

Diagonals of a Polygon

- 1) Draw a heptagon (7-sided polygon) and label the vertices ABCDEFG. Draw in the diagonals. How many are there?
- 2) In your heptagon,
 - (i) How many diagonals can be drawn from the vertex A?
 - (ii) How many vertices are there?
- (iii) Parts (i) and (ii) suggest that there are $4 \times 7 = 28$ diagonals. But in fact there are only 14. Why is this?
- 3) In a polygon with n sides
 - (i) How many diagonals can be drawn from the vertex A?
 - (ii) How many vertices are there?
 - (iii) How many diagonals will there be altogether?

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