Geometry CP ISLO EXAM REVIEW – PART 1

Name	Taachar
	Teacher

Review Packet:

- 1. The format of the review packet is not the format of the exam.
- 2. Please refer back to previous notes, homework, and class examples for more practice.
- 3. Complete the packet to the best of your ability on your own, then bring your remaining questions to your teacher(s).

Exam Helpful Hints:

- 1. Read directions very carefully.
- 2. When necessary, draw a diagram!
- 3. *Use* the choices of multiple choice questions.

Exam Info:

- 1. Format: The exam will include multiple choice as well as open-ended questions.
- 2. Students will be allowed to use calculators (graphing calculators will be required to clear all memory!) You MUST bring your own! You will not be provided with one.
- 3. If you are found with any materials regarding this exam, or in your calculator, you will fail the exam with a ZERO.
- 4. No Cell phones are permitted in the exam area. Leave them at home or in your lockers.

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inverse	conditional		
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contrapositive	inverse		
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Vocabulary: You are responsible for the following terms, theorems and postulates.

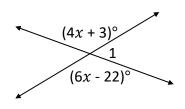
Points, lines and planes

For questions 1-9, use the diagram to determine if the statement is true or false.

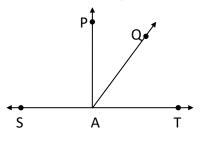
- 1. \overline{BC} and \overline{GE} are parallel
- 2. \overline{AB} and \overline{CD} are perpendicular
- 3. \overline{GE} and \overline{HD} are skew
- 4. *B*, *J*, and *C* are collinear
- 5. A, G, and E are collinear
- 6. *B*, J, *H*, and *G* are coplanar
- 7. A, G, H and D are coplanar
- 8. K is between A and B
- 9. There are no parallel planes in this diagram.

Angles

10. Use the diagram. Find the value of *x* and m∢1.



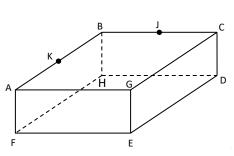
11. Use the diagram. \overline{AQ} bisects $\measuredangle PAT$, $m \measuredangle QAT = 5x - 5$ and $m \measuredangle PAQ = x + 19$. Find the value of x, and the $m \measuredangle PAT$.



12. Two angles are supplementary. One angle is 5 less than 4 times the other. Find the measure of each angle.

13. Two angles are complementary. One angle is 4 times the other. Find the measure of the larger angle.

For questions 14-19, use the diagram. Given that $\overline{BX} \perp \overline{AC}$ and $\overline{AD} \cong \overline{DB}$, identify each of the following.

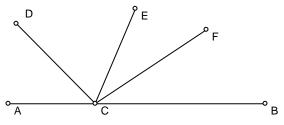


14. A right angle

15. Two congruent supplementary angles

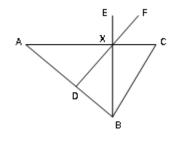
16. Two non-congruent supplementary angles

- 17. Two adjacent complementary angles
- 18. A pair of vertical angles
- 19. A midpoint
- 20. In the figure *below* \overline{CE} bisects $\triangleleft DCB$ and \overline{CF} bisects $\triangleleft ECB$. $\triangleleft ECF = 4x + 7$, $\triangleleft FCB = 7x - 20$
 - a) Solve for *x*.



b) Determine the measure of $\triangleleft DCA$.

Segment and Line Properties



- 21. *K* is a point between *A* and *B*. $\overline{KA} = 3x$, $\overline{AB} = 2x + 8$, and $\overline{BK} = x 5$.
 - a) What is the length of \overline{AB} ?
 - b) Is *K* the midpoint of \overline{AB} ?
- 22. H is the midpoint of \overline{OP} . OP = 4x 16 and HP = x + 4. Find the length of \overline{OH} and \overline{OP} .
- 23. In the diagram, *C* is the midpoint of \overline{AB} and *D* is the midpoint of \overline{AC} . $\overline{AD} = 4x - 3$ $\overline{AB} = 12x + 26$
 - a) Solve for x.
 - b) What is the length of \overline{CB} ?
- 24. What is the midpoint of the segment that connects the points (4,6) and (0,-4)
- 25. *M* is the midpoint of segment \overline{AB} . Given A(2,3) and M(5,7), find the coordinates of endpoint *B*.

