

Question 1

Which number is **three thousand and twenty-eight**?

Circle the correct answer.

A 328000

B 3000 28

C 30028

D 3028

Question 2

$\square = 3$ and $\bullet = 4$

$\square + \bigcirc = \bullet + \bullet$

What number does \bigcirc represent?

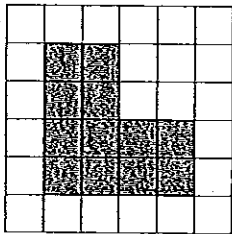
A 2

B 3

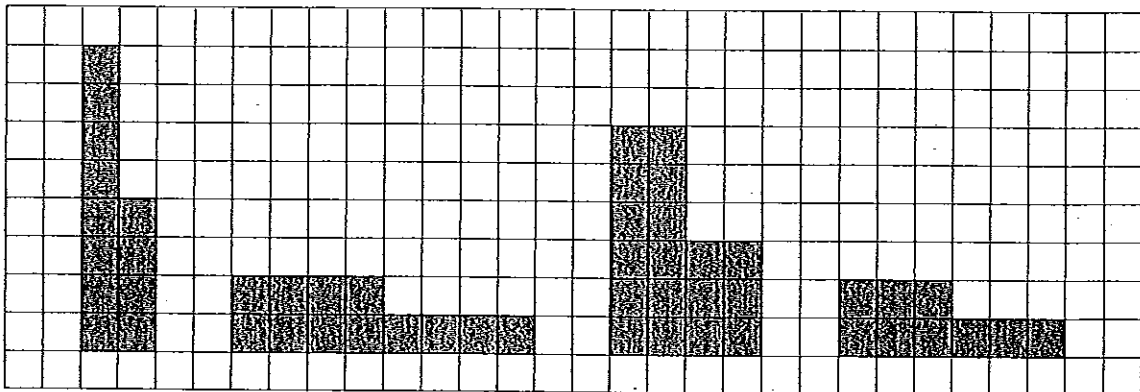
C 4

D 5

Question 3



Penny drew this shape on a grid. She then halved the height and doubled the width of her shape. What does her shape look like now?



A

B

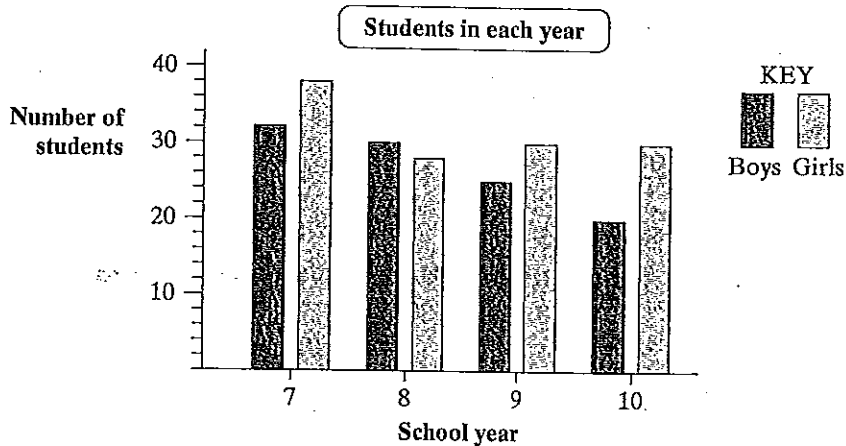
C

D

YEAR 7 NUMERACY SAMPLE TEST 5 – CALCULATOR ALLOWED

Question 4

The graph shows the numbers of boys and girls in each year at Juniper Junior High.



How many more girls than boys attend the school?

Write your answer in the box.

Question 5

April travelled 32 km in half an hour. What was her average speed in kilometres per hour?

A 16

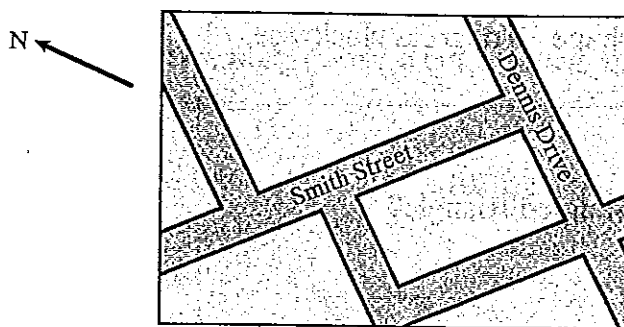
B 40

C 64

D 80

Question 6

Travis was driving along Smith Street towards Dennis Drive.



