

Quadrilaterals and Polygons: math test, Grade 10 – download the PDF

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

1 Angle sums

/ 3 pts

(a) Find the sum of the interior angles of an 11-gon. (b) A regular polygon has exterior angles of 15° . How many sides does it have, and what is each interior angle?

2 A parallelogram

/ 4 pts

In parallelogram $WXYZ$, $\angle W = (2x + 20)^\circ$ and $\angle X = (3x - 10)^\circ$. The diagonals meet at O , with $WO = 3t + 1$ and $OY = 5t - 9$. (a) Find the four angles. (b) Find the length of $\overline{WY}$.

3 True or false?

/ 3 pts

True or false? Justify each answer. (a) Every rhombus is a parallelogram. (b) The diagonals of every rectangle are perpendicular. (c) Every kite is a parallelogram.

4 A rhombus

/ 4 pts

Rhombus $ABCD$ has diagonals $AC = 18\text{ cm}$ and $BD = 24\text{ cm}$. Find (a) the side length, (b) the perimeter, (c) the area.

5 An isosceles trapezoid

/ 3 pts

An isosceles trapezoid has bases of 10 in and 24 in and legs of 25 in . (a) Find the midsegment. (b) Find the height. (c) Find the area.

6 Coordinate proof

/ 3 pts

Given $A(1, 1)$, $B(5, 2)$, $C(6, 6)$, $D(2, 5)$. Prove that $ABCD$ is (a) a parallelogram, (b) a rhombus, (c) not a rectangle.



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