

Year 4: Polygons and sorting shapes: answers

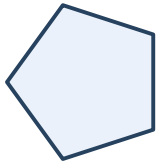
Year 4 - Shapes, Angles and Symmetry - Lesson 9.5

Answers. Final answers to the worksheet questions. Full step-by-step solutions for every question are free at websink.site/ks2-sats/maths/year-4/ch09-shapes-angles-symmetry/polygons-and-sorting-shapes/

Exercise 9E Polygons Non-calculator

1 Write the name of each polygon.

(a)



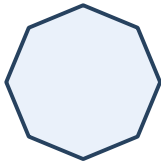
Answer: pentagon

(b)



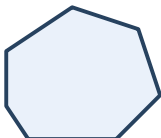
Answer: hexagon

(c)



Answer: octagon

(d)



Answer: heptagon

2 How many sides and how many vertices does each polygon have?

(a) hexagon

Answer: 6 sides and 6 vertices

(b) octagon

Answer: 8 sides and 8 vertices

(c) pentagon

Answer: 5 sides and 5 vertices

(d) decagon

Answer: 10 sides and 10 vertices

3 Write the name of the polygon that has...

(a) 7 sides

Answer: heptagon

(b) 9 sides

Answer: nonagon

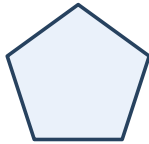
(c) 6 sides

Answer: hexagon

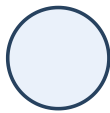
(d) 4 sides

Answer: quadrilateral

4 Which of these shapes are polygons? Write the letters.



A



B



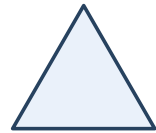
C



D



E

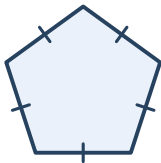


F

Answer: A, D and F

5 Is each polygon regular or irregular?

(a)



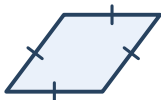
Answer: regular

(b)



Answer: irregular

(c)



Answer: irregular

(d)



Answer: irregular

6 Fill in the gaps.

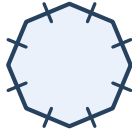
(a) A regular octagon has ___ equal sides.

Answer: 8

- (b) A regular hexagon has ___ vertices.

Answer: 6

- 7 A road sign is a regular octagon. Each side is 25 cm long. What is the perimeter of the sign?

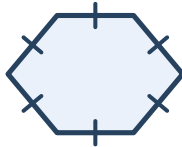


Answer: 200 cm

- 8 Mei draws 5 separate hexagons. How many sides does she draw altogether?

Answer: 30

- 9 Noah says, "This hexagon has 6 equal sides, so it is a regular hexagon." Is Noah correct? Explain.



Answer: No. The angles are not all equal, so it is irregular

- 10 Is each statement **true** or **false**?

- (a) A rectangle (that is not a square) is a regular polygon.

Answer: False

- (b) A square is a regular polygon.

Answer: True

- (c) A triangle is a polygon.

Answer: True

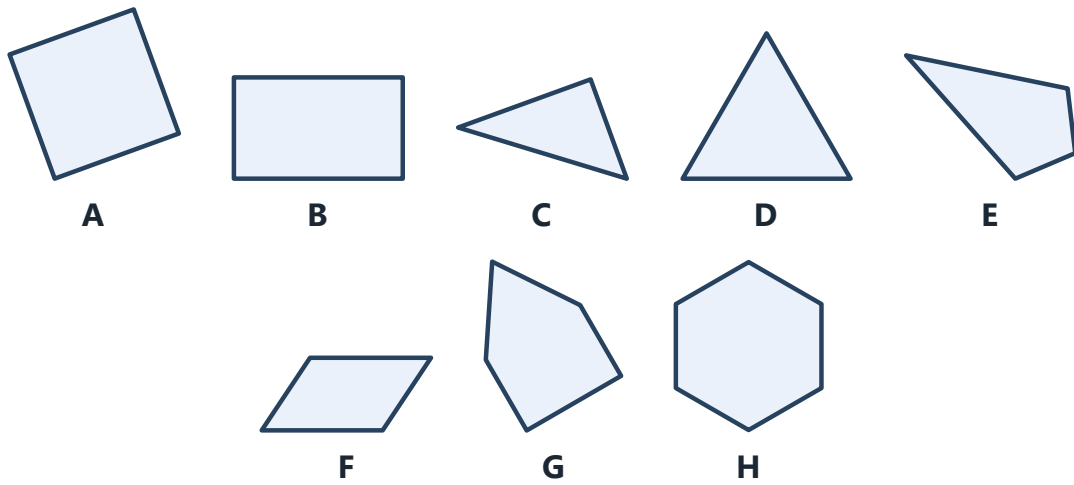
- 11 A regular polygon has sides of 4 cm. Its perimeter is 32 cm. How many sides does it have? What is the polygon called?