In what direction was he travelling?

A North-East

B North-West

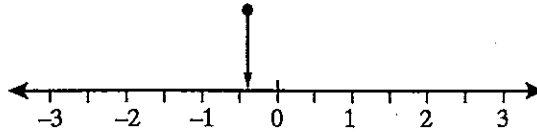
C South-East

D South-West

YEAR 7 NUMERACY SAMPLE TEST 5 – CALCULATOR ALLOWED

Question 7

The arrow points to a position on the number line.



What number is at that position?

- A -0.4 B -0.6 C -1.4 D -1.6

Question 8

Jahn wrote down the first five numbers in a pattern:

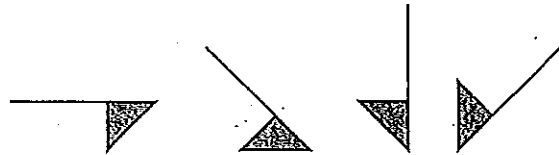
1, 4, 9, 16, 25.

What is the next number in this pattern?

Write your answer in the box.

Question 9

This shape is following a pattern.

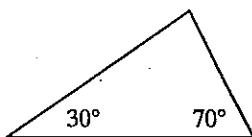


What is the rule?

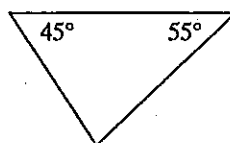
- A Rotate the shape 45 degrees anticlockwise.
B Rotate the shape 30 degrees anticlockwise.
C Rotate the shape 45 degrees clockwise.
D Rotate the shape 30 degrees clockwise.

Question 10

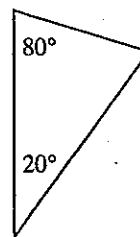
Which of these is a right-angled triangle?



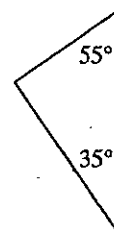
A



B



C



D

YEAR 7 NUMERACY SAMPLE TEST 5 – CALCULATOR ALLOWED

Question 11

$$9.23 - 4.65 = \square + 3.18$$

What number will make this number sentence true?

Write your answer in the box.

Question 12

How many hours and minutes are between 3:48 am and 1:28 pm on the same day?

- A 9 h 20 min B 9 h 40 min C 10 h 20 min D 10 h 40 min

Question 13

Amelia thought of a number. She multiplied her number by 4 and then added 3. Her answer was 47. What was the number that Amelia first thought of?

Write your answer in the box.

Question 14

Klayjian bought 4 sandwiches and a drink for \$7.00. The drink cost \$1.80. What would 3 sandwiches and 2 drinks cost?

- A \$7.50 B \$7.00 C \$6.50 D \$6.00

Question 15

On a map, 1 cm represents 25 km. Two places are 3.6 cm apart on the map. What is the actual distance between the two places?

- A 70 km B 90 km C 105 km D 115 km

Question 16

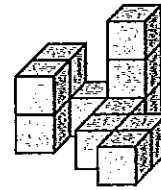
A tin holds 25 white, 12 blue, 15 black and 8 red buttons. Without looking, Ayano takes a button from the tin. What is the chance that it is blue?

- A $\frac{1}{3}$ B $\frac{1}{4}$ C $\frac{1}{5}$ D $\frac{1}{6}$

YEAR 7 NUMERACY SAMPLE TEST 5 – CALCULATOR ALLOWED

Question 17

Ali made this 3D object from 12 identical cubes.



What is the view from the back?



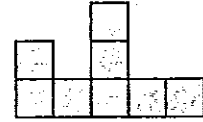
A



B



C



D

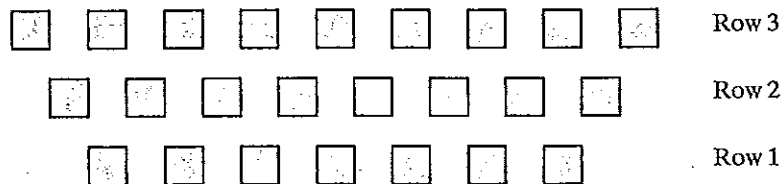
Question 18

The average (mean) of Jasmine's six test scores is 65. What must she score in the seventh test to increase her average to 70?

Write your answer in the box.

Question 19

Rema arranges some chairs for a meeting.



If there are seven rows of chairs in this pattern, how many chairs are there altogether?

