



# Maths Department

Pre-test Practice Harder Level **MK3**



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

### Question 1

I cut a regular hexagon into two pieces. Which of these pairs of shapes is it NOT possible to get?

Two triangles

Two quadrilaterals

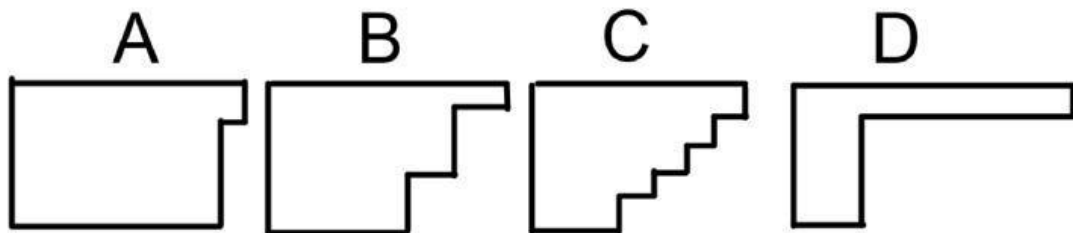
A triangle and a pentagon

A triangle and a heptagon

A quadrilateral and a pentagon

### Question 2

Each of the shapes below has width 8cm and height 5cm. Which one has the largest perimeter?



A

B

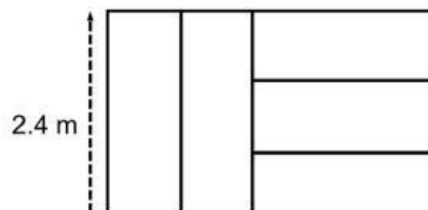
C

D

They are all the same

### Question 3

A flag is in the shape of a rectangle. It is made of five identical rectangles. What is the area of the flag in  $\text{m}^2$ ?



2.4

4.8

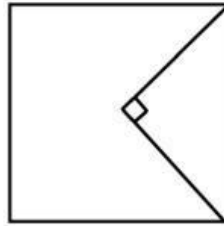
7.2

9.6

14

Question 4

The diagram shows a square with a right-angled isosceles triangle on one side. The area of the triangle is  $16\text{cm}^2$ . What is the perimeter of the square in cm?



4 cm

8 cm

16 cm

32 cm

64 cm

Question 5

On a can of paint is written "1 litre of paint will cover  $10\text{ m}^2$  of wall". How many millimetres thick is the paint?

Too small to calculate

0.01 mm

0.1 mm

1 mm

10 mm

Question 6

It takes 400 g of plasticine to make a model of Big Ben. I want to make a smaller model of Big Ben which is exactly half as high. How many grams of plasticine will I need? (It's not as obvious as you think...)

50 g

100 g

200 g

400 g

800 g

Question 7

A box whose shape is a cube with sides measuring 5 cm is full. It contains 1000 buttons. How many buttons would fit into a cube with sides of 2.5 cm?

50

125

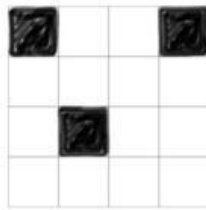
200

225

500

Question 8

This pattern has no lines of symmetry. What is the least number of squares to be shaded in order to get a pattern with two lines of symmetry? Lines of symmetry need not be solely horizontal and vertical, of course...



2

3

4

5

More than 5

Question 9

Violet is 1.5 metres (150 cm) tall. One sunny day her shadow is 2 metres long. Her father, who is 180 cm tall, is standing beside her. How long is his shadow?

2 m

2.03 m

2.3 m

2.04 m

2.4 m

Question 10

At home Little Critter has a Super Teddy with lots of clothes. He has:

2 shirts      3 pairs of trousers      4 hats

How many different outfits can the teddy be dressed in?

1

3

9

12

24

Question 11

The code for St Gradley's Academic is 1966, but due to buying an inferior locking product the doors can be opened by putting in any combination of these digits in any order (for instance 6916) ! How many different arrangements will allow access?

4

10

12

16

24

Question 12

The Roman unit of weight, the *libra*, was about 327 grams. One twelfth of a *libra* was an *uncia*. About how many grams were there in an *uncia*?

12 g

20 g

24 g

27 g

30 g



Question 13

Jan and Kym are raising money for charity by putting pennies end to end. So far they have a line of one thousand pennies! Approximately how long is the line of pennies?

1 m

2.1 m

21 m

100 m

210 m

Question 14

A Hydra was a mythical creature with nine heads. Every time you cut off a head, two would grow in its place. The famous hero Mathemagicus cuts off three heads. Allowing for regrowth, how many heads does the Hydra have now?

6

12

15

18

21

Question 15

?thgie dna neves ,xis ,evif ,ruof fo naem eht si tahW

evif tniop ruof

evif

Evif tniop evif

xis

neves

Question 16

A train 100 m long enters a one kilometre long tunnel. It is travelling at 100 m/s. How many seconds before the end of the train leaves the tunnel?

5 sec

8 sec

10 sec

12 sec

14 sec

Question 17

I can skate at 10 km/h on my longboard, and my friend can skate at 8 km/h on his. In a one km race, how much time do I beat my friend by?

1.5 min

2 min

2.5 min

6 min

7.5 min

Question 18

Andrea was selling her fancy pens for £100. Two things happened. She raised the price by 20%. No one wanted to buy them. She then reduced the price by 20%. What is the selling price now?

£80

£96

£100

£108

£120

Question 19

How many small cubes of side 3 cm can be fitted into a larger cube of side 9 cm?

3

6

9

12

27

Question 20

Jane, Guy and Alice share buttons. Excitement plus, I know.  
The ratio of Jane to Guy is 5 : 2.  
The ratio of Guy to Alice is 3 : 5.

What is the ratio of Jane to Alice? Remember to reduce your ratio to lowest terms.

You will have to match up the ratios using multiplication so that the Guy number is the same...

3 : 2

1 : 1

2 : 3

5 : 3

5 : 2