Maths Answers –

Monday 27th April

Mild:

1) 70° + 110° + 130° = 310°
   360° – 310° = 50°
   a = 50°

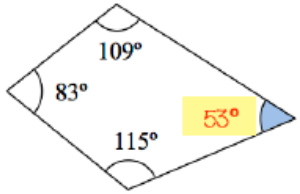
2) 70° + 120° + 50° = 240°
   360° – 240° = 120°
   b = 120°

3) 85° + 65° + 105° = 255°
   360° – 255° = 105°
   d = 105°

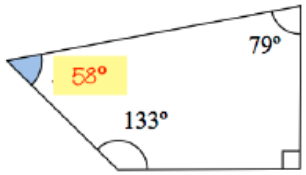
4) 90° + 90° + 52° = 232°
   360° – 232° = 128°
   e = 128°

Spicy:

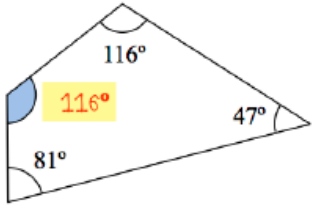
A1 Work out the value of x



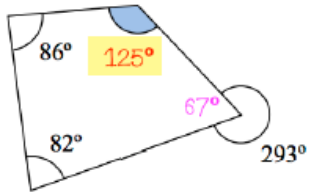
A2 Work out the value of x



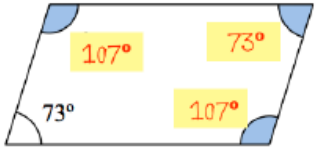
A3 Work out the value of x



A4 Work out the value of x

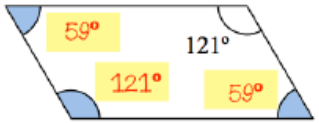


B1 This is a parallelogram.



Work out the values of x, y and z

B2 This is a parallelogram.



Work out the values of x, y and z

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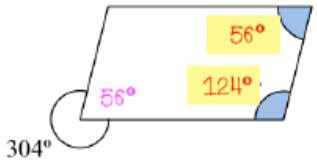
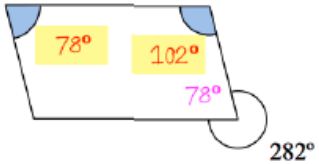


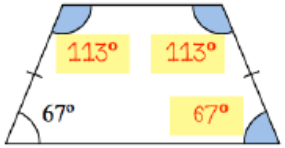
Work out the values of x and y

B4 This is a parallelogram.



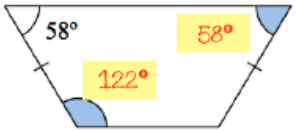
Work out the values of x and y

C1 This is an isosceles trapezium.



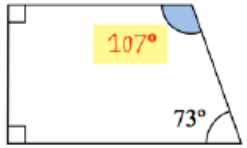
Work out the values of x, y and z

C2 This is an isosceles trapezium.



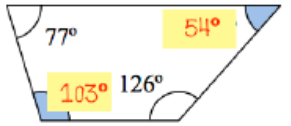
Work out the values of x and y

C3 This is a trapezium.



Work out the value of x

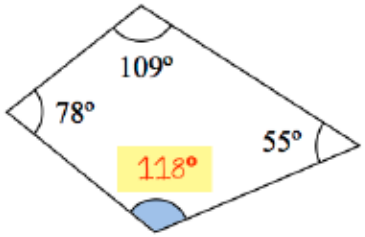
C4 This is a trapezium.



Work out the values of x and y

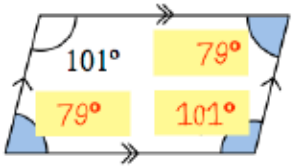
Hot Answers – Monday

A1 This quadrilateral is irregular



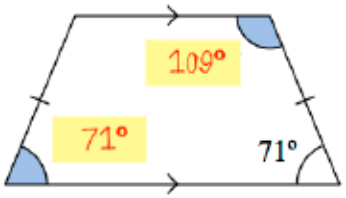
Work out the value of x

A2 This is a parallelogram.