A 49

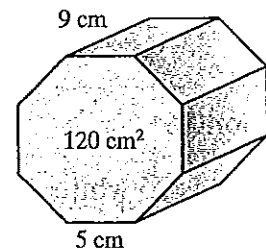
B 56

C 63

D 70

Question 20

This octagonal prism needs painting. The sides of the regular octagon are all 5 cm long and the prism is 9 cm wide. The area of the front face is about 120 cm^2 .



Which is the best approximation for the total area (in cm^2)?

A 800

B 700

C 600

D 500

YEAR 7 NUMERACY SAMPLE TEST 5 – CALCULATOR ALLOWED

Question 21

A rule to find the correct dose of a particular medicine for a child, when the mass of the child in kilograms is known, is:

$$\text{Dose for child} = (\text{Dose for adult} \times \text{mass of child}) \div 70.$$

What is the correct dose for a child of mass 28 kg if the adult dose is 15 mL?

Write your answer in the box.

 mL

Question 22

What is the value of $\frac{18.6 + 2.4}{1.2 - 0.5}$?

A 30

B 22

C 20.1

D 16.2

Question 23

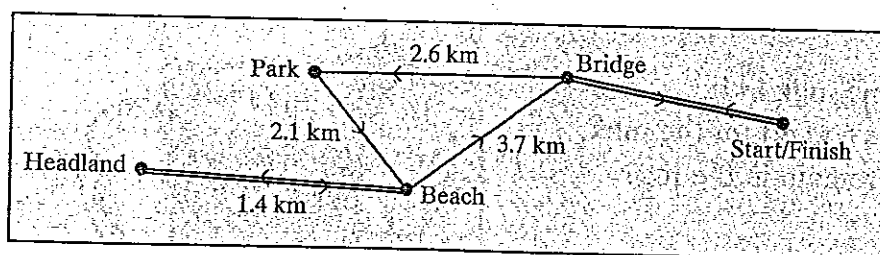
A positive number was multiplied by itself. The answer was 5329.

What was the number?

Write your answer in the box.

Question 24

The diagram shows the route of a fun-run that is 15 km long.



What is the distance from the bridge to the finish?

Write your answer in the box.

 km

YEAR 7 NUMERACY SAMPLE TEST 5 – CALCULATOR ALLOWED

Question 25

3 hours and 15 minutes is the same as

- A 3.15 h. B 3.25 h. C 315 min. D 325 min.

Question 26

50 people were asked which of three sporting teams they supported. Some of the results are shown in the table.

	Crows	Eagles	Hawks	Total
Men		7	5	15
Women	8		6	
Children	5	3		
Total		14		50

How many children supported the Hawks?

- A 9 B 11 C 12 D 13

Question 27

$\frac{2}{3}$ of a number is 72. What is $\frac{3}{4}$ of the number?

Write your answer in the box.

Question 28

This jug has some milk in it.
If Montana uses 600 mL of the milk,
how much will remain in the jug?



Write your answer in the box.

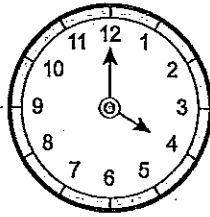
 mL

YEAR 7 NUMERACY SAMPLE TEST 5 – CALCULATOR ALLOWED

Question 29

This clock shows 4 o'clock.

What is the size of the smaller angle formed by its hands?



Write your answer in the box.

 °

Question 30

The volume of a rectangular prism is 240 cm^3 . If the length and width are halved, but the height is doubled, what will be the volume of the new prism?

Write your answer in the box.

 cm^3

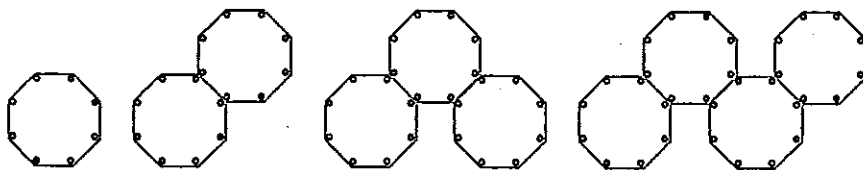
Question 31

A polygon has each of its angles equal to 150° . What type of polygon is it?

- A pentagon B hexagon C decagon D dodecagon

Question 32

This pattern of octagons is made with pins and string.



Number of octagons	1	2	3	4
Number of pins	8	14	20	26

How many octagons can be made with 200 pins?

