

Name: \_\_\_\_\_

## Exam Style Questions

# Angles - Polygons



Corbettmaths

Equipment needed: Calculator, pen

### Guidance

1. Read each question carefully before you begin answering it.
2. Check your answers seem right.
3. Always show your workings

### Video Tutorial

[www.corbettmaths.com/contents](http://www.corbettmaths.com/contents)

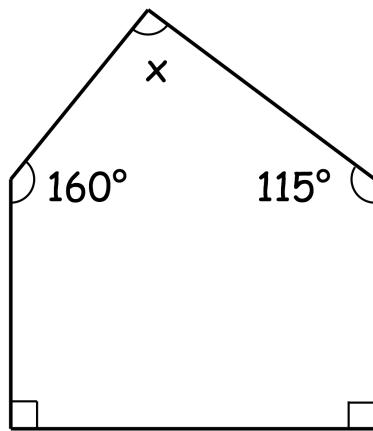


### Video 32

### Answers and Video Solutions



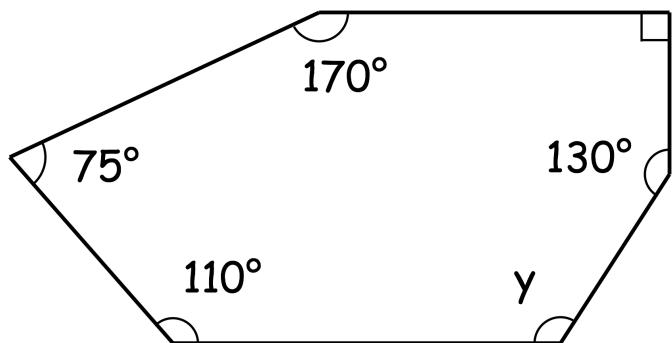
1.



(a) Calculate the size of angle  $x$ .

$$x = \dots \text{ } ^\circ$$

(2)

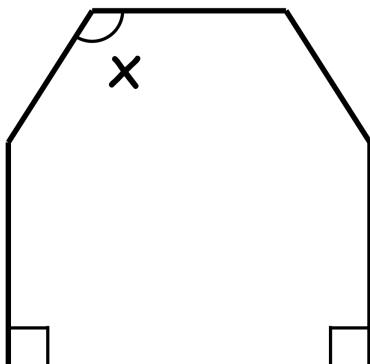


(b) Calculate the size of angle  $y$ .

$$y = \dots \text{ } ^\circ$$

(2)

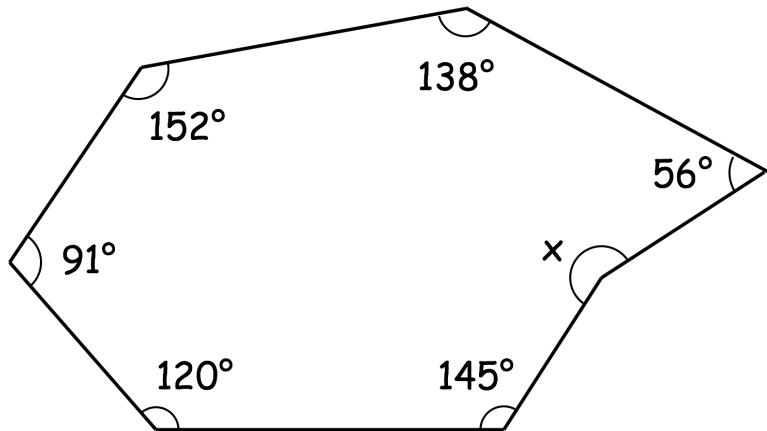
2. The hexagon below has two right angles.  
The other four angles are all equal.



Work out the size of angle x.

.....<sup>o</sup>  
(3)

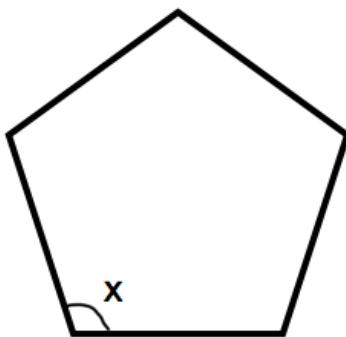
3. Shown below is a heptagon.



Calculate the size of angle x.

