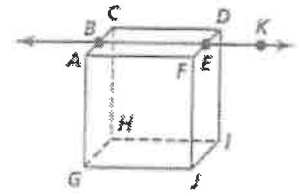


Concepts 1-4



(Use this diagram for #1-4)

1. What is the intersection of plane GHIJ and plane CDIH?

- a. \overline{GH} b. point H c. \overline{CD} d. \overline{HI}

2. Which four points are coplanar?

- a. A, B, E, I b. B, C, D, E c. A, C, F, H d. E, F, I, K

3. What is another way to name plane ABEF?

- a. point A b. \overline{CD} c. plane ACDF d. plane CDIH

4. What is the intersection of \overline{BE} and plane ACHG?

- a. \overline{BC} b. point E c. \overline{BK} d. point B

7. If $EG = 42$, find the value of y .



- a. 5 b. 5.5 c. 6 d. 7

$8y + 2 = 42$
 $8y = 40$ $y = 5$

Identify each pair of angles as adjacent, vertical, complementary, supplementary, or a linear pair.

8. 9.

linear pair
 supplementary

vertical

11. adjacent

11. complementary

Find the measure of each numbered angle.

12. $m\angle 2 = 57$

 $\angle 1 = 123^\circ$

13. $m\angle 1 = 38$

 $\angle 2 = 38^\circ$

14. $m\angle 5 = 22$

 $\angle 6 = 68^\circ$

15. $m\angle 13 = 4x + 11$
 $m\angle 14 = 3x + 1$

 $7x + 12 = 180$
 $7x = 168$ $x = 24$

16. Find the distance between points S(-1,3) and T(4,-9) using the distance formula.

- a. 5 b. 12 c. 13 d. 17

$D = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$
 $\sqrt{(-1 - 4)^2 + (3 - 9)^2}$
 $\sqrt{(-5)^2 + (-6)^2}$
 $\sqrt{25 + 36}$
 $\sqrt{61}$
 13

17. What is the midpoint of the segment with endpoints at (2,8) and (-6,10)?

- a. (-2,9) b. (-4,1) c. (-4,9) d. (-2,1)

$(\frac{2 + (-6)}{2}, \frac{8 + 10}{2}) = (\frac{-4}{2}, \frac{18}{2}) = (-2, 9)$

Concepts 5 and 6

18. What is the next number in the sequence: 128, 64, 32, 16, 8, ...

- a. 5 b. 10 c. 15 **d. 4**

19. Find the next two terms in the sequence: 10, -14, 18, -22, ...

- a. -26, 30 b. -30, 26 c. 26, 30 **d. 26, -30**

20. Which is the converse of the statement: *If something is a bird, then it can fly.*

- a. If it can't fly, then something is not a bird. **b. If it can fly, then something is a bird.**
 c. If something is not a bird, then it can't fly. d. If something is a bird, then it can't fly.

Complete the reasons column of the proof using the reasons listed below. You will not use all of the reasons given.

21. **Given:** H is the midpoint of GJ

Prove: $2(GH) = GJ$



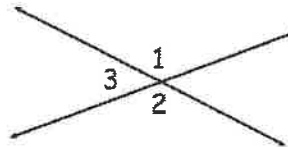
Statements	Justifications
1. H is the midpoint of GJ	Given
2. $GH = HJ$	Def of Midpoint
3. $GH + HJ = GJ$	Seg. Add. Postulate
4. $GH + GH = GJ$	Substitution
5. $2(GH) = GJ$	Simplify

Justifications to choose from:

- Given Definition of Congruent Substitution Property of = Definition of Midpoint
 Simplify Segment Addition Postulate Linear Pair Postulate Multiplication Property

22. **Given:** $\angle 1$ and $\angle 2$ are vertical angles

Prove: $\angle 1 \cong \angle 2$



Statements	Justifications
1. $\angle 1$ and $\angle 2$ are vertical angles	Given
2. $m\angle 1 + m\angle 3 = 180$	Linear Pair Post.
3. $m\angle 2 + m\angle 3 = 180$	Linear Pair Post.
4. $m\angle 1 + m\angle 3 = m\angle 2 + m\angle 3$	Substitution / Transitive
5. $m\angle 1 = m\angle 2$	Subtraction Prop.
6. $\angle 1 \cong \angle 2$	Def. of Congruent