- A 33 B 34 C 35 D 36

END OF TEST 5

- 1 D (Basic level)
- 2 D (Basic level)
- 3 B (Basic level)
- 4 19 (Basic level)
- 5 C (Basic level)
- 6 C (Basic level)
- 7 A (Intermediate level)
- 8 36 (Intermediate level)
- 9 C (Basic level)
- 10 D (Intermediate level)
- 11 1.4 (Basic level)
- 12 B (Intermediate level)
- 13 11 (Intermediate level)
- 14 A (Intermediate level)
- 15 B (Intermediate level)
- 16 C (Intermediate level)
- 17 B (Basic level)
- 18 100 (Intermediate level)
- 19 D (Intermediate level)
- 20 C (Advanced level)
- 21 6 mL (Advanced level)
- 22 A (Basic level)
- 23 73 (Intermediate level)
- 24 1.9 km (Advanced level)
- 25 B (Intermediate level)
- 26 A (Intermediate level)
- 27 81 (Advanced level)
- 28 1650 mL (Advanced level)
- 29 120° (Advanced level)
- 30 120 cm³ (Advanced level)
- 31 D (Advanced level)
- 32 A (Advanced level)

1 Three thousand and twenty-eight
 $= 3000 + 28$
 $= 3028$

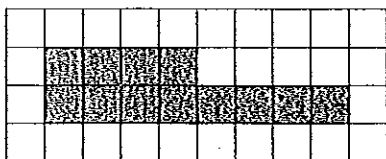
2 $\square = 3$ and $\bullet = 4$
 $\square + \circ = \bullet + \bullet$
 Now $\bullet + \bullet = 4 + 4$
 $= 8$

So $\square + \circ = 8$

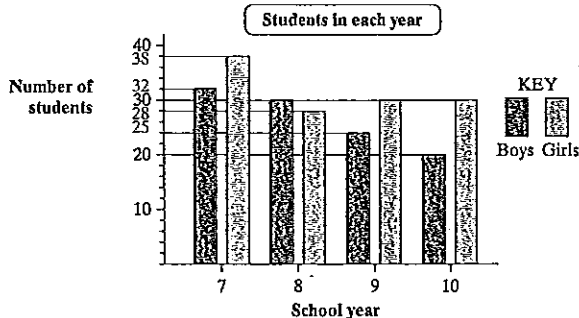
This means $3 + \circ = 8$.

So $\circ = 5$ because $3 + 5 = 8$.

3 The original shape is at most 4 units high. If the height is halved it will be (at most) 2 units high. The original shape is at most 4 units wide. If the width is doubled, it will be (at most) 8 units wide. The correct option is B.



4 In Year 7 there are 32 boys and 38 girls. There are 6 more girls than boys.



In Year 8 there are 30 boys and 28 girls. There are 2 fewer girls than boys.

In Year 9 there are 25 boys and 30 girls. There are 5 more girls than boys.

In Year 10 there are 20 boys and 30 girls.

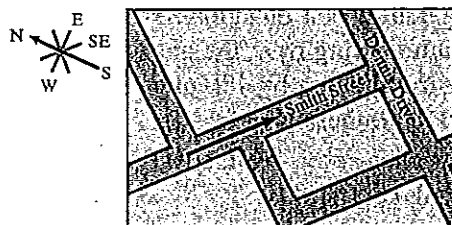
There are 10 more girls than boys.

Total of extra girls = $6 - 2 + 5 + 10$
 $= 19$

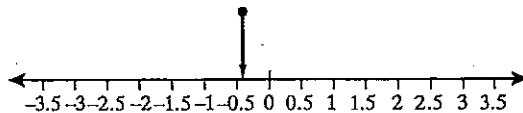
There are 19 more girls than boys.

5 April travels 32 km in half an hour. In one hour she will travel twice as far. She will travel 64 km in one hour. Her average speed is 64 km/h.

6 Travis is travelling South-East.



7 The number is between 0 and -0.5. Of the options, it can only be -0.4.



8 1, 4, 9, 16, 25.

The numbers are a pattern of squares: $1^2, 2^2, 3^2, 4^2$ and 5^2 .

The next number is 6^2 or 36.

[The differences between the numbers are also the odd numbers. The next number is $25 + 11 = 36$.]

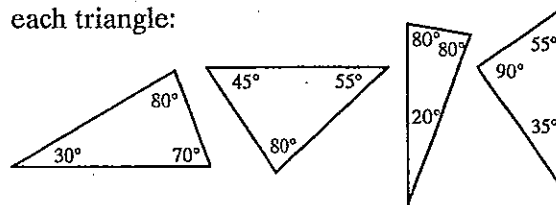
9 The shapes are rotating this way. This is clockwise.

