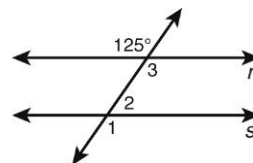
28. Given $r \parallel s$, what is the measure of $\angle 1$?

    A 55°   B 125°

29. Given $r \parallel s$, which angle is supplementary to $\angle 3$?

    A $\angle 1$ B $\angle 2$

30. Given: $\angle 1 \cong \angle 2$. Which theorem or postulate proves that lines r and s are parallel?
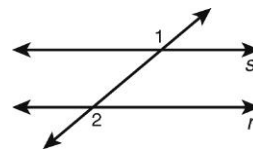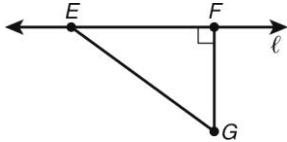

    A Converse of the Corresponding Angles Postulate

    B Converse of the Alternate Interior Angles Theorem

    C Converse of the Alternate Exterior Angles Theorem

    D Converse of the Same-Side Interior Angles Theorem

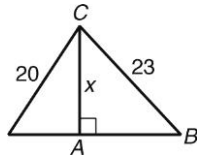31. Which value of x makes lines m and n parallel?
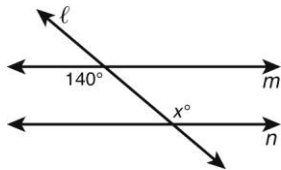
A 40°　　　　　　B 140°

32. Which segment's length gives the distance from *G* to line ℓ?
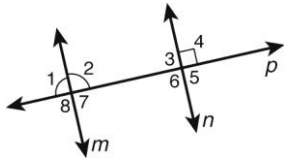
A $\overline{GF}$　　　　　　B $\overline{GE}$

33. Which inequality is correct?
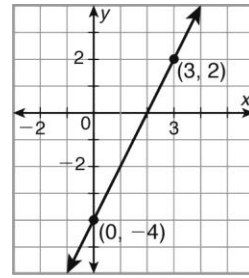
A $x < 23$　　　　　　B $x > 20$

34. If $\angle 1 \cong \angle 2$ and $\angle 4$ is a right angle, which postulate or theorem is used to prove *m* || *n*?

A Alt. Int. $\underline{\angle s}$ Thm.

B 2 lines $\perp$ to same line $\rightarrow$ 2 lines are ||

C Corr. $\underline{\angle s}$ Post.

D Vert. $\underline{\angle s}$ Thm.

35. What type of slope does the line have?

A positive　　　　　　C zero

B negative　　　　　　D undefined

36. What is the slope of the line through (3, 6) and (4, 2)?

A -4　　　　　　C $\dfrac{8}{7}$

B $-\dfrac{1}{4}$　　　　　　D 4

37. Given a line with a slope of 2, what is the slope of a line parallel to the given line?

A -2　　　　　　C $\dfrac{1}{2}$

B $-\dfrac{1}{2}$　　　　　　D 2

38. Which equation is in slope-intercept form?

A $y = -\dfrac{2}{3}x + 9$

B $y + 2 = \dfrac{2}{3}(x - 6)$

39. A line parallel to the *x*-axis could contain which point?
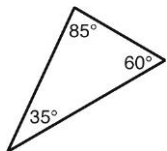
A (0, 2)　　　　　　B (2, 0)

40. Which line is perpendicular to $y = 2x + 4$?

A $y = 2x - 6$　　　　　　B $y = -\dfrac{1}{2}x + 7$

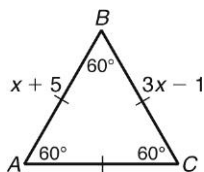41. What is the equation of the line through (−1, 8) and (4, 18)?

A $y = \dfrac{1}{2}x + 10$　　　　　　C $y = 2x + 10$

B $x + 2y = 10$　　　　　　D $-2x + y = -10$

42. Classify the triangle.

    A isosceles acute

    B isosceles obtuse

    C scalene acute

    D scalene obtuse

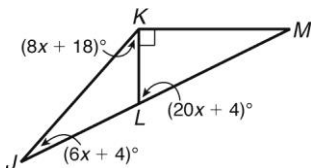**Use the figure for Exercises 43 and 44.**

43. Which is NOT a correct classification for the triangle?

    F acute   H isosceles

    G equiangular   J scalene

44. What is the length of side $\overline{BC}$?

    A 3   C 10

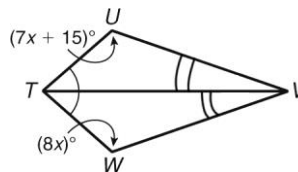   B 8   D 24

Use the figure for Exercises 45 and 46.