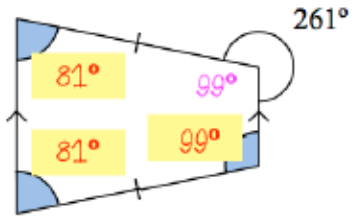
Work out the values of x, y and z

A3 This is an isosceles trapezium.



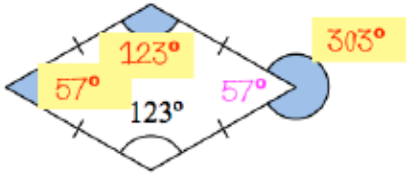
Work out the values of x and y

A4 This is an isosceles trapezium.



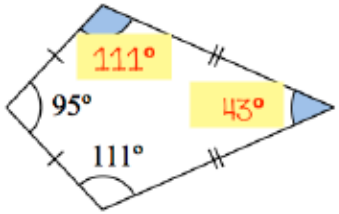
Work out the values of x, y and z

B1 This is a rhombus.



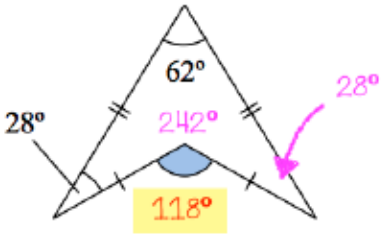
Work out the values of x, y and z

B2 This is a kite.



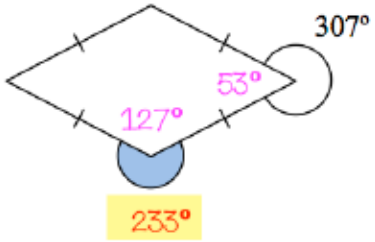
Work out the values of x and y

B3 This is an arrowhead (delta).



Work out the value of x

B4 This is a rhombus.



Work out the value of x

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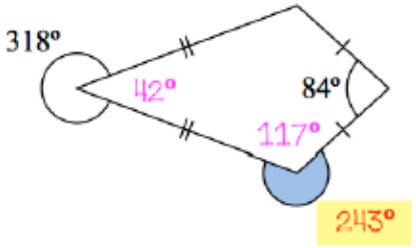
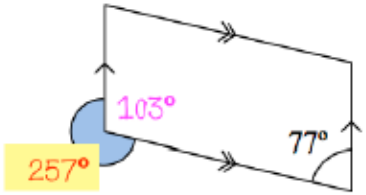


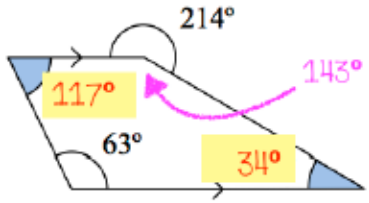
Work out the value of x

C2 This is a parallelogram.



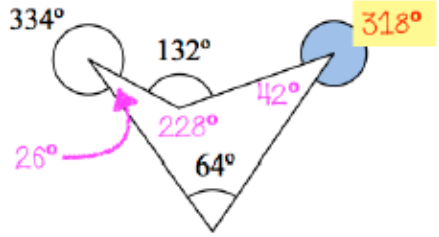
Work out the value of x

C3 This is a trapezium.



Work out the values of x and y

C4 This quadrilateral is irregular.



Work out the value of x

Tuesday 28th April – Answers – Mild

Shape	Number of Angles	Interior Angle	Total of All Interior Angles
equilateral triangle	3	60°	180°
square	4	90°	360°
regular pentagon	5	108°	540°
regular hexagon	6	120°	720°
regular octagon	8	135°	1080°

Spicy:

Shape	Number of Angles	Interior Angle	Total of All Interior Angles
e.g. equilateral triangle	3	600	1800
square	**4**	**90°**	**360°**
regular pentagon	**5**	**108°**	**540°**
regular hexagon	**6**	**120°**	**720°**
regular octagon	**8**	**135°**	**1080°**
regular nonagon	**9**	**140°**	**1260°**
regular decagon	**10**	**144°**	**1440°**
regular dodecagon	**12**	**150°**	**1800°**

Describe any patterns you can see.