The shape makes two rotations in a quarter turn.

Angle of rotation = $90^\circ \div 2$
 $= 45^\circ$

The shape is being rotated 45° clockwise.

10 The angles of a triangle add to 180° . Find the size of the remaining angle in each triangle:



The only right-angled triangle is D.

11 $9.23 - 4.65 = \square + 3.18$

Now $9.23 - 4.65 = 4.58$

So $\square + 3.18 = 4.58$

$\square = 4.58 - 3.18$

$= 1.4$

12 From 3:48 am until 4 am is 12 minutes.

From 4 am until 4:28 am is 28 minutes.

$12 \text{ min} + 28 \text{ min} = 40 \text{ min}$

From 4:28 am until 1:28 pm is 9 hours.

Between 3:48 am and 1:28 pm is 9 hours and 40 minutes.

- 13 After adding 3, Amelia's answer was 47.
Before adding 3, it must have been 44.
After multiplying by 4, the answer was 44.
Before multiplying by 4 it must have been 11.
Amelia's number was 11.

- 14 4 sandwiches and a drink cost \$7.00
The drink cost \$1.80.
So the cost of 4 sandwiches = $\$7.00 - \1.80
= \$5.20
The cost of 1 sandwich = $\$5.20 \div 4$
= \$1.30
The cost of 3 sandwiches = $3 \times \$1.30$
= \$3.90
The cost of 2 drinks = $2 \times \$1.80$
= \$3.60
Total cost = $\$3.90 + \3.60
= \$7.50

- 15 1 cm represents 25 km.
3.6 cm represents 3.6×25 km or 90 km.

- 16 Total buttons = $25 + 12 + 15 + 8$
= 60

12 of the buttons are blue.

$$\text{Chance of blue button} = \frac{12}{60}$$

$$= \frac{1}{5}$$

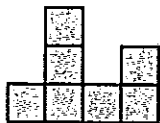
- 17 From the front you can see that the object is 4 blocks wide. The blocks are 2 high on the left and 3 high, second from the right.



When viewed from the back the position of these blocks is seen in reverse.

The shape is 4 blocks across, 2 high on the right and 3 high on the second from the left.

The correct option is B.



- 18 Total marks after 6 tests = 6×65
= 390

To have an average of 70 after 7 tests:

$$\text{Total marks} = 7 \times 70$$

$$= 490$$

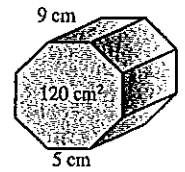
$$\text{Difference} = 490 - 390$$

$$= 100$$

Jasmine would need to score 100 in her seventh test to have an average of 70.

- 19 There are 7 chairs in the first row.
There is one extra chair in every new row.
So, in 7 rows, the number of chairs
= $7 + 8 + 9 + 10 + 11 + 12 + 13$
= 70

- 20 There are two octagonal faces, both with area 120 cm^2 .



There are 8 rectangular faces.

$$\text{Area of each rectangle} = 9 \text{ cm} \times 5 \text{ cm}$$

$$= 45 \text{ cm}^2$$

$$\text{Total area} = (2 \times 120 + 8 \times 45) \text{ cm}^2$$

$$= (240 + 360) \text{ cm}^2$$

$$= 600 \text{ cm}^2$$

- 21 Dose for child

$$= (\text{Dose for adult} \times \text{mass of child}) \div 70$$

If the dose for an adult is 15 mL and the mass of the child is 28 kg, then

$$\text{Dose for child} = (15 \times 28) \div 70$$

$$= 420 \div 70$$

$$= 6$$

The child's dose is 6 mL.

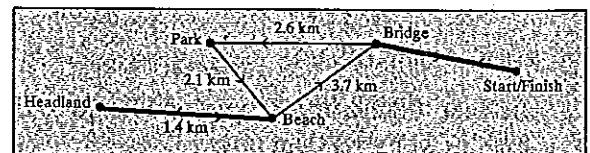
- 22 $\frac{18.6 + 2.4}{1.2 - 0.5} = \frac{21}{0.7}$
= 30

- 23 The number multiplied by itself (or squared) = 5329

$$\text{Number} = \sqrt{5329}$$

$$= 73$$

- 24



The path from the headland to the beach is covered twice.

$$\text{Total distance shown}$$

$$= (2 \times 1.4 + 2.1 + 2.6 + 3.7) \text{ km}$$

$$= (2.8 + 2.1 + 2.6 + 3.7) \text{ km}$$

$$= 11.2 \text{ km}$$

$$\text{Remaining distance} = (15 - 11.2) \text{ km}$$

$$= 3.8 \text{ km}$$

The distance from the start/finish to the bridge is also covered twice.

$$\text{This distance} = (3.8 \div 2) \text{ km}$$

$$= 1.9 \text{ km}$$

- 25 15 minutes is a quarter of an hour.

