Durham High School for Girls

11+ Official Practice Paper

MATHEMATICS

Time allowed: 1 hour

Section 1. Key Stage 3 Curriculum Questions *(Approximately 50 minutes)*

Section 2. Maths Challenge Questions *(Approximately 10 minutes)*

The use of a calculator is NOT permitted.

Answer all questions, making sure you *show your working*.
Write your final answer in the box provided.

If you are unsure about any question move onto the next question
so that you *do not waste time*.

Section 1.

1) Work out 6327 + 641

2) Work out 9567 - 1638

3) Work out 366×7

4) Work out $2562 \div 6$

5) Add together two thousand three hundred and seven AND one thousand and twenty four.

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6) Four British coins in Jo's pocket add up to 73p. What are the 4 coins?

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7) i) Write 0.45 as a percentage.

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ii) Write $\frac{3}{4}$ as a percentage.

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iii) Write 30% as a fraction in its simplest form.

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8) i) Sam takes a £20 note to a restaurant. He buys a burger for £3.99, a milk shake for £1.65, and a fudge sundae for £1.80. How much does he spend altogether?

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ii) How much change does Sam get?

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9) Work out

   i) $24 - (18 \div 6)$

   [ ]

   ii) $(30 \times 40) \div (6 \times 10)$

   [ ]

10) What number must fit into each box to make these calculations correct?

    i) $34 + \boxed{} = 91$

    ii) $72 - \boxed{} = 39$

    iii) $\boxed{} \times 7 = 119$

    iv) $448 \div \boxed{} = 8.$

11) Write these fractions as decimals:
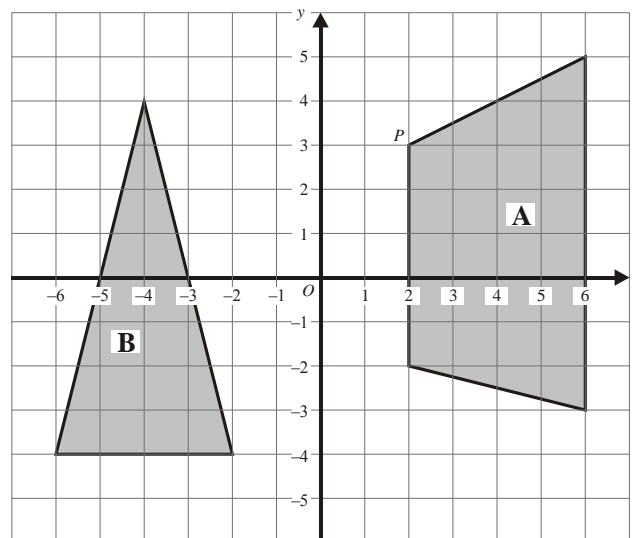
    i) $\dfrac{3}{10}$

    [ ]

    ii) $\dfrac{1}{4}$

    [ ]

    iii) $\dfrac{2}{5}$

    [ ]

12) What is 45% of 600.

13) In the British Army there are 4500 men who are taller than 180cms. Of these 750 are taller than 190cms. How many men are there who are between 180 and 190 cms tall?

14)

The diagram shows two shapes.

(a) Write down the mathematical name for the shape **A**.

(b) Write down the coordinates of the point *P*.

(,   )

(c) Write down the mathematical name of the triangle **B**.

(d) Mark the point (-2,-4) on the grid. Label it *Q*.

15) Barry and Kath are studying a number pattern. The first three numbers in the number pattern are,

$$1, 2, 4$$

Barry says that the next number is 8.

Kath says the next number is 7.

Explain why both Barry and Kath could be right.

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16) Write these numbers in order of size. Start with the smallest number.