Answer: 8 sides: a regular octagon

Exercise 9F Sorting shapes

Non-calculator

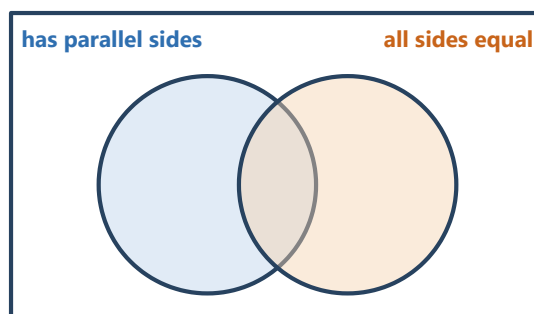
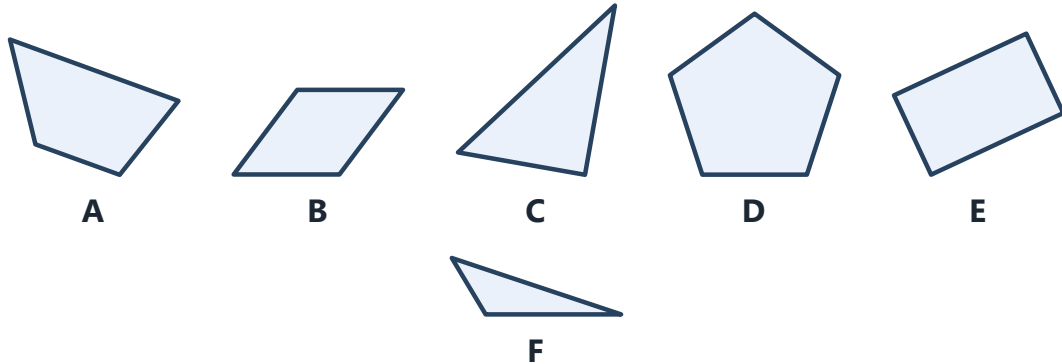
- 1 Sort shapes A to H into the Carroll diagram. Write the letters that go in each box.



	has a right angle	no right angle
4 sides		
not 4 sides		

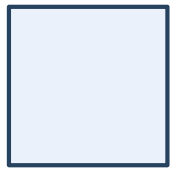
Answer: yes to "has 4 sides" and yes to "has a right angle": A, B; yes to "has 4 sides" and no to "has a right angle": E, F; no to "has 4 sides" and yes to "has a right angle": C, G; no to "has 4 sides" and no to "has a right angle": D, H

2 Sort shapes A to F into the Venn diagram. Write the letters in each part.

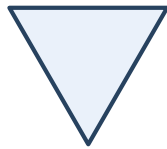


Answer: Only "has parallel sides": A, E. Both: B. Only "all sides equal": D. Neither: C, F.

