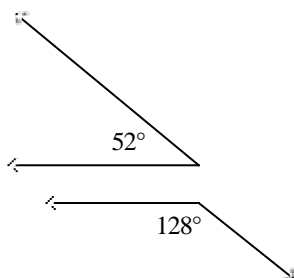


1. Find a counterexample to show that the conjecture is false.
 Conjecture: The product of two positive numbers is greater than the sum of the two numbers.
 - I. 3 and 5
 - II. 2 and 2
 - III. A counterexample exists but is not shown above.
 - IV. A counterexample does not exist.
2. Which conditional has the same truth value as its converse.
 - I. If $x = 7$, then $|x| = 7$.
 - II. If a figure is a square then it has four sides.
 - III. If $x - 17 = 4$, then $x = 21$.
 - IV. If an angle has measure 80, then it is acute.
3. How are the two angles related.

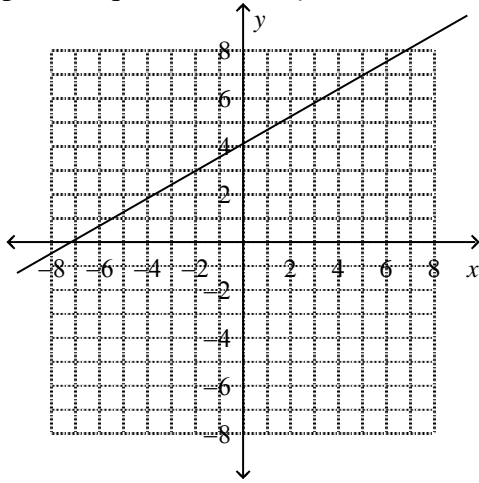


Drawing not to scale

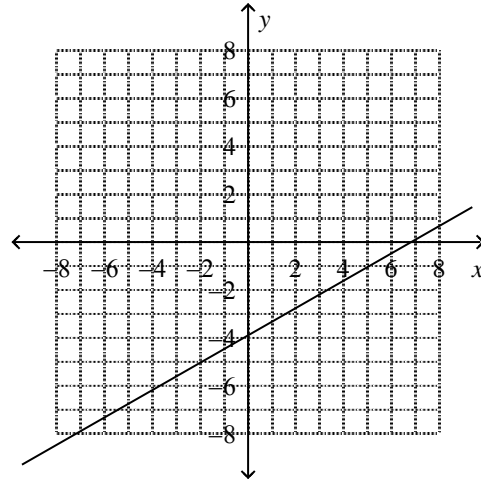
- a. vertical
 - b. supplementary
 - c. Complementary
 - d. Adjacent
4. Find the sum of the exterior angles of an octagon.
 - I. 1080
 - II. 135
 - c. 360
 - d. 45
 5. Write an equation in slope-intercept form of the line through point $P(-10, 1)$ with slope -5 .
 - a. $y = -5x - 49$
 - b. $y - 1 = -5(x + 10)$
 - c. $y - 10 = -5(x + 1)$
 - d. $y = -5x + 1$
 6. At the curb a ramp is 11 inches off the ground. The other end of the ramp rests on the street 55 inches straight out from the curb. Write a linear equation in slope-intercept form that relates the height y of the ramp to the distance x from the curb.
 - a) $y = 5x + 11$
 - b) $y = -\frac{1}{5}x + 11$
 - c. $y = -\frac{1}{5}x + 55$
 - d. $y = \frac{1}{5}x + 55$
 7. Which two lines are parallel?
 - I. $5y = -3x - 5$
 - II. $5y = -1 - 3x$
 - III. $3y - 2x = -1$
 - a. I and II
 - b. I and III
 - c. II and III
 - d. No two of the lines are parallel.
 8. Where can the perpendicular bisectors of the sides of a right triangle intersect?
 - I. Inside the triangle
 - II. On the triangle
 - III. Outside the triangle
 - a. I only
 - b. II only
 - c. I or II only
 - d. I, II, or III