26. What is the slope of a line that is parallel to a line with slope $\frac{-3}{5}$?

27. What is the slope of a line that is perpendicular to a line that has a slope 3?

Parallel Lines
For questions 28-34, use the diagram to determine which lines, if any, are parallel
based on the given statement.28. $\ll 3 \cong \ll P$ 29. $\ll 4$ is supplementary to $\ll 5$ 30. $\ll Q \cong \ll 7$ 31. $\ll 8 \cong \ll 7$ 32. $\ll 5$ is supplementary to $\ll X$ 33. $\ll Z \cong \ll 4$ 34. $\ll 1 \cong \ll P$

For questions 35-39, use the diagram which shows two sets of parallel lines.

- 35. If m∢1 = 100°, find m∢14.
- 36. If m∢9 = 120°, find m∢6.
- 37. If m∢2 = 62°, find m∢12.
- 38. If $<7 = (5x + 8)^\circ$, $<14 = (12x + 2)^\circ$, solve for *x*.

39. If $\sphericalangle 6 = (8x + 5)^\circ$, $\sphericalangle 10 = (10x - 7)^\circ$, solve for *x*.

<u>Logic</u>

For questions 42-46, use the conditional statement "If two angles are vertical, then they are congruent."

40. Write the converse: ______

41. Write the inverse: ______

42. Write the contrapositive: _____

43. Can this be written as a biconditional statement?

44. Since the conditional statement is true, which other statement is also true?

Triangles

45. The exterior angle at the base of an isosceles triangle measures 130°. Find the measure of the vertex angle.

46. In $\triangle ABC$, $m \sphericalangle A = 40^\circ$, $m \sphericalangle C = 70^\circ$ and $\overline{AC} = 5 \ cm$. Find \overline{AB} .

47. The three angles of a triangle are $(x + 30)^\circ$, $(4x + 30)^\circ$ and $(10x - 30)^\circ$. Find the value of the smallest angle.

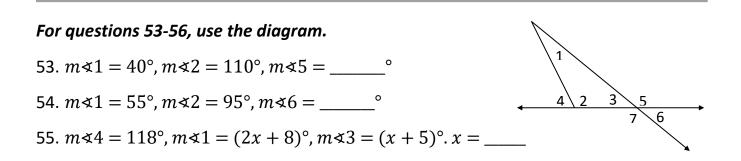
48. ΔQRS is isosceles with $\sphericalangle Q \cong \sphericalangle S$. If $\overline{QR} = (x + 16)ft$., $\overline{QS} = (3x - 30)ft$. and $\overline{SR} = (2x - 20)ft$. Find the length of the base.

49. In $\triangle ABC$, $m \sphericalangle A = 30^{\circ}$ and $m \sphericalangle B = 70^{\circ}$. What is the largest side of the triangle?

50. In equilateral $\triangle CAR$, point *P* is the midpoint of \overline{CA} , and point *E* is the midpoint of \overline{CR} . If $\overline{PE} = 8$ *in.*, what is the perimeter of $\triangle CAR$.

51. In ΔGHI , $m \sphericalangle H$ is 20 more than $m \sphericalangle G$ and $m \sphericalangle G$ is 8 more than $m \sphericalangle I$. What is the measure of each angle?

52. If a triangle has sides length 5 and 8, what are the possibilities for the length of the third side?

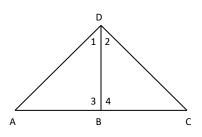


56. $m < 1 = (3x + 12)^\circ$, $m < 2 = (2x + 14)^\circ$, $m < 3 = (8x - 15)^\circ$. x =_____

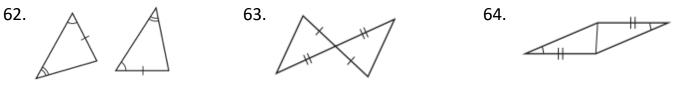
For questions 57-61, use the diagram to determine which method, if any, proves the triangles congruent.