A quarter of an hour is 0.25 h.

$$\text{So } 3 \text{ h and } 15 \text{ min} = 3.25 \text{ h}$$

- 26 The total men surveyed = 15
 So men who support Crows = $15 - (7 + 5)$
 $= 15 - 12$
 $= 3$
 Total Crows supporters = $3 + 8 + 5$
 $= 16$
 The total of all supporters = 50
 So total Hawks supporters = $50 - (16 + 14)$
 $= 50 - 30$
 $= 20$
 Children who support Hawks = $20 - (5 + 6)$
 $= 20 - 11$
 $= 9$

	Crows	Eagles	Hawks	Total
Men	3	7	5	15
Women	8	4	6	18
Children	5	3	9	17
Total	16	14	20	50

- 27 $\frac{2}{3}$ of a number is 72.
 $\frac{1}{3}$ of the number = $72 \div 2$
 $= 36$
 The number = 36×3
 $= 108$
 $\frac{1}{4}$ of the number = $108 \div 4$
 $= 27$
 $\frac{3}{4}$ of the number = 3×27
 $= 81$
- 28 Each litre is divided into 4.
 So each division on the scale is one-quarter of a litre (0.25 L) or 250 mL.
 So the amount of milk in the jug is 2 litres and 250 mL or 2250 mL.

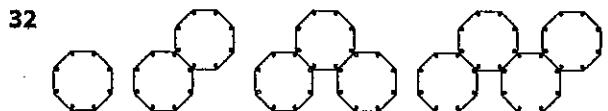


After 600 mL is removed:
 Amount in jug = $(2250 - 600)$ mL
 $= 1650$ mL

- 29 A complete revolution is 360° .
 The clockface is divided into 12 sections.
 Each section = $360^\circ \div 12$
 $= 30^\circ$
 At 4 o'clock, there are 4 sections between the hands.
 Angle = $4 \times 30^\circ$
 $= 120^\circ$

- 30 Volume of first prism = 240 cm^3
 If the length stayed the same while the width halved and the height doubled, the volume would still be the same.
 As the length also halved, the volume will have halved.
 The new volume is 120 cm^3 .

- 31 The angles are all 150° .
 Try each option:
 A regular pentagon has 5 equal angles.
 Angle sum of a pentagon = $(5 - 2) \times 180^\circ$
 $= 3 \times 180^\circ$
 $= 540^\circ$
 Each angle of a regular pentagon = $540^\circ \div 5$
 $= 108^\circ$
 The polygon is not a pentagon.
 A regular hexagon has 6 equal angles.
 Angle sum of a hexagon = $(6 - 2) \times 180^\circ$
 $= 4 \times 180^\circ$
 $= 720^\circ$
 Each angle of a regular hexagon = $720^\circ \div 6$
 $= 120^\circ$
 The polygon is not a hexagon.
 A regular decagon has 10 equal angles.
 Angle sum of a decagon = $(10 - 2) \times 180^\circ$
 $= 8 \times 180^\circ$
 $= 1440^\circ$
 Each angle of a regular decagon = $1440^\circ \div 10$
 $= 144^\circ$
 The polygon is not a decagon.
 A regular dodecagon has 12 equal angles.
 Angle sum of a dodecagon = $(12 - 2) \times 180^\circ$
 $= 10 \times 180^\circ$
 $= 1800^\circ$
 Each angle of a regular dodecagon = $1800^\circ \div 12$
 $= 150^\circ$
 The polygon is a dodecagon.



Number of octagons	1	2	3	4
Number of pins	8	14	20	26

- The pattern for the number of pins is 8, 14, 20, 26, The numbers are increasing by 6 each time. So try multiplying the number of octagons by 6.
 The number of pins is 2 more than six times the number of octagons.
 So to find the number of octagons that use 200 pins first subtract 2.
 $200 - 2 = 198$
 Then divide by 6.
 $198 \div 6 = 33$
 So 33 octagons will use 200 pins.