.....<sup>o</sup>  
(2)

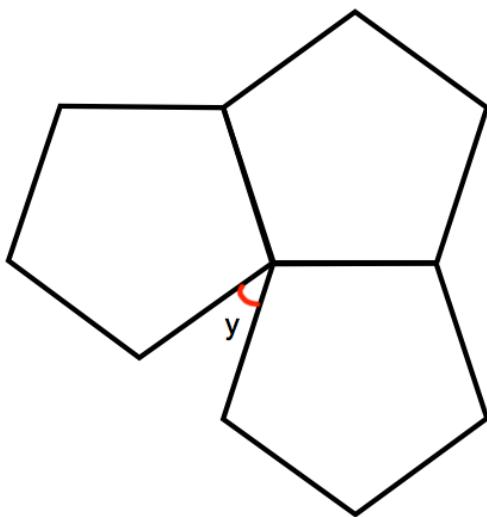
4. Shown below is a regular pentagon.



- (a) Find the size of each interior angle.

$$x = \dots \text{ } ^\circ$$

(2)



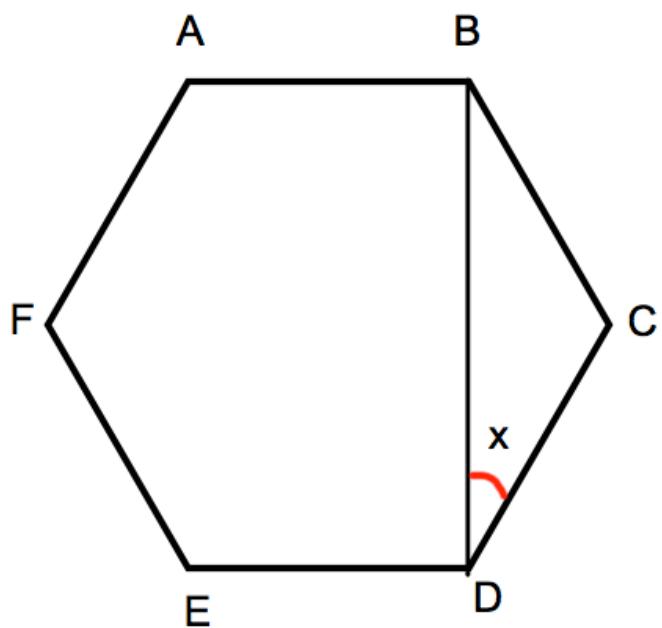
Three identical regular pentagons are joined as shown above.

- (b) Work out the size of angle y.

$$y = \dots \text{ } ^\circ$$

(2)

5. Shown below is a regular hexagon ABCDEF.

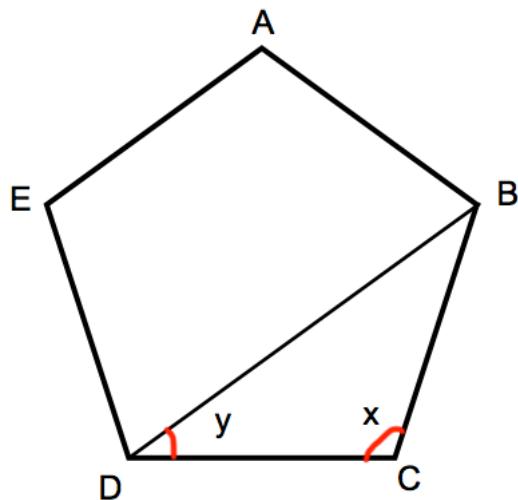


Calculate angle x.

$$x = \dots \text{ } ^\circ$$

**(3)**

6. Shown below is a regular pentagon ABCDE.



- (a) Work out angle  $x$ .

