Geo XL Challenge Test Review A

1. Draw a regular octagon. On it, draw all lines of symmetry.

2. Draw line segment $\overline{AB}$. C is the midpoint of $\overline{AB}$. If AC = 8, find AB and BC.

3. The relationship is: "is the same age as" Is this relationship (a) reflexive (b) symmetric (c) transitive? Give an example or counterexample for each of these.

4. Given the points A (-2, 3) and B (6, -5) find
(a) the midpoint of $\overline{AB}$
(b) the length of $\overline{AB}$
(c) the slope of $\overline{AB}$

5. For the line y = 3x +2, find the equation of the line passing through the point (3,2) and
(a) parallel and (b) perpendicular to the given line.

6. Define:
(a) supplementary angles
(b) complementary angles.

7. Draw (a) $\overline{AB}$ (segment AB) (b) $\overrightarrow{AB}$ (ray AB)
(c) $\overleftrightarrow{AB}$ (line AB)

8. Continue the pattern for the next 2 numbers:
(a) 1, 4, 9, 16, 25, ……..
(b) 1, 3, 6, 10, 15, ……..

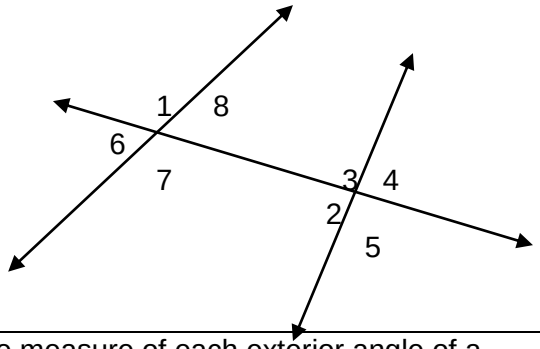
9. B is in the interior of $\angle AOC$. If $\angle AOC = 70°$ and $\angle AOB = 54°$, find $\angle BOC$

10. Let B be between C and A. Use the segment addition postulate to solve for x.
BC = 4x + 3, AB = 2x -1, AC = 62. Find BC.

11. Find the sum of the measures of the interior angles of a convex octagon.

12. Define what is meant by congruent.

13.



What type of angles are:
(a) $\angle 1 and \angle 7$ (b) $\angle 1 and \angle 6$
(c) $\angle 1 and \angle 5$ (d) $\angle 3 and \angle 7$
(e) $\angle 2 and \angle 7$ (e) $\angle 1 and \angle 3$

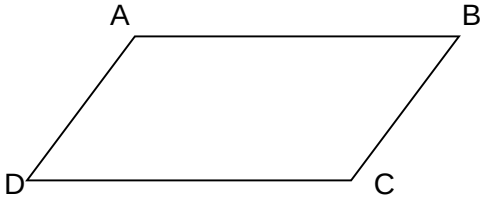
14. (a) The measure of each exterior angle of a regular hexagon is:
(b) The measure of each interior angle of a regular hexagon is:

15. If ΔABC is congruent to ΔDEF then
(a) $BC \cong$? and (b) $\angle A \cong$?

16. Define:
(a) an equiangular polygon
(b) an equilateral polygon
(c) a regular polygon

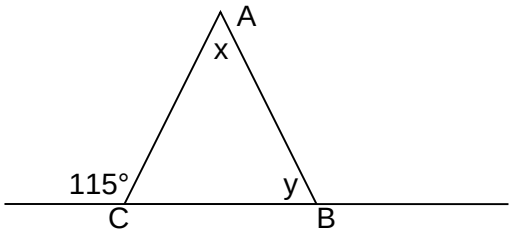
17. The angles of a hexagon differ from each other by 5° when put in ascending order. What are the angles?

18. For parallelogram ABCD, if $m\angle ABC = 85°$, then:



(a) $m\angle BCD$ =?
(b) $m\angle CDA$ =?

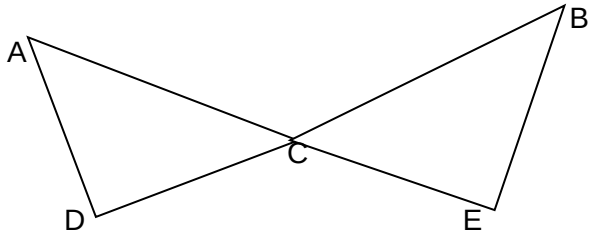
19. $AC \cong AB$. Find the measure of x and y.