The total of all interior angles increases by 180° each time.

Tuesday - Hot Answers:

How many turns of 900 would you make? **4**

What is the total turn? **360°**

What angle would you turn to draw an equilateral triangle? **120°**

What would be the total turn for an equilateral triangle? **360°**

How could you use the turn each time to find the interior angle of each regular polygon?

Angle of turn × number of angles = 360°

How would you calculate the interior angle from the angle of turn?

Interior angle + angle of turn = 180°, so interior angle = 180° – angle of turn

Use your answers to the above questions to find the turn for each regular polygon, and therefore the interior angle. Record your results in the table below.

Shape	Number of Angles	Angle of Turn	Interior Angle	Total of All Interior Angles
e.g. equilateral triangle	3	120°	60°	180°
square	**4**	**90°**	**90°**	**360°**
regular pentagon	**5**	**72°**	**108°**	**540°**
regular hexagon	**6**	**60°**	**120°**	**720°**
regular octagon	**8**	**45°**	**135°**	**1080°**
regular nonagon	**9**	**40°**	**140°**	**1260°**
regular decagon	**10**	**36°**	**144°**	**1440°**
regular dodecagon	**12**	**30°**	**150°**	**1800°**

Write a formula for the turn needed for any polygon with n number of sides.

Angle of turn = 360° ÷ number of sides.

What is the interior angle for regular polygons with 15, 20, 30, 60 and 100 sides?

156°, 162°, 168°, 174°, 176.4°

Tuesday 28th April - Extra Hot Answers:

(all answers are given in degrees)

1) 120 + 120 + 85 + 115 = 440
   Interior angles in a pentagon = 540
   540 – 440 = 100
   a = 100

2) 140 + 90 + 135 + 85 + 160 = 610
   Interior angles in a hexagon = 720
   720 – 610 = 110
   b = 110

3) 60 + 30 + 25 = 115
   Interior angles in a delta (quadrilateral) = 360
   360 – 115 = 245
   c = 245

4) 65 + 70 + 200 + 250 + 75 = 660
   Interior angles in a hexagon = 720
   720 – 660 = 60
   d = 60

5) 100 + 130 + 115 + 40 + 320 + 50 = 755
   Interior angles in a heptagon = 900
   900 – 755 = 145
   e = 145

6) 55 + 95 + 280 + 275 + 110 + 85 + 95 = 995
   Interior angles in an octagon = 1080
   1080 – 995 = 85
   f = 85

7) 85 + 75 + 85 + 105 + 95 = 445
   Interior angles in a hexagon = 720
   720 – 445 = 275
   g = 275

8) 88 + 62 = 150
   Interior angles in a triangle = 180
   180 – 150 = 30
   h = 30

9) 70 + 120 + 140 + 135 + 120 + 165 + 280 = 1030
   Interior angles in an octagon = 1080
   1080 – 1030 = 50
   i = 50

10) 100 + 110 + 30 + 55 + 260 + 85 + 265 + 75 = 980
    Interior angles in a nonagon = 1260
    1260 – 980 = 280
    j = 280

11) 115 + 105 + 75 + 330 + 95 + 115 + 90 + 330 + 100 = 1265
    Interior angles in a decagon = 1440
    1440 – 1265 = 185
    k = 185

12) 90 + 95 + 40 = 225
    Interior angles in a quadrilateral = 360
    360 – 225 = 135
    l = 135

13a) triangle = 60
13b) hexagon = 120
13c) octagon = 135
13d) pentagon = 108
13e) quadrilateral = 90

14a) 12 sided shape = dodecagon
14b) 17 sided shape = pentadecagon
14c) dodecagon
14d) 15 sided shape = pentadecagon

15) a) (n-2) x 180
15b) as above and then ÷n