$$x = \dots \text{ } ^\circ$$

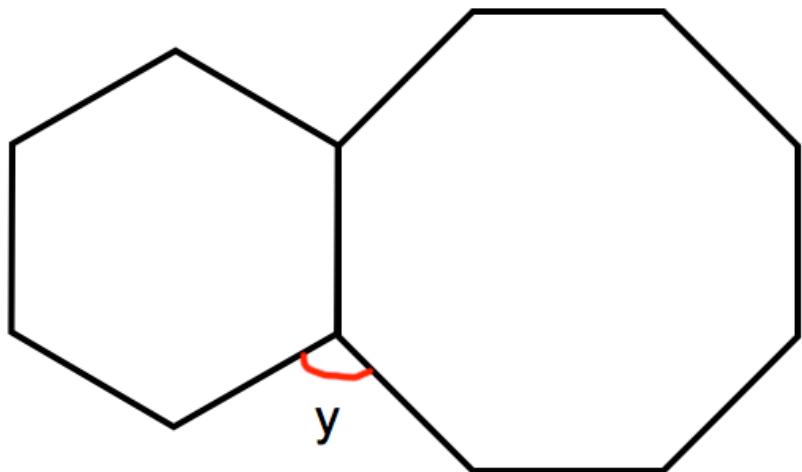
(2)

- (b) Work out angle  $y$ .

$$y = \dots \text{ } ^\circ$$

(2)

7. Shown is a regular hexagon and a regular octagon.



Calculate the size of angle  $y$ .

$$y = \dots \text{ } ^\circ$$

(3)

8. A regular polygon has 12 sides.

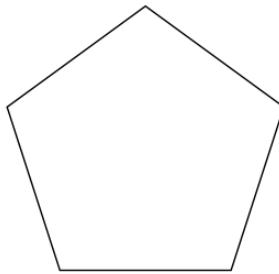


Work out the size of each interior angle.

$$\dots \text{ } ^\circ$$

(2)

9.



Explain why the sum of the interior angles in a regular pentagon is  $540^\circ$

.....

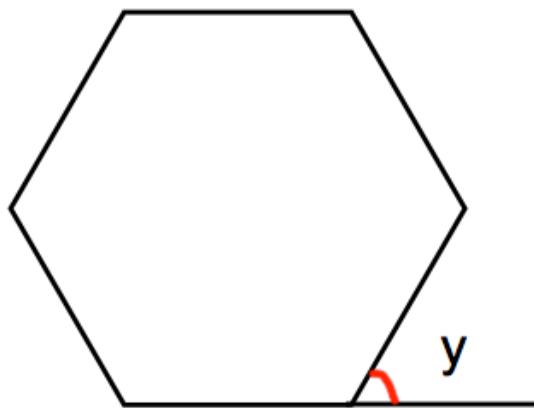
.....

.....

.....

(2)

10. Shown below is a regular hexagon, with an exterior angle labeled  $y$ .



Work out the size of each exterior angle.

$y = \dots \text{ }^\circ$   
(2)

11. A regular polygon has 24 sides.



Work out the size of each exterior angle.

.....<sup>o</sup>  
**(2)**

- 
12. Each exterior angle of a regular polygon is  $20^\circ$



Work out the number of sides of the polygon.

.....  
**(2)**

- 
13. Each interior angle of a regular polygon is  $174^\circ$



Work out the number of sides of the polygon.

.....  
**(2)**

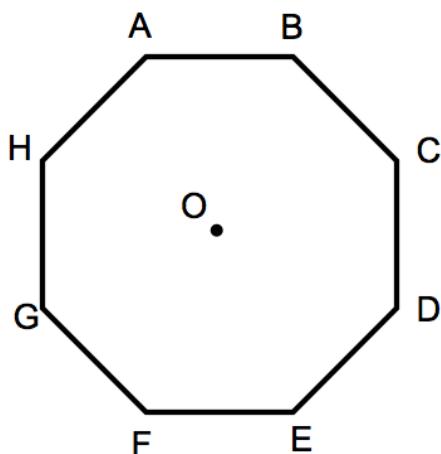
14. The interior angle of a regular polygon is  $135^\circ$



Work out the number of sides of the polygon.

.....  
(2)

15. ABCDEFGH is a regular octagon.



(a) Calculate the size of angle AOB.

.....  
(2)

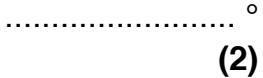
(b) Calculate the size of angle ABC.

.....  
(2)

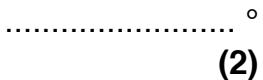
16. Martin has drawn a regular nonagon (9 sided polygon).



