Geometry Definitions Worksheet

Geometry · Common Core HSG-CO.A.1

> Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.

Practice

Builds the skill step by step.

1. Which is the definition of a line segment?
   A. Part of a line with one endpoint
   B. The set of points a fixed distance from a center
   C. A line that goes on forever in both directions
   D. Part of a line made of two endpoints and all the points between them

2. Which is the definition of perpendicular lines?
   A. Two lines that never intersect
   B. Two lines that intersect to form right angles
   C. Two lines that meet at any angle
   D. Two lines with the same length

3. Which is the definition of parallel lines?
   A. Lines in the same plane that never intersect
   B. Any two lines that never intersect
   C. Lines that intersect at one point
   D. Lines that form right angles

4. Which is the definition of a circle?

   A. The set of all points inside a curve

   B. A polygon with very many sides

   C. The set of all points in a plane that are a given distance from a given point

   D. A round shape with no corners

5. Which is the definition of an angle?

   A. A corner of a polygon

   B. Two segments of equal length

   C. Two lines that cross

   D. Two rays that share a common endpoint

6. Which of these is an undefined term in geometry?

   A. angle

   B. point

   C. segment

   D. circle

7. A circle has center O and a radius of 5 cm. Point P is on the circle. What is OP?

8. Rays AB and AC form angle BAC. What is the vertex of the angle?

   A. A

   B. B

   C. C

   D. There is no vertex.

9. Lines m and n are perpendicular. What is the measure of each angle they form?

10. Which pair of lines in the coordinate plane is parallel?

    A. $y = 2x + 1$ and $y = 2x - 3$

    B. $y = 2x + 1$ and $y = -2x + 1$

    C. $y = x$ and $y = -x$

    D. $y = 3$ and $x = 3$

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On Level

Grade-level practice.

1. Define a circle using the terms point, plane and distance.

2. Which is the most precise definition of perpendicular lines?

   A. Two lines that look like a plus sign

   B. Two lines that intersect

   C. Two lines, one going up and one going across

   D. Two lines that intersect to form a right angle

3. Ari says, "Two lines that never meet are always parallel." Explain why his statement is missing something.

4. Angle ABC measures 40°. Ray BD is the opposite ray of ray BA. What is the measure of angle CBD?

5. Which is the definition of a ray?

   A. A line with no endpoints

   B. Part of a line with two endpoints

   C. Part of a line that starts at an endpoint and goes on forever in one direction

   D. Two segments that share an endpoint

6. Points A, B and C are on a line, with B between A and C. AB = 7 and AC = 19. What is BC?

7. What is the midpoint of a segment?

   A. The point that divides the segment into two congruent segments

   B. Any point on the segment

   C. An endpoint of the segment

   D. The point where the segment meets a perpendicular line

8. A circle has center O. Points A and B are on the circle. OA = $3x - 2$ and OB = $x + 6$. What is x?

9. What is an angle bisector?

   A. A segment that joins the ends of an angle

   B. A ray that divides an angle into two congruent angles

   C. A ray that forms a right angle with one side

   D. A line perpendicular to a side of an angle

10. Two lines intersect, and one of the angles they form is 90°. How many of the four angles are right angles?

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Challenge

Multi-step and word problems that stretch it.

1. Explain why "all points 5 cm from point O" does not describe a circle unless you add "in a plane."

2. On a number line, A is at 2 and B is at 14. What is the coordinate of the midpoint of segment AB?

3. Angle PQR is a straight angle. Ray QS is inside it. The measure of angle PQS is 3x + 10 and the measure of angle SQR is 2x + 20. What is x?

4. Which definition of an angle uses only undefined and earlier defined terms correctly?

   A. The amount of turn

   B. A corner of a shape

   C. The figure formed by two rays that share an endpoint

   D. The space between two lines

5. A circle has center O and radius 10. Point X is 12 units from O. Where is X?

   A. outside the circle

   B. on the circle

   C. inside the circle

   D. at the center

6. Two lines are perpendicular. One of the angles they form measures $(2x + 30)°$. What is x?

7. In a plane, lines p and q are both perpendicular to line r. How are p and q related?

   A. They are perpendicular.

   B. They are the same line in every case.

   C. They intersect at r.

   D. They are parallel.

8. A circle has a circumference of 36 cm. What is the distance around an arc that is $\frac{1}{4}$ of the circle?

9. Which term is left undefined in geometry?

   A. ray

   B. line

   C. angle

   D. circle

10. Write a precise definition of perpendicular lines.