3 The Venn diagram shows shapes sorted by two labels. The right label is missing. Write a label for the right circle.



A



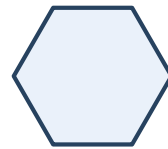
B



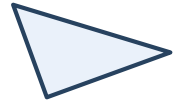
C



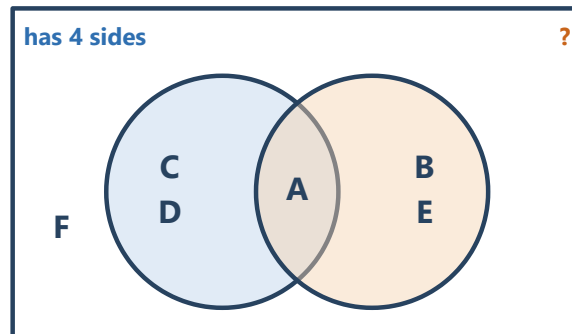
D



E

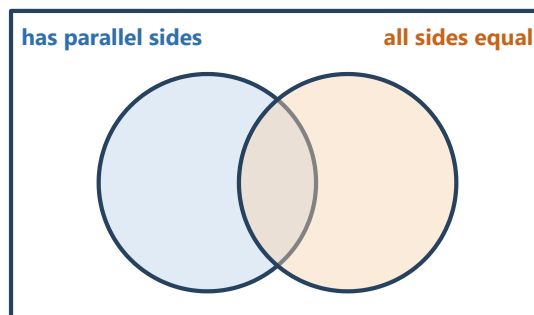


F

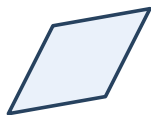


Answer: all sides equal (or: is regular)

- 4 Here is the Venn diagram for “has parallel sides” and “all sides equal”. Where does each new shape go? Write **left circle only**, **right circle only**, **in the overlap** or **outside both circles**.



(a)



rhombus

Answer: in the overlap

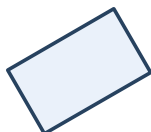
(b)



kite

Answer: outside both circles

(c)



rectangle

Answer: left circle only

- 5 Which shape am I? Use the clues one at a time.

(a) I have 3 sides. All of my sides are the same length.

Answer: equilateral triangle

- (b) I have 6 sides. I am a regular polygon.

Answer: regular hexagon

- (c) I have 4 sides. I have four lines of symmetry.

Answer: square

6 Which shape am I? These riddles are harder.

- (a) I have 4 sides. I have two pairs of equal sides, and the equal sides are next to each other.

Answer: kite

- (b) I have 4 sides. I have exactly one pair of parallel sides. I have no right angles.

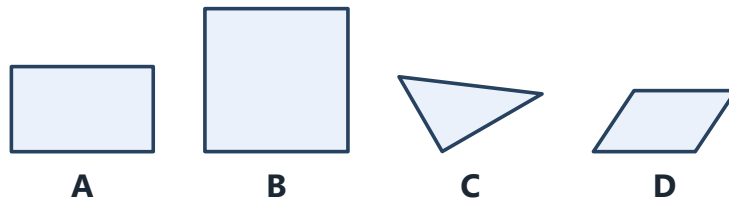
Answer: trapezium

- (c)

I have 4 sides. I have two pairs of parallel sides. Two of my angles are acute and two are obtuse. My sides are not all the same length. I have no right angles.

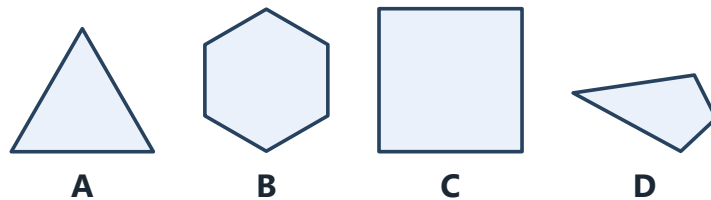
Answer: parallelogram

7 Which shape is the odd one out? Say why.



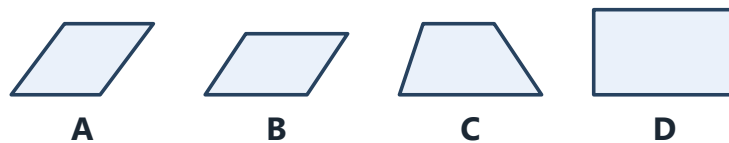
- (a)

Answer: D (parallelogram): it does not fit "has a right angle"



- (b)

Answer: D (kite): it does not fit "is regular"



- (c)

Answer: C (trapezium): it does not fit "has two pairs of parallel sides"

8 Write **always**, **sometimes** or **never** for each sentence.

- (a) A regular polygon has equal sides.

Answer: Always

(b) A pentagon is a regular polygon.