9. Graph the equation $-4x + 7y = -28$.

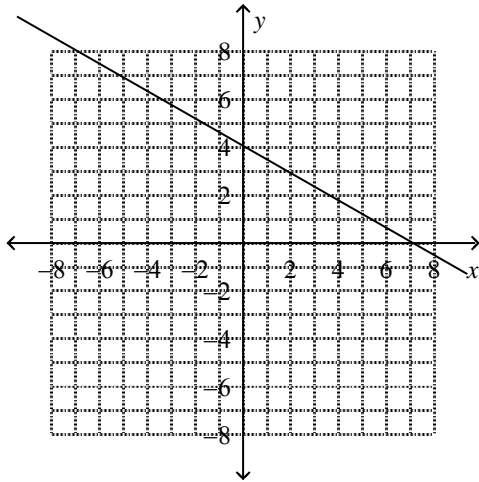
a.



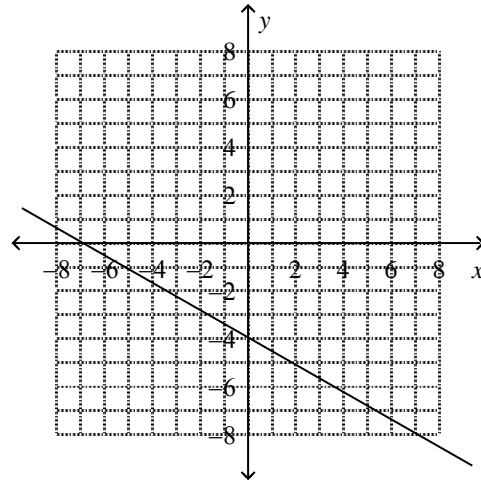
c.



b.



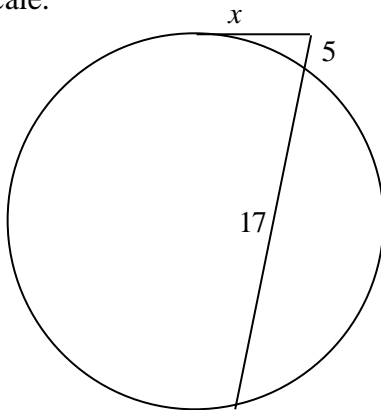
d.



10. Which statement is true?

- I. All quadrilaterals are rectangles.
- II. All quadrilaterals are squares.
- III. All rectangles are quadrilaterals.
- IV. All quadrilaterals are parallelograms.

11. Find the value of x . If necessary, round your answer to the nearest tenth. The figure is not drawn to scale.

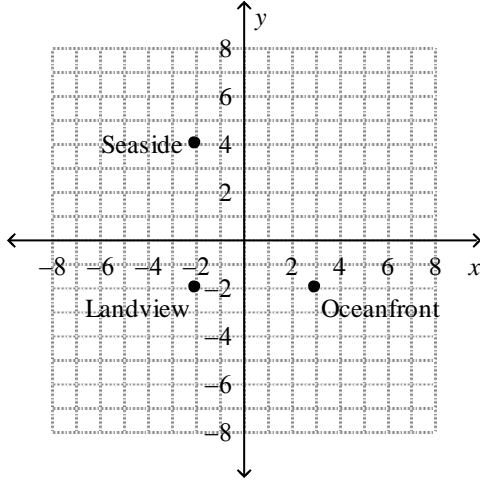


- a. 19.34 b. 10.49 c. 110 d. 9.22

12. Which type of isometry is the equivalent of two reflections across intersecting lines?

- a. Glide reflection
- b. Rotation
- c. reflection
- d. None of these.

13. Each unit on the map represents 5 miles. What is the actual distance from Oceanfront to seaside?



- a. 10 Miles
- b. 50 miles
- c. about 8 miles
- d. about 40 miles

14. Complete the statement. If a transversal intersects two parallel lines, then _____.

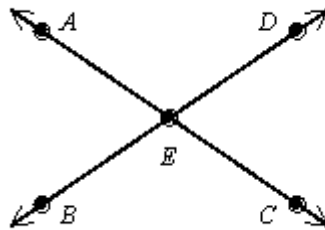
- a. Corresponding angles are supplementary.
- b. Same-side interior angles are complementary.
- c. Alternate interior angles are congruent.
- d. Alternate exterior angles are supplementary.