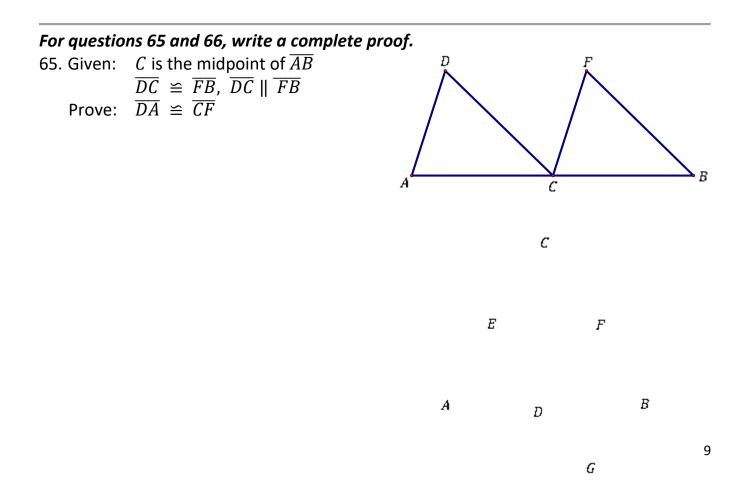
- 57. \overline{DB} is a median, $\ll 3 \cong \ll 4$. 58. $\overline{DB} \perp \overline{AC}, \overline{AD} \cong \overline{DC}$
- 59. ∢3 ≌ ∢4, ∢A ≌ ∢C
- 60. B is the midpoint of \overline{AC}

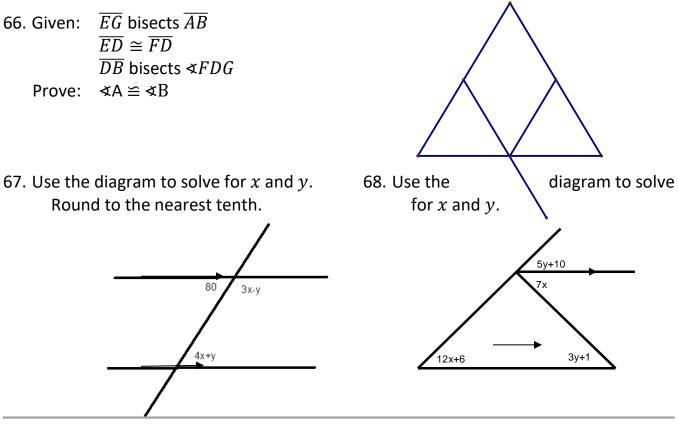
61. $\triangleleft 1 \cong \triangleleft 2$, $\overline{AB} \cong \overline{BC}$



For questions 62-64, if possible name the theorem/postulate that proves the triangles are congruent.







For questions 69-80, determine if the statement is always, sometimes, or never true.

- 69. If a triangle is isosceles it is also equilateral
- 70. "AAA" is a rule used to prove two triangles congruent.
- 71. If two angles are congruent, then they are vertical.
- 72. Angles that form a linear pair are complementary
- 73. In triangle ABC, if point D is the midpoint of \overline{AB} , then \overline{CD} is a median of the triangle.
- 74. If alternate exterior angles are supplementary, then the lines are //.
- 75. An equilateral triangle is isosceles.
- 76. An acute triangle is right.

A

- 77. An acute triangle is isosceles.
- 78. A right triangle is scalene.
- 79. An altitude of a triangle can be outside the triangle.
- 80. An angle bisector of a triangle is also the median of the triangle.

Special Segments in Triangles.

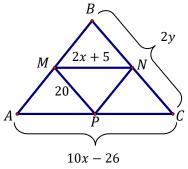
81. Use the following diagram to name each:

Given:

B is the midpoint of \overline{AD} , $\overline{GE} \cong \overline{ED}$,

 $\measuredangle GAF \cong \measuredangle FAD \ , \ \overline{CE} \perp \overline{GD} \ , \ \overline{AH} \perp \overline{GD}$

- a) Median of ΔAGD : _____
- b) Altitude of ΔAGD : _____
- c) Perpendicular bisector of ΔAGD : _____
- d) Midsegment of ΔAGD : _____
- e) Angle bisector ΔAGD : _____
- 82. Given M, N, and P are the midpoints of the sides of $\triangle ABC$: a) Find the value of x.



