

Points, Lines, Planes, and Angle Relationships: math test, Grade 10 – download the PDF

Suggested time: 45 minutes. Out of 20 points. Calculator allowed only when the problem says so.

1 Vocabulary

/ 3 pts

(a) How many points are needed to determine one line? (b) How many non-collinear points are needed to determine one plane? (c) What is the difference between segment $\overline{AB}$ and ray $\overrightarrow{AB}$?

2 Segment addition

/ 3 pts

Point S is between R and T . $RS = (4x - 3)$ cm, $ST = (2x + 9)$ cm and $RT = 48$ cm. Find x , RS , and ST .

3 Coordinates

/ 4 pts

Let $P(-2, -1)$ and $Q(10, 8)$. (a) Find the midpoint of $\overline{PQ}$. (b) Find PQ .

4 Adding angles

/ 4 pts

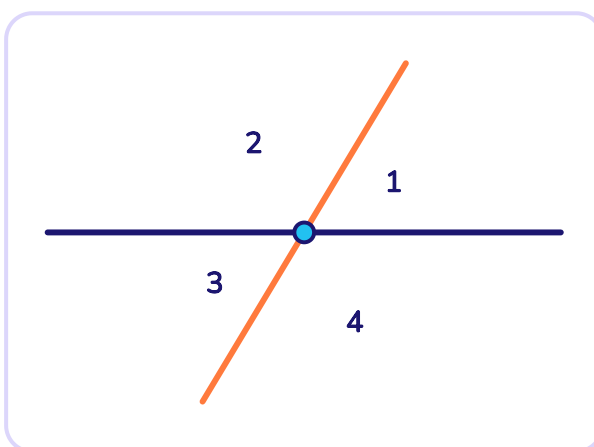
Rays OB and OC lie inside $\angle AOD$ with $m\angle AOD = 132^\circ$, $m\angle AOB = (2x + 4)^\circ$, $m\angle BOC = (3x - 6)^\circ$ and $m\angle COD = (x + 14)^\circ$.

(a) Find x . (b) Find the three angle measures. (c) Does OB or OC bisect $\angle AOD$?

5 Vertical angles

/ 3 pts

Two lines intersect as shown. $m\angle 1 = (7x - 4)^\circ$ and $m\angle 3 = (4x + 23)^\circ$.



Find x , $m\angle 1$, and $m\angle 2$.

6 Construction

/ 3 pts

Explain how to construct the perpendicular bisector of a segment $\overline{AB}$ with a compass and straightedge, and say what is true of the point where it meets $\overline{AB}$.



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