15. Which statement is an example of the Addition Property of Equality?

- a. If $p = q$ then $p \cdot s = q \cdot s$
- b. If $p = q$ then $p + s = q + s$
- c. If $p = q$ then $p - s = q - s$
- d. $p = q$

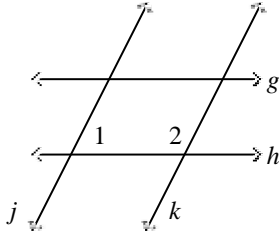
16. In the figure shown, $m\angle AED = 120$. Which of the following statements is false?

- a. $m\angle AEB = 60$
- b. $\angle BEC$ and $\angle CED$ are adjacent angles.
- c. $m\angle BEC = 120$
- d. $\angle AED$ and $\angle BEC$ are adjacent angles.



Not drawn to scale

17. Which lines, if any, can you conclude are parallel given that $m\angle 1 + m\angle 2 = 180$? Justify your conclusion with a theorem or postulate.



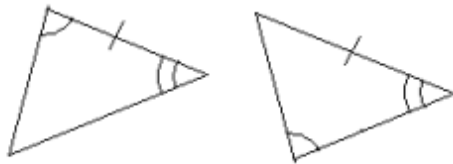
- a. $j \parallel k$, by the Converse of the Same-Side Interior Angles Theorem.
- b. $j \parallel k$, by the Converse of the Alternate Interior Angles Theorem.
- c. $g \parallel h$, by the Converse of the Alternate Interior Angles Theorem.
- d. $g \parallel h$, by the Converse of the Same-Side Interior Angles Theorem.

18. If $\triangle MNO \cong \triangle PQR$ which of the following can you NOT conclude as being true?

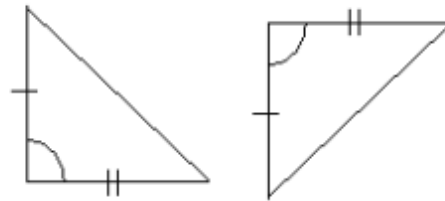
- a. $\overline{MN} \cong \overline{PR}$
- b. $\angle M \cong \angle P$
- c. $\overline{NO} \cong \overline{QR}$
- d. $\angle N \cong \angle Q$

19. In each pair of triangles, parts are congruent as marked. Which pair of triangles is congruent by ASA?

a.



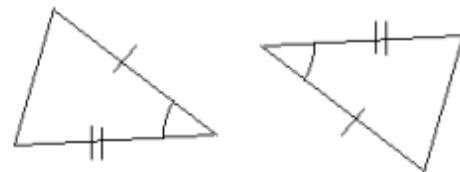
c.



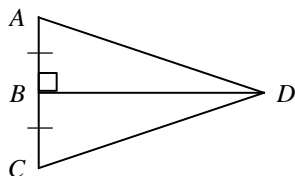
b.



d.

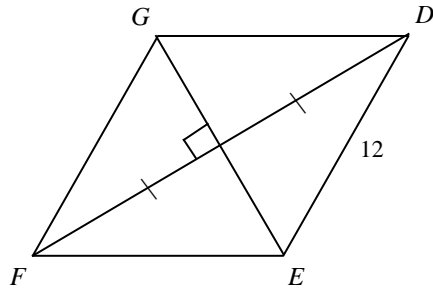


20. Name the theorem or postulate that lets you immediately conclude $\triangle ABD \cong \triangle CBD$.



- a. SAS
- b. ASA
- c. AAS
- d. None of these

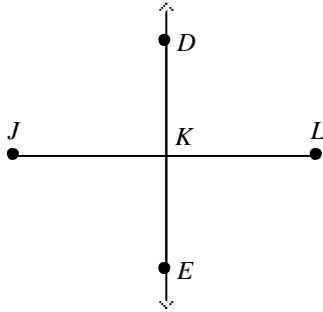
21. The length of \overline{DE} is shown. What other length can you determine for this diagram?