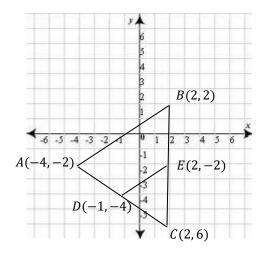
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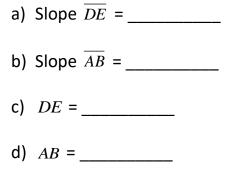
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b) Find the value of y.

c) Find MN.

83. Verify the Midsegment Theorem for \overline{DE} in $\triangle ABC$ below.



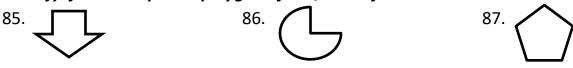


e) Explain your conclusion using complete sentences:

84. Is the triangle in question 83 equilateral?

Polygons

Identify if each shape is a polygon. If it is, state if it is convex or concave.



Polygon		Sum of Interior Angles	Sum of Exterior Angles		
88.	Heptagon				
89.	Dodecagon				
90.	15-gon				

For questions 88-90, fill in the table.

For questions 91-93, fill in the table.

Regular Polygon	Each Interior Angle	Each Exterior Angle		
91. Octagon				
92. Decagon				
93. 20-gon				

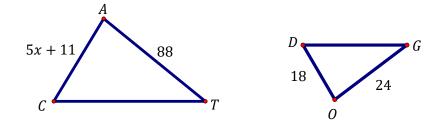
For questions 94-96, an interior angle measure is given. Name the regular polygon.94. 135°95. 170°96. 144°

For questions 97-99, an exterior angle measure is given. Name the regular polygon.97. 72°98. 5°99. 40°

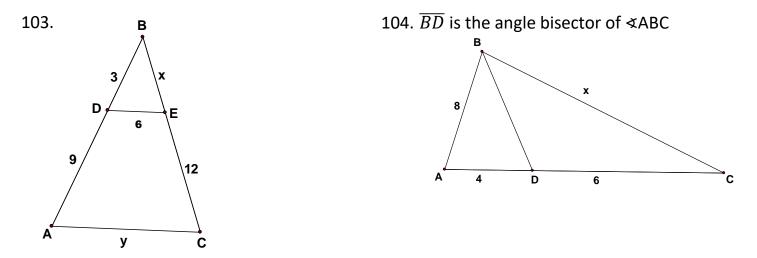
100. A pentagon has angle measures of $(3x + 15)^\circ$, $(2x + 6)^\circ$, $(3x - 24)^\circ$, $(5x - 18)^\circ$, and $(5x + 3)^\circ$. Find the measure of the largest angle.

Similar Triangles 101. Given $\Delta WXY \sim \Delta LMN$, with a scale factor of $\frac{3}{7}$, if \overline{WX} = 21, find \overline{LM} .

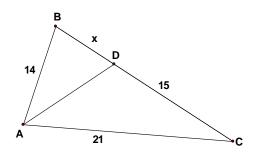
102. Given $\triangle CAT \sim \triangle DOG$, find the value of *x*.



For questions 103-106, solve for the variables in each diagram.



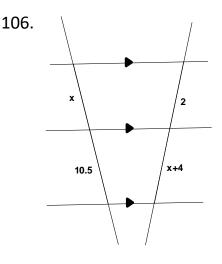
105. \overline{AD} is the angle bisector of $\triangleleft BAC$



Answer Key:

1. false

- 2. false
- 3. true
- 4. true
- 5. false
- 6. false
- 7. true
- 8. true
- 9. false
- 10. x = 12.5 m∢1 = 127°
- 11. x = 6
 - m∢PAT = 50°
- 12. m∢1 = 37°
- m∢2 = 143° 13. m∢1 = 18°
- m∢2 = 72°
- 14. multiple answers
- 15. multiple answers
- 16. multiple answers17. ∢ADF and ∢FDB OR
- ∢BXD and ∢DXA
- 18. multiple answers
- 19. D