20. A trapezoid has parallel sides that measure 10 cm and 14 cm. What is the length of the midsegment?

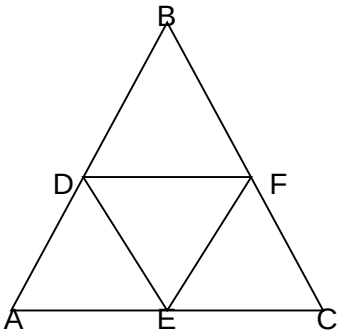
21. Given $\angle B \cong \angle E$ and $BC \cong EF$. What other piece of information is needed to show $\Delta ABC \cong \Delta DEF$ by AAS Congruence Postulate?

22. $\angle A \cong \angle B$ and $AC \cong BC$.



$\Delta ADC \cong \Delta BEC$ by what postulate?

23.



(a) D is the midpoint of AB, F is the midpoint of BC and E is the midpoint of AC. If DE = 6, find BC.
(b) If instead, BC = 2x + 1 and DE = $\frac{3}{2}x - 2$. Solve for x

24. Rewrite the statement in bi-conditional form: Every equilateral triangle has 3 congruent angles.

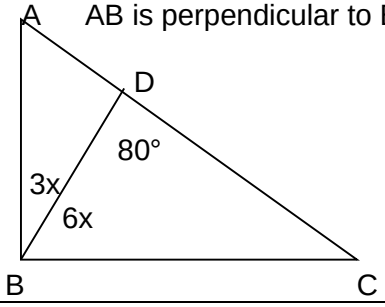
25. Define (a) an acute triangle, (b) an obtuse triangle, (c) an isosceles triangle, (d) a scalene triangle

26. Solve: $3d + 5t = 42$
$4d + 3t = 45$

27. WXYZ is a rectangle. WX = 5x -4 and XY = 3x +2 and the perimeter of the rectangle is 32. Find the numerical value of ZY.

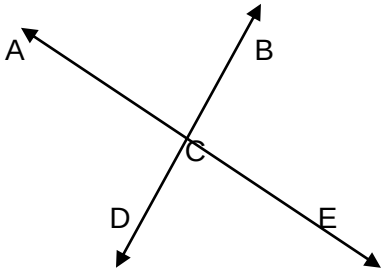
28. Define congruent polygons?

29. AB is perpendicular to BC. Find $\angle A$ and $\angle C$.

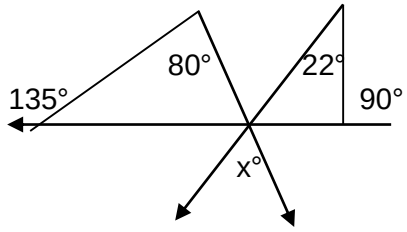


30. (a) The medians of a triangle all pass through which point?
(b) The angle bisectors of a triangle all pass through which point?
(c) The altitudes of a triangle all pass through which point?
(d) The perpendicular bisectors of a triangle all pass through which point?

31. If $\angle ACB = 80°$, what is $\angle BCE$?



32.



Find x

33. Two sides of a triangle are 8 and 11. What are the possible measurements of the third side?

34. $\angle A$ and $\angle C$ are a linear pair.
If $\angle A = 25°$ then $\angle C$?

35. $\Delta ABC \cong \Delta DEF$, AB = 10 feet, $m\angle C = 50°$ and $m\angle B = 43°$. Find (a) $\angle D$ and (b) DE

36. If A = (-3, 2) and B = (4, 5), find the length of AB

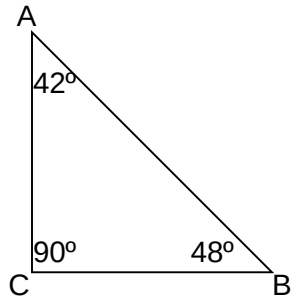
37. For the conditional statement, "If I buy Ms. Doherty presents, then she will be happy!"…. the underlined portion is called the ?