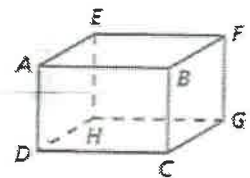
Justifications to choose from: (can be used more than once)

- Substitution Property Subtraction Property Addition Property
 Linear Pair Postulate Definition of Congruence Definition of Supplementary
 Given Simplify Transitive Property of Equality

Concepts 7 and 8

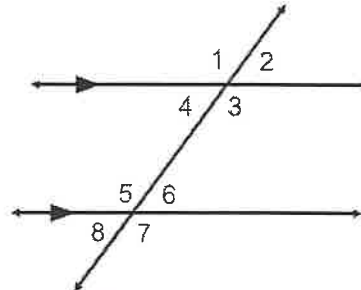
23. Refer to the diagram at the right. Which segment is NOT parallel to EF?

- a. AB b. DC c. HG **d. BF**



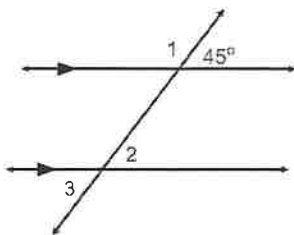
Use the figure to the right to answer each question.

24. Name one pair of alternate interior angles. $\angle 4, \angle 6$
 25. Name one pair of corresponding angles. $\angle 1, \angle 5$
 26. Name one pair of alternate exterior angles. $\angle 1, \angle 7$
 27. Name one pair of vertical angles. $\angle 1, \angle 3$

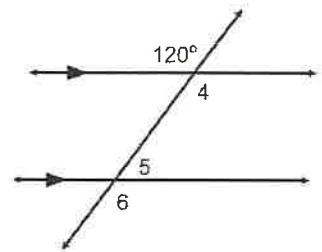


Use the figure to the right to find the measure of each numbered angle.

28. $m\angle 1 = 135^\circ$
 29. $m\angle 2 = 45^\circ$
 30. $m\angle 3 = 45^\circ$

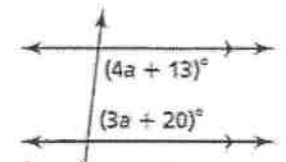


31. $m\angle 4 = 120^\circ$
 32. $m\angle 5 = 60^\circ$
 33. $m\angle 6 = 120^\circ$



34. Refer to the figure at the right to find the value of a.

- a. 7 **b. 21** c. 84 d. 97



35. Which line is parallel to $y = \frac{1}{4}x + 6$?

- a.** $y = \frac{1}{4}x - 7$ b. $y = -\frac{1}{4}x + 3$ c. $y = -4x + 6$ d. $y = 4x - 3$

$4a + 13 + 3a + 20 = 180$
 $7a + 33 = 180$
 $7a = 147$

36. What is the slope of a line parallel to \overline{AB} , if A(4, -3) and B(-1, 7)?

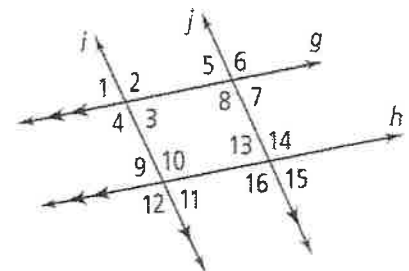
- a. 2 **b. -2** c. 0.5 d. -0.5

37. Complete the proof using the justifications listed below. You won't use all of the justifications.

Given: $g \parallel h$ and $i \parallel j$

Prove: $\angle 1 \cong \angle 15$

Statements	Justifications
1. $g \parallel h$ and $i \parallel j$	Given
2. $\angle 1 \cong \angle 11$	Alt. Ext. Angles Thm
3. $\angle 11 \cong \angle 15$	Corr. Angles Thm
4. $\angle 1 \cong \angle 15$	Transitive Prop. of \cong



Justifications to choose from:

Corresponding Angles Theorem

Alternate Exterior Angles Theorem

Vertical Angles Theorem

Transitive Property of Congruence

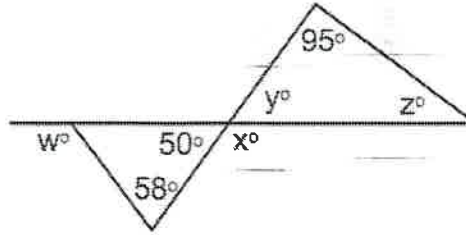
Reflexive Property of Congruence

Definition of Congruent

Concepts 9-13

38. Find the measure of each variable.

$W = 108^\circ$
 $X = 130^\circ$
 $Y = 50^\circ$
 $Z = 35^\circ$



Find the value of x in each triangle. You will need to write and solve an equation.