(i) 75, 56, 37, 9, 59

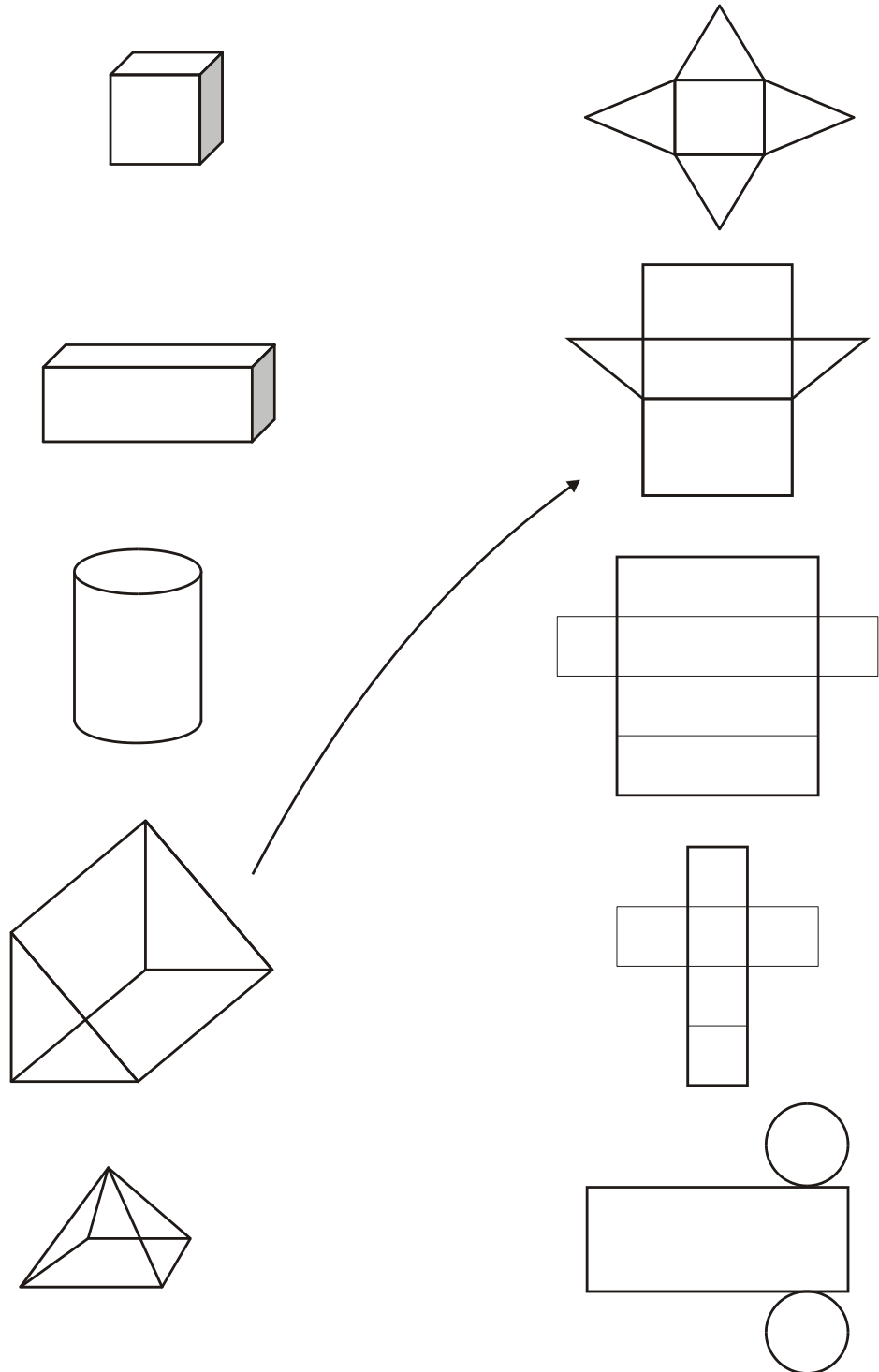(ii) 0.56, 0.067, 0.6, 0.65, 0.605

(iii) 5, – 6, – 10, 2, – 4

(iv) $\dfrac{1}{2}, \dfrac{2}{3}, \dfrac{2}{5}, \dfrac{3}{4}$

17) The diagrams show some solid shapes and their nets. An arrow has been drawn from one solid shape to its net.

Draw an arrow from each of the other solid shapes to its net.

18)   Here is part of a train timetable from Crewe to London.

Station	Time of Leaving
Crewe	08 00
Wolverhampton	08 40
Birmingham	09 00
Coventry	09 30
Rugby	09 40
Milton Keynes	10 10

(a) At what time should the train leave Coventry?

The train should arrive in London at 10 45

(b) How long should the train take to travel from Crewe to London?

Verity arrived at Milton Keynes station at 09 53

(c)   How many minutes should she have to wait before the 10 10 train leaves?

19) Here is a map of the British Isles.

The temperatures in some places, one night last winter are shown on the map.