20. a) x = 9 b) 8° 21. a) \overline{AB} = 21 b) not a midpoint 22. \overline{OH} = 9 23. a) x = 9.5 b) $\overline{CB} = 70$ 24. (2, 1) 25. (8, 11) 26. $-\frac{3}{5}$ 27. $-\frac{1}{3}$ 28. *ZY* // *PR* 29. XY // PQ 30. none 31. none 32. *WX* ∥ *ZY* 33. WX // PQ 34. none 35.80° 36. 60° 37. 62° 38. x = 10 39. x = 6

 40. If two angles are congruent, then they are vertical. 41. If two angles are not vertical then they are not congruent. 42. If two angles are not congruent, then they are not vertical. 43. No; the converse is not true. 44. contrapositive 45. 80° 46. AB = 5cm 47. 70° 48. 78ft 49. AB 50. 48in 	51. m $*$ G = 56° m $*$ H = 76° m $*$ I = 48° 52. 3 < x < 13 53. 150° 54. 30° 55. x = 35 56. x = 13 57. SAS 58. HL 59. AAS 60. NEI 61. NEI 62. AAS 63. SAS
	64. NEI
	63. SAS

65.

Statements	Reasons		
1. C is the midpoint of \overline{AB} ,	1. Given		
$\overline{DC} \cong \overline{FB}, \overline{DC} /\!\!/ \overline{FB}$			
2. $\overline{AC} \cong \overline{CB}$	2. Definition of Midpoint		
3. ∢B ≅ ∢C	3. Corresponding Angles Postulate		
4. $△$ DAC \cong $△$ FCB	4. SAS		
5. $\overline{DA} \cong \overline{CF}$	5. CPCTC		

66.

Statements	Reasons
1. \overline{EG} bisects \overline{AB} , $\overline{ED} \cong$	1. Given
\overline{FD} ,	
<u><i>DB</i></u> bisects ∢FDG	
2. $\overline{AD} \cong \overline{DB}$	2. Definition of Bisect
3. ∢FDB ≅ ∢BDG	3. Definition of Bisect
4. ∢EDA ≅ ∢BDG	4. Vertical Angle Theorem
5. ∢FDB ≅ ∢EDA	5. Transitive Property
6. $\Delta EDA \cong \Delta FDB$	6. SAS
7. ∢A ≅ ∢B	7. CPCTC

67. x = 25.7	78. sometimes
y = 22.9	79. always
68. x = 7	80. sometimes
y = 16	81. a) \overline{AE}
69. sometimes	b) AH
70. never	c) none
71. sometimes	d) <u><i>CE</i></u>
72. never	e) \overline{AF}
73. always	82. a) x = 6
74. sometimes	b) y = 20
75. always	c) \overline{MN} = 17
76. never	
77. sometimes	
83. a) ² / ₂	
83. a) $\frac{2}{3}$ b) $\frac{2}{3}$	
c) $\sqrt{13}$	
d) $\sqrt{52}$	
e) \overline{DE} is a midsegment of ΔAB	3C because it is both parallel to and half

e) \overline{DE} is a midsegment of $\triangle ABC$ because it is both parallel to and half the length of \overline{AB} .

- 84. not equilateral
- 85. concave
- 86. not a polygon
- 87. convex

	Polygon	Sum of Interior Angles	Sum of Exterior Angles
88.	Heptagon	900°	360°
89.	Dodecagon	1800°	360°
90.	15-gon	2340°	360°

	Geometry CP ISLO EXAM	I RE	Regular Polygon VIEW – PA	Each Interior RTAngle	Each Exterior Angle
		91.	Octagon	135°	45°
	g	92.	Decagon	144°	36°
94. octagon	g	93.	20-gon	162°	18°
95. 36-gon 96. decagon 97. pentagon 98. 72-gon 99. nonagon 100. 158° 101. \overline{LM} = 49 102. x = 0.5 103. x = 4 y = 24					

- 104. x = 12
- 105. x = 10
- 106. x = 3