Answer: Sometimes

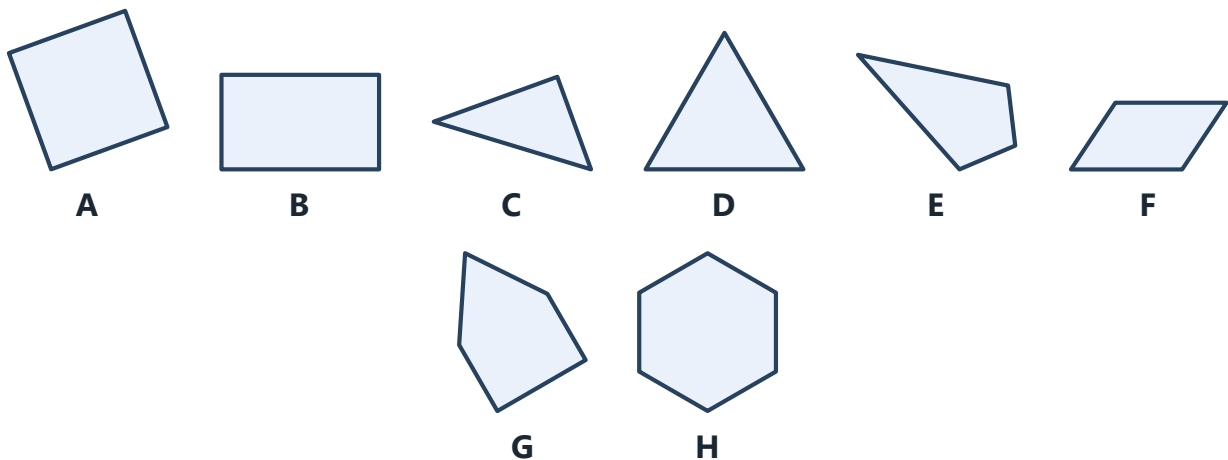
(c) A hexagon has 7 sides.

Answer: Never

(d) A quadrilateral has four right angles.

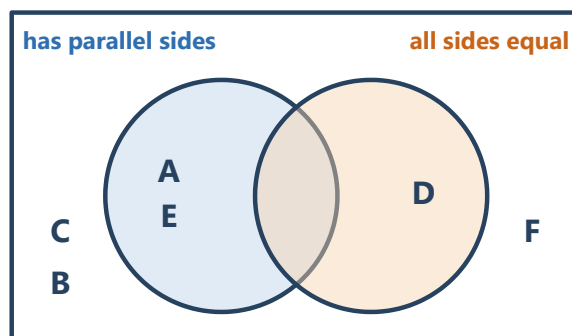
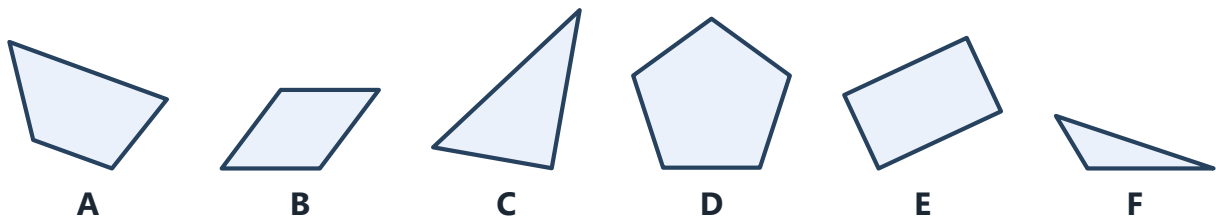
Answer: Sometimes

9 How many of the shapes A to H (shown in the first question) are quadrilaterals?



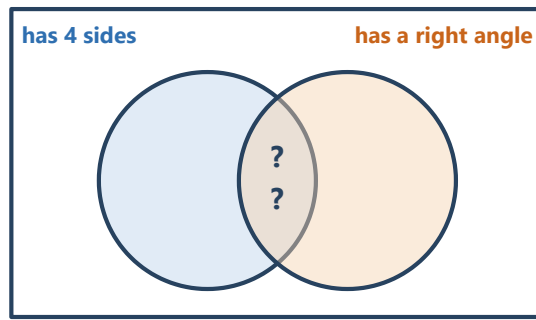
Answer: 4

10 Zainab sorted shapes A to F into a Venn diagram, but she made one mistake. Which shape is in the wrong place? Where should it go?



Answer: B should go in the overlap

11 In a Venn diagram, the left circle is "has 4 sides" and the right circle is "has a right angle". Name two shapes that could go in the overlap. Explain how you know.



Answer: square and rectangle