45. What is m∠KLM?

    F 3   H 42

    G 22   J 64

46. What is m∠M?

    A 0.2   C 26

    B 4   D 64

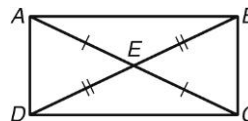47. What is the m∠U?

    F 5   H 40

    G 15   J 120

48. Two congruent triangles have the following corresponding parts: $\overline{RS} \cong \overline{UV}$, $\overline{RT} \cong \overline{UW}$, and ∠R ≅ ∠U. Which is NOT necessarily a correct congruence statement?

    A △RST ≅ △UVW

    B △STR ≅ △VWU

    C △TRS ≅ △VWU

    D △TRS ≅ △WUV

49. △KLM ≅ △RST. m∠L = $(3x + 15)°$ and m∠S = $(6x + 3)°$. What is the value of x?

    F 2   H 6

    G 4   J 27

Use the figure for Exercises 50–52.

50. If $AD = 5y + 7$ and $BC = 7y - 3$, what must the value of y be to prove △AED ≅ △CEB by the SSS Postulate?
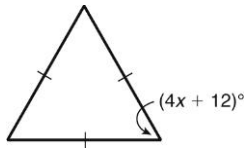
    A 2   C 17

    B 5   D 32

51. What postulate or theorem justifies the congruence statement △ABE ≅ △CDE?

    F SSS   H ASA

    G SAS   J AAS

52. If $\angle B$ and $\angle C$ are right angles, what additional congruence statement would allow you to prove $\triangle DCB \cong \triangle ABC$ by the ASA postulate?
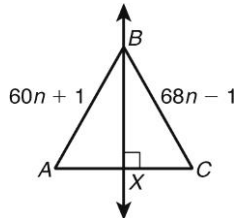
A $\angle DBC \cong \angle ACB$

B $\angle BDC \cong \angle CAB$

C $\overline{AB} \cong \overline{DC}$

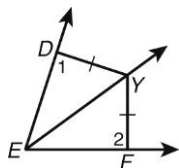D $\overline{AC} \cong \overline{DB}$

53. What is the value of x?

$(4x + 12)°$

A 12   C 18

B 19.5   D 60

54. $\overline{BX}$ is the perpendicular bisector of $\overline{AC}$. What is the value of n?
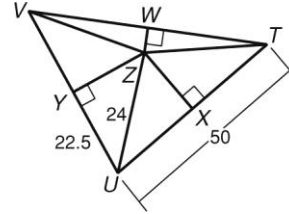

$60n + 1$ $68n - 1$

A 0   C 4

B $\dfrac{1}{4}$ D Not here

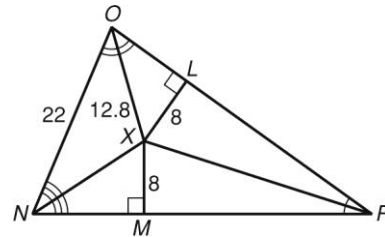55. What information is sufficient to allow you to conclude that Y is on the bisector of $\angle E$?

A $m\angle 1 = 90°$

B $m\angle 2 = 90°$

C $m\angle 1 = 90°$ and $m\angle 2 = 90°$

D $m\angle FYE + m\angle DYE = 90°$

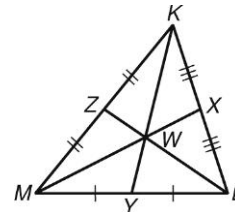56. Point Z is the circumcenter of $\triangle TUV$. What is the value of UV?

F 33.75   H 50

G 45   J Not here

57. What is the distance from X to $\overline{ON}$?

A 8   C 11

B 12.8   D 12

58. If $WX = 3.6$, $WL = 6.1$, and $KW = 8$, what is the value of ZW?

F 3.05   H 4

G 3.6   J 4.06