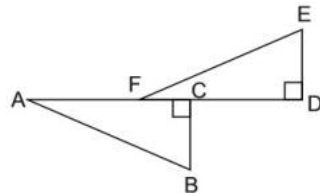


Regents Practice Test 2 Geometry

Part I: Multiple Choice

- What is the measure of each interior angle of a regular pentagon?
[1] 72° [2] 108° [3] 120° [4] 180°
- A triangle has each of its three angle bisectors constructed with the intersection point labeled S . Which of the following statements is true?
[1] The angle bisectors may intersect outside of the triangle.
[2] A circle with center at point S will intersect each vertex of the triangle.
[3] Point S is equidistant from each of the sides of the triangle.
[4] None of the above are true.
- Which equation, or set of equations, represent(s) the locus of points equidistant from the two lines $x = 6$ and $x = -2$?
[1] $x = 2$ [3] $y = 4$
[2] $x = 4$ [4] $x = 10$ and $x = -6$

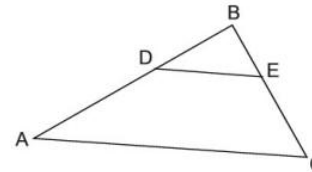
- In the diagram at the right, $\overline{BC} \perp \overline{AD}$, $\overline{ED} \perp \overline{AD}$, $\overline{AF} \cong \overline{CD}$ and $\angle A \cong \angle EFD$. Which method proves that $\triangle ACB \cong \triangle FDE$?
[1] ASA (Angle-Side-Angle)
[2] AA (Angle-Angle)
[3] SAS (Side-Angle-Side)
[4] HL (Hypotenuse-Leg)



- In a rectangle, the diagonal measures 34 and the longer side measures 30. Find the length of the shorter side of the rectangle.

[1] 4 [2] 8 [3] 16 [4] $2\sqrt{39}$

- In $\triangle ABC$, $\overline{DE} \parallel \overline{AC}$, $DB = 4$, $AD = 8$, and $DE = 5$. Find AC .



[1] 9
[2] 10
[3] 12.5
[4] 15

- A circle has the equation $(x - 2)^2 + (y + 4)^2 = 16$. Under a translation $T_{(3,5)}$ the center of the circle will be located at which point?

[1] (5,1) [2] (1,9) [3] (-6,20) [4] (7,-1)

- What is the equation of a line parallel to the line whose equation is $3y + 5x = 6$ and whose y -intercept is 4?

[1] $y = 5x + 4$ [3] $y = 5x - 4$
[2] $y = \frac{5}{3}x + 2$ [4] $y = -\frac{5}{3}x + 4$

- Find the exact area in square units of a regular hexagon whose radius is 8 units.

[1] 96 [3] 192
[2] $96\sqrt{3}$ [4] $192\sqrt{3}$

10. If $S = \text{"It is snowing."}$ and $C = \text{"It is cold."}$, which statement is $\sim C \vee S$?

- [1] It is not cold, and it is snowing.
- [2] If it is not cold, then it is snowing.
- [3] It is not snowing or it is cold.
- [4] It is not cold or it is snowing.

11. The equation of two lines are $y = \frac{1}{2}x + 4$ and $2y = x - 12$.

What is the equation of the locus of points equidistant from the two given lines?

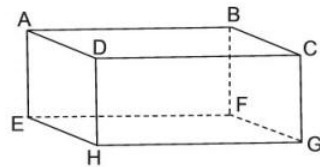
- [1] $y = \frac{1}{2}x - 1$
- [2] $y = 2x - 1$
- [3] $y = \frac{1}{2}x - 8$
- [4] $y = 2x - 8$

12. The endpoints of the diameter of a circle are located at $(-4, 1)$ and $(2, 9)$. Find the coordinates of the center of the circle.

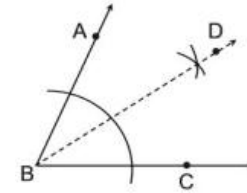
- [1] $(-2, 10)$
- [2] $(-2, 8)$
- [3] $(6, 8)$
- [4] $(-1, 5)$

13. In the rectangular solid at the right, the vertices are labeled as shown. Which set of points are not coplanar in this diagram?

- [1] A, B, C, D
- [2] C, D, H, G
- [3] A, B, F, G
- [4] A, D, H, E



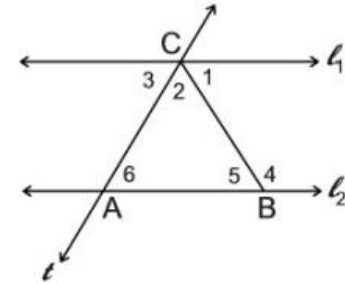
14. The diagram at the right is a construction involving $\angle ABC$. Which of the following statements is NOT true?