Edinburgh −7 °C

Belfast −4 °C

London 3 °C

Cardiff −6 °C

Plymouth 5 °C
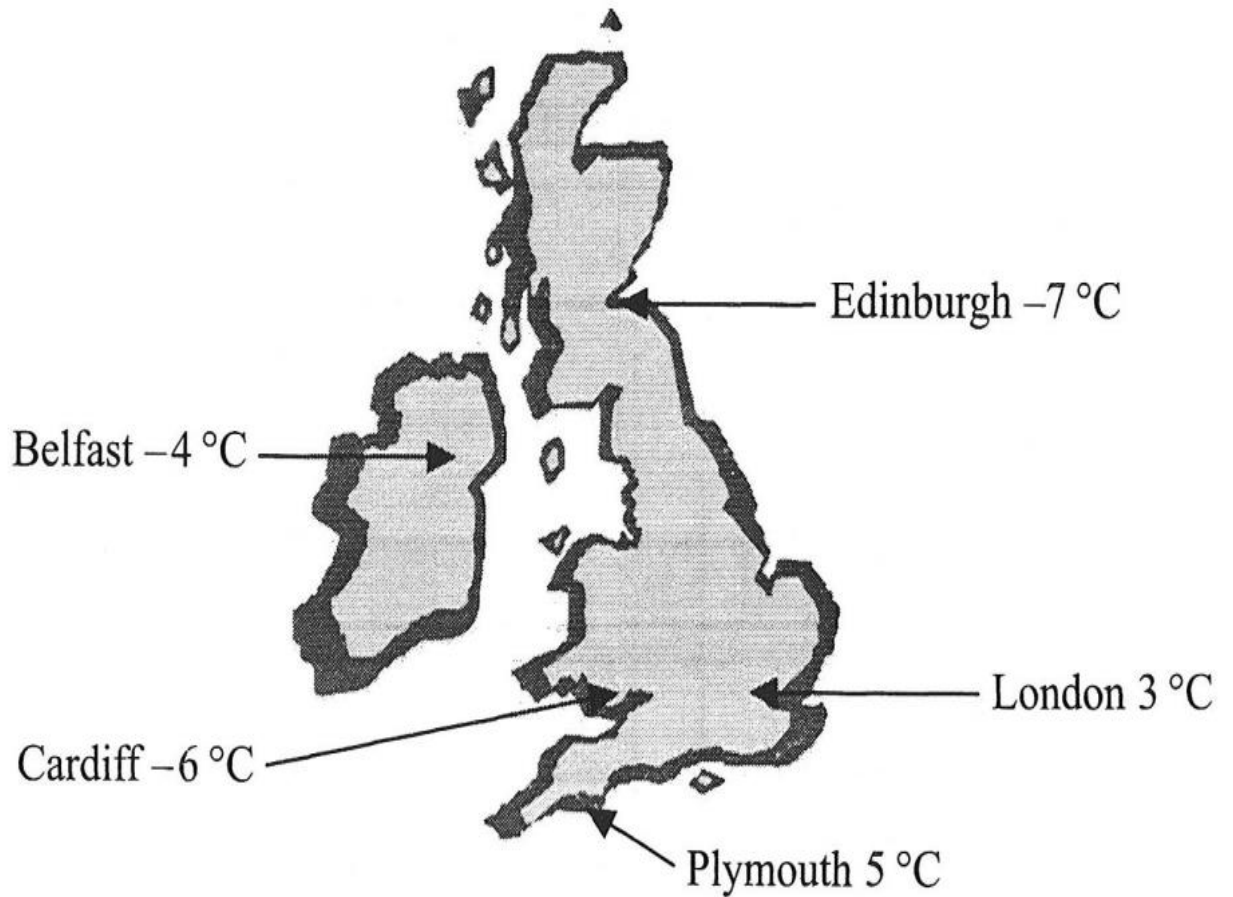
(a) Write down the names of the two places that had the biggest difference in temperature.

....

Work out the difference in temperature between these two places.

20) Some bulbs were planted in October.

The ticks in the table show the months in which each type of bulb grows into flowers.

		Month					
		Jan	Feb	March	April	May	June
Type of bulb	Allium					✓	✓
	Crocus	✓	✓				
	Daffodil		✓	✓	✓		
	Iris	✓	✓				
	Tulip				✓	✓	

(a) In which months do tulips flower?