- a. $EF = 12$
- b. $DF = 24$
- c. $DG = 12$
- d. No other length can be determined.

22. Which statement is not necessarily true?

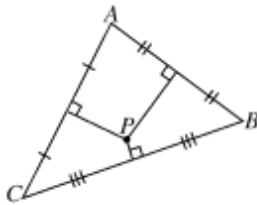
Given: \overleftrightarrow{DE} is the \perp bisector of \overline{JL} .



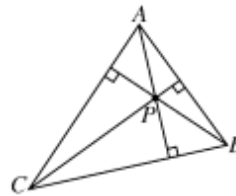
- a. $\overline{DK} = \overline{KE}$
- b. $\overline{DE} \perp \overline{JL}$
- c. K is the midpoint of \overline{JL} .
- d. $\overline{DJ} = \overline{DL}$

23. Which diagram shows a point P an equal distance from points A , B , and C ?

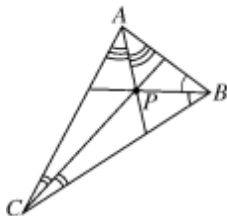
a.



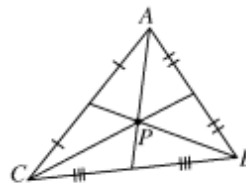
c.



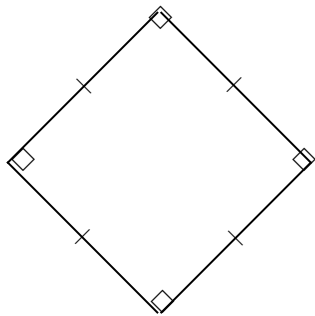
b.



d.



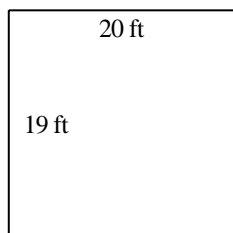
24. Three security cameras were mounted at the corners of a triangular parking lot. Camera 1 was 158 ft from camera 2, which was 121 ft from Camera 3. Cameras 1 and 3 were 140 ft apart. Which camera had to cover the greatest angle?
- a. Camera 2 b. camera 2 c. cannot tell d. camera 3
25. Jay, Kay, and Ray found themselves far apart when they stopped for lunch while working in a field. Jay could see Kay, then turn through 75° and see Ray. Kay could see Ray, then turn through 50° and see Jay. Ray could see Jay, then turn through 55° and see Kay. Which two were farthest apart?
- a. Kay and Ray
 b. Jay and Kay
 c. Ray and Jay
 d. Kay and Ray were the same distance apart as Ray and Jay.
26. Which three lengths could be the lengths of the sides of a triangle?
- a. 12 cm, 5 cm, 17 cm c. 9 cm, 22 cm, 11 cm
 b. 10 cm, 15 cm, 24 cm d. 21 cm, 7 cm, 6 cm
27. Judging by appearance, classify the figure in as many ways as possible.



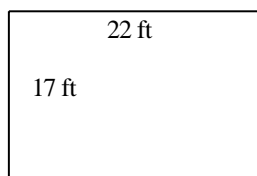
- a. Rectangle, square, quadrilateral, parallelogram, rhombus
 b. Rectangle, square, parallelogram
 c. Rhombus, trapezoid, quadrilateral, square
 d. Square, rectangle, quadrilateral
28. The volume of a cube is 216 cubic cm. If the length of the side is increased by a factor of 3 what is the volume of the new cube.
- a. 648 cubic cm
 b. 1944 cubic cm
 c. 5832 cubic cm
 d. 27 cubic cm
 e. None of the above

29. Jennifer has 78 feet of fencing to make a rectangular vegetable garden. Which dimensions will give Jennifer the garden with greatest area? The diagrams are not to scale.