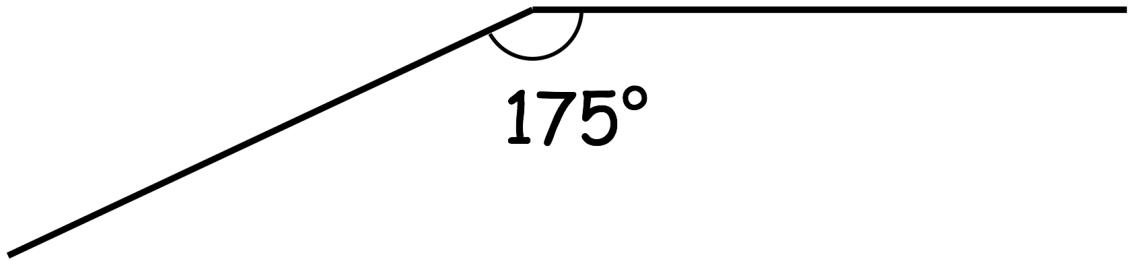
- (a) What size is each exterior angle?



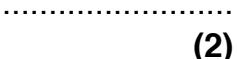
- (b) What size is each interior angle?



- 
17. Shown below is an interior angle from a regular polygon.



Calculate the number of sides the polygon has.



18. Isaac wants to work out the size of each exterior angle of a regular 12 sided polygon.



Here is Isaac's working out.

$$(12 - 2) \times 180 = 1800^\circ$$

$$1800 \div 12 = 150^\circ$$

$$360 - 150 = 210^\circ$$

Answer:  $210^\circ$

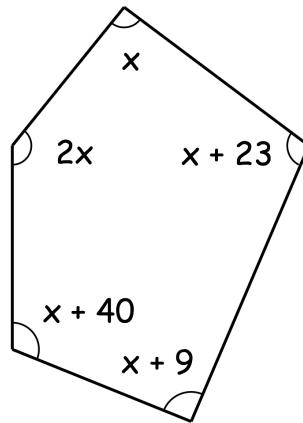
Explain Isaac's mistake.

.....

.....

(2)

19. The diagram shows a pentagon.



Work out the size of the largest angle in the pentagon.

.....

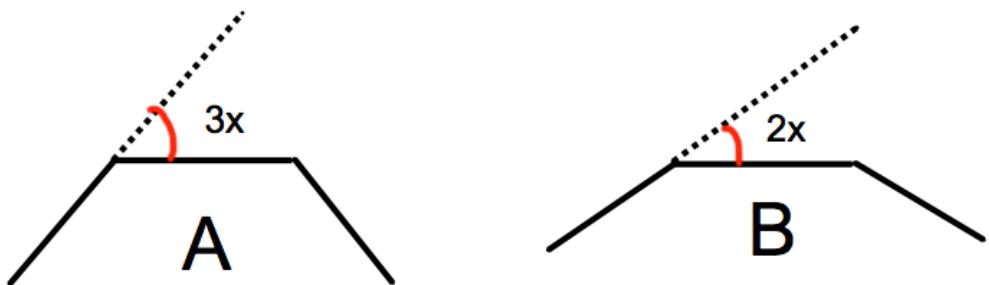
(5)

20. The diagram shows parts of two regular polygons A and B.



A has 10 sides and exterior angle  $3x$ .  
B has exterior angle  $2x$ .

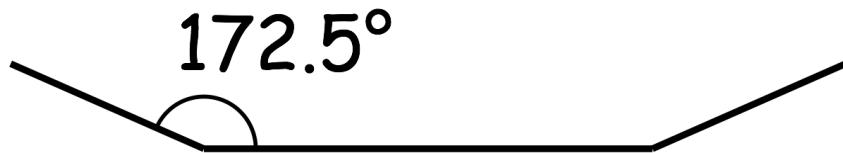
Not to scale



Work out the number of sides regular polygon B has.

.....  
(5)

21. The diagram below shows part of a regular polygon.



- (a) Calculate the size of each exterior angle.

.....<sup>o</sup>  
(1)

- (b) Calculate the number of sides the polygon has.

.....  
(2)

- 
22. Explain why a regular octagon will **not** tessellate.