- [1] $m\angle ABD + m\angle CBD = m\angle ABC$
- [2] $m\angle ABD = \frac{1}{2}m\angle ABC$
- [3] $m\angle DBC = m\angle ABC$
- [4] $m\angle ABC = 2(m\angle CBD)$

15. In the diagram, line l_1 is parallel to line l_2 , $m\angle 3 = 30$ and $m\angle 4 = 110$. Find $m\angle 2$.

- [1] 60°
- [2] 80°
- [3] 100°
- [4] 120°

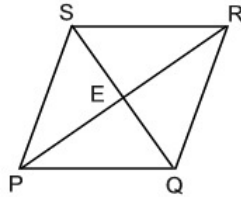


16. What is the converse of the statement: "If $ABCD$ is a rectangle, then the diagonals bisect each other."

- [1] If the diagonals of $ABCD$ bisect each other, then $ABCD$ is a rectangle
- [2] If $ABCD$ is not a rectangle, then the diagonals do not bisect each other.
- [3] $ABCD$ is a rectangle and the diagonals bisect each other.
- [4] If the diagonals of $ABCD$ do not bisect each other, then $ABCD$ is not a rectangle.

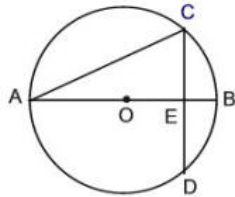
17. In rhombus $PQRS$, $PR = 24$ and $QS = 10$. Find the perimeter of the rhombus.

- [1] 52
[2] 104
[3] 26
[4] 39



18. In circle O , diameter \overline{AB} is perpendicular to chord \overline{CD} at E . If $CD = 8$ and $BE = 2$, find AE .

- [1] $2\sqrt{5}$
[2] 8
[3] 10
[4] 16



19. A triangle has coordinates $A(0,0)$, $B(6,2)$ and $C(6,0)$. After a translation R_{180° , what are the coordinates of B' ?

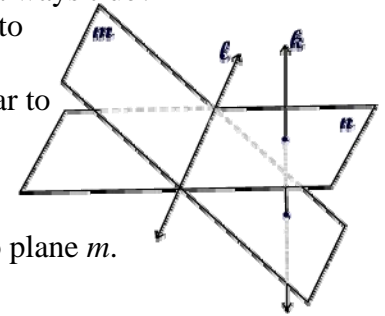
- [1] $(-2,6)$ [2] $(-6,2)$ [3] $(-6,-2)$ [4] $(2,-6)$

20. What is the equation of a line that is parallel to the line $2x + 5y = -20$ and passes through the point $(-5,-3)$?

- [1] $y = -\frac{2}{5}x + 1$ [3] $y = \frac{2}{5}x + 1$
[2] $y = -\frac{2}{5}x - 5$ [4] $y = \frac{2}{5}x - 5$

21. Plane m and plane n are two distinct planes that intersect at line l . Line k is drawn perpendicular to plane n . Which of the following statements is always true?

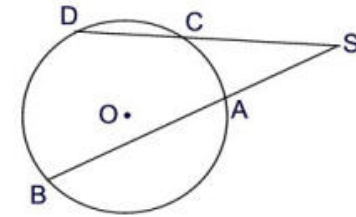
- [1] Plane m is perpendicular to plane n .
[2] Line k is not perpendicular to plane m .
[3] Line k is perpendicular to line l .
[4] Line k is perpendicular to plane m .



22. In circle O , the secant from S to D intersects the circle at C and the secant from S to B intersects the circle at A .

If $SC = 6$, $CD = 8$ and $SA = 4$, find AB .

- [1] $16/3$ [2] 17 [3] 21 [4] $28/3$

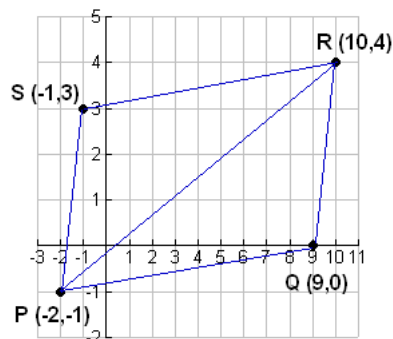


23. Which point satisfies the system of equations, $y = 2x + 2$ and $y = -x^2 + 2$?

- [1] $(0,2)$ [3] $(1,2)$
[2] $(-1,0)$ [4] $(2,-4)$

24. In two similar polygons, the ratio of two corresponding sides is 3:2. If the perimeter of the smaller polygon is represented by $x + 14$ and the perimeter of the larger polygon is represented by $4x - 4$, find the actual perimeter of the larger polygon.
- [1] 10 [2] 20 [3] 30 [4] 36

25. Quadrilateral $PQRS$ is plotted in the coordinate plane as shown. Find the length of diagonal PR .



- [1] 13 [3] $\sqrt{73}$
 [2] $6\sqrt{2}$ [4] $\sqrt{122}$

26. Which statement describes a circle with the equation $(x + 4)^2 + (y - 6)^2 = 36$?
- [1] The center is at $(-4, 6)$ and the radius is 36.
 [2] The center is at $(4, -6)$ and the radius is 36.
 [3] The center is at $(4, -6)$ and the radius is 6.
 [4] The center is at $(-4, 6)$ and the radius is 6.

27. A line segment connects point $A(-2, 6)$ to point $B(4, 6)$. After the transformation of $D_{0.5} \circ T_{(2, -6)}$, what will be the length of the segment. Assume the center of the dilation to be the origin.
- [1] 6 [2] 2 [3] 3 [4] 4

28. A cube has an edge length represented by $x - 3$. Find the surface area of the cube.
- [1] $8x^2 - 48x + 12$
 [2] $6x^2 - 36x + 54$
 [3] $6x^2 + 54$
 [4] $4x^2 - 24x + 36$