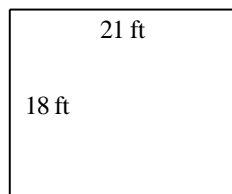
a.



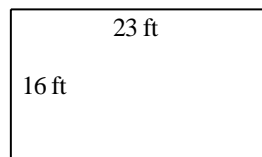
b.



c.



d.



30. B is between A and C. If AB is 3 times BC and AC is 36, what is BC.

a. 27

b. 9

c. 12

d. 24

31. Which is an example of the symmetric property?

a. $2x = 2x$

b. $3y + 7 = 12$, then $12 = 3y + 7$

c. $(a + b) + c = a + (b + c)$

d. $a + b = b + a$

32. Which choice shows a true conditional with the hypothesis and conclusion identified correctly?

a. Yesterday was Monday if tomorrow is Thursday.

Hypothesis: Tomorrow is Thursday.

Conclusion: Yesterday was Monday.

b. If tomorrow is Thursday, then yesterday was Tuesday.

Hypothesis: Yesterday was Tuesday.

Conclusion: Tomorrow is not Thursday.

c. If tomorrow is Thursday, then yesterday was Tuesday.

Hypothesis: Yesterday was Tuesday.

Conclusion: Tomorrow is Thursday.

d. Yesterday was Tuesday if tomorrow is Thursday.

Hypothesis: Tomorrow is Thursday.

Conclusion: Yesterday was Tuesday.

33. Which statement is the Law of Detachment.

a. If $p \rightarrow q$ is a true statement and q is true, then p is true.

b. If $p \rightarrow q$ is a true statement and q is true, then $q \rightarrow p$ is true.

c. If $p \rightarrow q$ and $q \rightarrow r$ are true, then $p \rightarrow r$ is a true statement.

d. If $p \rightarrow q$ is a true statement and p is true, then q is true.

34. $\angle A$ and $\angle B$ are supplementary angles. If $\angle A$ is 24 more than three times $\angle B$ what is the measure of $\angle B$.

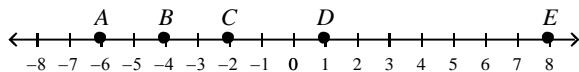
a. 52

b. 39

c. 141

d. 128

35. Which point is the midpoint of \overline{AE} ?



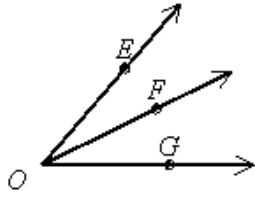
a. D

b. B

c. not B, C, or D

d. C

36. $m\angle EOF = 26$ and $m\angle FOG = 38$, then what is the measure of $\angle EOG$? The diagram is not to scale.

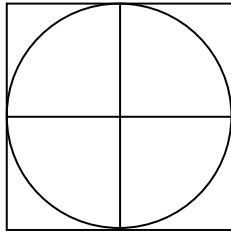


- a. 64 b. 12 c. 52 d. 76

37. Find the coordinates of the midpoint of the segment whose endpoints are $H(8, 2)$ and $K(6, 10)$

- a. (7, 6) b. (1, 4) c. (14, 12) d. (2, 8)

38. Find, to the nearest tenth, the area of the region that is inside the square and outside the circle. The circle has diameter 14 inches.

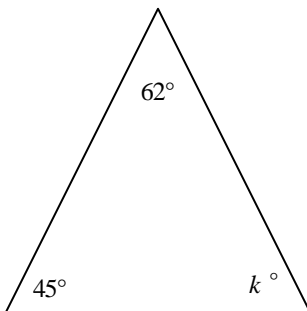


- a. 42.1 in^2 b. 10.5 in^2 c. 153.9 in^2 d. 196 in^2

39. The complement of an angle is 25° . What is the measure of the angle?

- a. 75° b. 155° c. 65° d. 165°

40. Find the value of k . The diagram is not to scale.



- a. 33 b. 162 c. 147 d. 73