(3)

23. Work out the sum of the interior angles for a 40 sided polygon.



.....<sup>o</sup>  
(2)

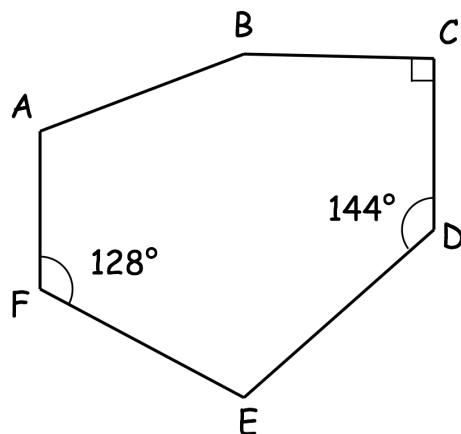
24. The sum of the interior angles in a polygon is  $7380^\circ$



Calculate the number of sides the polygon has.

.....  
(2)

25. ABCDEF is a hexagon.



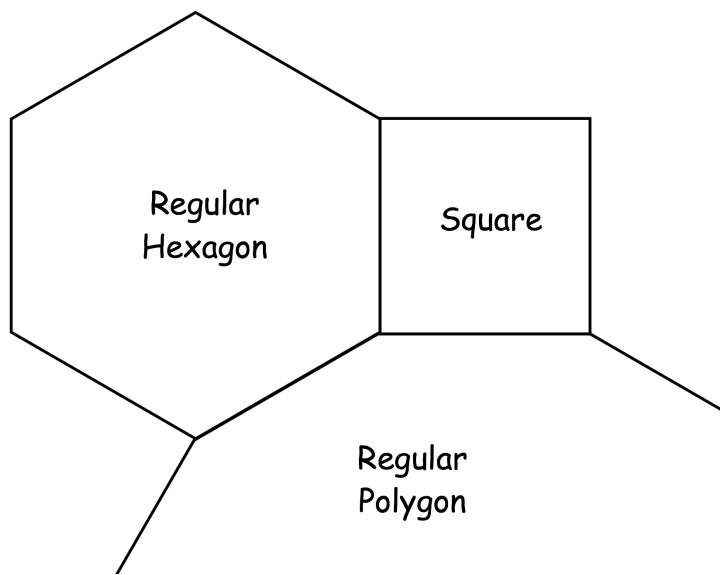
$$\text{Angle BAF : Angle DEF} = 6 : 5$$

$$\text{Angle AFE : Angle ABC} = 4 : 5$$

Work out the sizes of angles BAF, DEF and ABC

Angle BAF = .....    Angle DEF = .....    Angle ABC = .....  
(5)

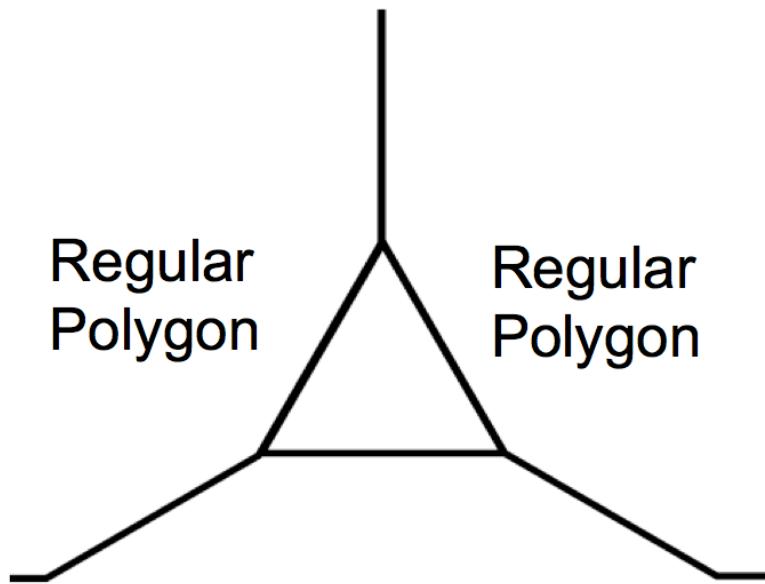
26. Shown below is part of a regular polygon, a regular hexagon and a square.



Work out how many sides the regular polygon has.

.....  
(4)

27. Shown below are two identical regular polygons and an equilateral triangle.



Calculate the number of sides each regular polygon has.

.....  
**(3)**

28. A regular polygon has interior angles that are 5 times larger than each of its exterior angles.



Calculate how many sides it has.

.....  
**(4)**