38. Assume the following statements are true.
"If I go to my geometry lesson, I will get homework. If get homework, then I will understand the work." I didn't go to my geometry lesson. The conclusion of the syllogism is:

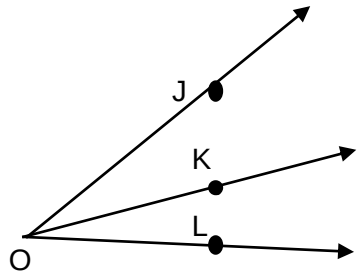
39. (A) How many points determine a plane?
(B) How many points determine a line?

40. $\angle 1$ and $\angle 2$ are supplementary angles and $\angle 1$ and $\angle 3$ are vertical angles. If $m\angle 2 = 65°$, then $m\angle 3 = ?$

41. Diagram not to scale.
The shortest side of the triangle is:



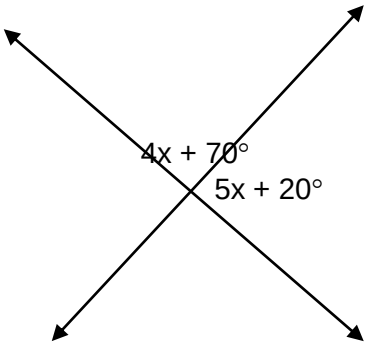
42. If $m\angle JOK = (x+10)°$ and $m\angle KOL = (4x-5)°$, and $m\angle JOL = 60°$. Find $m\angle JOK$ and $m\angle KOL$



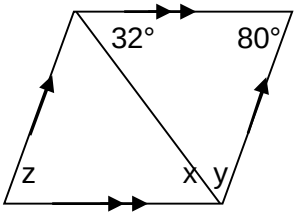
43. If I study for my semester final, then I will do well.
(a) Find the converse of the above statement.
(b) Find the contrapositive of the above statement.

44. A pilot flies 70 miles due north and then 40 miles S20°W. Draw a diagram that represents this journey.

45. Solve for x:

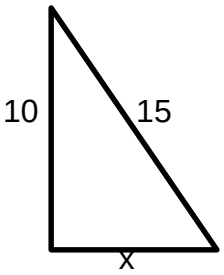


46. Find the values of the variables in the parallelogram:

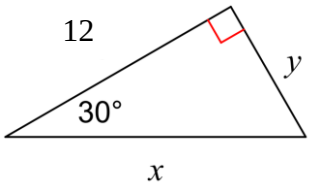


47. Define: (a) A rhombus (b) A rectangle (c) A square. Describe above using sides, angles and diagonals.

48. Find *x* in simplified radical form:



49. Find x and y.

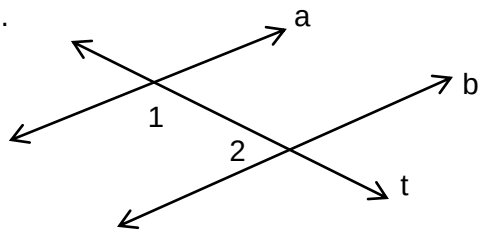


50. $\angle 1$ and $\angle 2$ are a linear pair. $m\angle 2 = 56°$. $m\angle 1 = ?$

51. Find the equation of the perpendicular bisector of A = (3, 4) and B(7, 2)

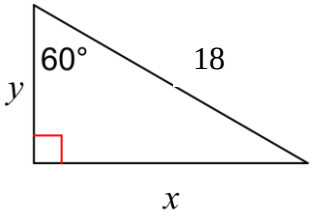
52. If it is a triangle, classify it as right, obtuse or acute.
(a) 6, 11, 17
(b) 8, 15, 17
(c) 9, 15, 17
(d) 7, 24, 26

53.

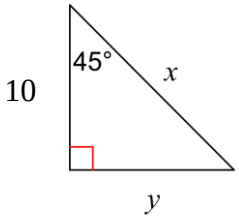


Line a is parallel to b. If m∠1 = 130° and m∠2 = (3x-10)°, find x.

54. Find x and y.



55. Find x and y.



56. Draw an acute angle. Construct the **angle bisector** of the angle using a straight edge and a compass.

57. Draw a line segment. Construct the **perpendicular bisector** of the line segment using a straight edge and a compass.

58. Draw line m and a point A not on the line. Construct the parallel line to line m, through point A using a straight edge and compass.

59. Draw a triangle. COPY your triangle using a straight edge and compass.