39. $5x + 5 = 180$
 $5x = 175$
 $X = 35$

40. $3x + 60 = 180$
 $3x = 120$
 $X = 40$

Is it possible to prove the triangles are congruent? If yes, say which postulate or theorem proves it: SSS, SAS, AAS, or ASA.

41. SAS

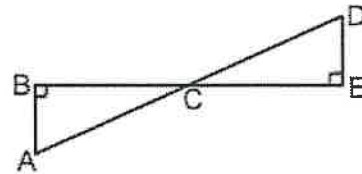
42. ASA

43. SSS

44. AAS

45. If you know that $\triangle ABC \cong \triangle DEC$, explain why $\overline{AC} \cong \overline{CD}$.

If the Δ s are congruent, all their corresponding parts are congruent.



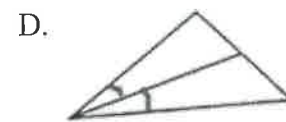
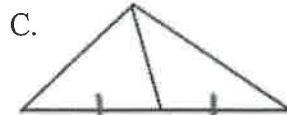
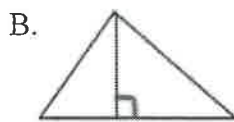
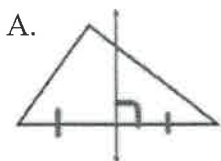
Match each term below with its proper diagram.

C 46. Median

D 48. Angle Bisector

A 47. Perpendicular Bisector

B 49. Altitude

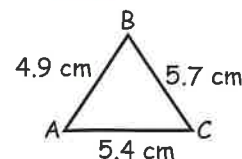


50. Which side lengths would NOT make a triangle?

- a. 2, 4, 5 b. 3, 8, 6 c. 4, 5, 1, 9 d. 4, 3, 7

51. Which is the shortest side of the triangle?

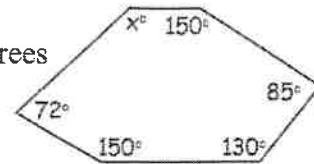
- a. AB b. BC c. AC



Concepts 14-16

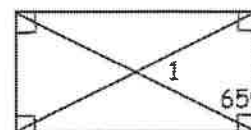
52. What is the interior angle-sum of an octagon? $(8-2)180 = 1080$
 a. 1080 degrees b. 1440 degrees c. 180 degrees d. 135 degrees

53. What is the value of x in the polygon to the right. $(6-2)180 = 720$
 a. 150 degrees b. 133 degrees c. 143 degrees d. 125 degrees

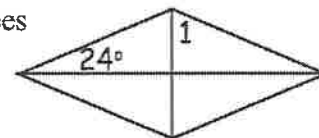


54. What is the measure of one interior angle of a regular dodecagon?
 a. 150 degrees b. 1800 degrees c. 180 degrees d. 144 degrees

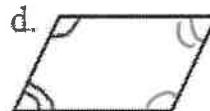
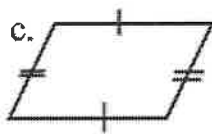
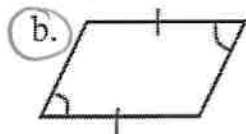
55. What is the measure of Angle 1 in the rectangle?
 a. 65 degrees b. 90 degrees c. 50 degrees d. 115 degrees



56. What is the measure of Angle 1 in the rhombus?
 a. 66 degrees b. 24 degrees c. 90 degrees d. 60 degrees



57. Which of the following quadrilaterals cannot be proven to be a parallelogram?



Geometry Formula Sheet – Semester 1 Test

Distance Formula

$$D = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

Midpoint Formula

$$\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

Slope

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

Slope-Intercept Form

$$y = mx + b$$

Point-Slope Form

$$y - y_1 = m(x - x_1)$$

Polygon Interior Angle-Sum

$$(n - 2)180$$