(b) Which type of bulb flowers in March?

(c) In which month do most types of bulb flower?

(d) Which type of bulb flowers in the same months as the iris?

Ben puts one of each type of these bulbs in a bag. He takes a bulb from the bag without looking.

(e) (i) Write down the probability that he will take a crocus bulb.

(ii) On the probability scale, mark with a cross (×) the probability that he will take a bulb which flowers in February.

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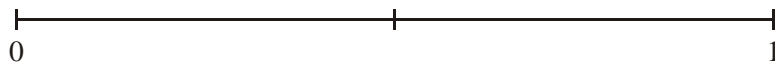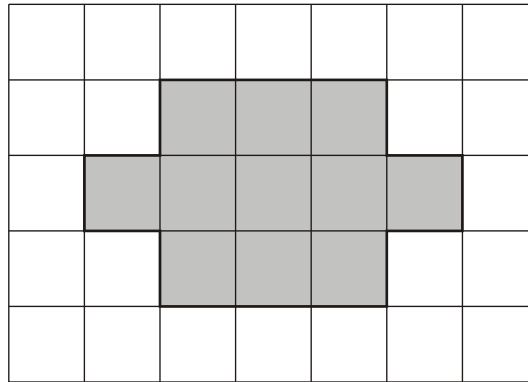
21) 54 327 people watched a concert.

(a) Write 54 327 to the nearest thousand.

(b) Write down the value of the 5 in the number 54 327.

22) A shaded shape has been drawn on the centimetre grid.

(a) (i) Find the area of the shaded shape.

(ii) Find the perimeter of the shaded shape.

The shaded shape has **two** lines of symmetry.

(b) Draw the **two** lines of symmetry on the shaded shape.

23) Work out the number that is half way between

i) 40 80

ii) 200 000 .... 300 000

iii) 7.4 .... 7.5

iv) $\frac{1}{4}$ .... $\frac{1}{2}$

Section 2 – 9 Questions
Circle the correct answer

24) If the digit 4 is replaced by the digit 3 in each of the numbers below, which number is reduced by the largest amount?

74000   99949   87654   95400   45678

25) The diagram shows 6 small squares made with matchsticks. How many matchsticks must be removed to leave precisely 3 small squares which touch only at corners?
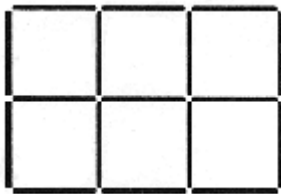
3   4   5   6   7

26) Granny tells Dilly that her glove drawer contains 1 left-hand blue glove, 2 left-hand green gloves, 3 right-hand blue gloves, and 4 right-hand green gloves, and asks her to bring a pair of gloves from the drawer. Unfortunately Dilly cannot tell the difference between left-hand and right-hand gloves, but, thankfully, can identify blue and green. What is the smallest number of gloves that Dilly should bring, in order to be sure that these include a matching pair?

10   8   6   4   2

27) My bus fare is 44p. If the driver can give me change, what is the smallest number of coins which must change hands when I pay this fare?

4   5   2   6   3

28) The theme music for the famous science fiction film "2001: Space Odyssey" is taken from "Also Sprach Zarathustra", which was written by Richard Strauss in 1896. How many years was that before the film itself was produced in 1968?

105   82   72   33   28

29) At half time in a netball match, Jokers were leading Jesters by 3 goals to 2. Seven goals were scored in the second half. Which of the following could not have been the result of the match?

   Jesters won by 2 goals
   Jokers won by 2 goals
   The match was drawn
   Jesters won by 4 goals
   Jokers won by 3 goals

30) What is 40% of 50% of £60?

   £15   £20   £12   £7   £8

31) It is well known that the Pobble has no toes, and that the three-toed Sloth has 12 toes (3 on each of its 4 feet). A synchronised swimming team is made up of 7 Pobbles and 5 three-toed Sloths. What is the mean number of toes per team member?

   7   5   3   4   6

32) Last year, to help sell his house, Southampton butcher Simon Broadribb offered to give the buyer meat worth £20 every week for one year. It was stated that this could be either 40 burgers, or 96 sausages, or 140 rashers of bacon, or 30 lamb cutlets, or 35 portions of mince. Based on that offer, which is the most expensive?

   a lamb cutlet
   a burger
   a rasher of bacon
   a sausage
   a portion of mince