Dulwich College

ENTRANCE AND SCHOLARSHIP EXAMINATION
AT 11+

SPECIMEN PAPER

MATHEMATICS
ONE HOUR

Answer all the questions.
Do all your written work on this paper.
Calculators must not be used.
Numbers in square brackets are the number of marks available.
There are 100 marks in total.

Surname: .....

First Names: .....

WORK OUT THE FOLLOWING
(SHOW YOUR WORKING)

1. $254 + 63 + 108$

Answer: _____ [2]

2. $327 - 119$

Answer: _____ [2]

3. 57×28

Answer: _____ [2]

4. $62.1 \div 9$

Answer: _____ [2]

5. $\frac{3}{4}$ of 840

Answer: _____ [2]

6. Write the following in order of size, starting with the smallest:

2.3 2.32 2.03 2.302

Answer: _____ [2]

7. Tom uses 750g of sugar from a 2.5kg packet. How many kilograms of sugar are left?

Answer: _____ kg [2]

8.a) Given that Tom eats $\frac{3}{5}$ of a cake and his friend, Jerry, eats $\frac{1}{3}$ of the cake, what fraction of the cake is left?

Answer: _____ [3]

b) Given that Tom's piece of cake weighed 150 grams, what was the weight of the whole cake?

Answer: _____ g [3]

9. Look at the number pattern below:

$$1^2 + 3 = 4$$
$$2^2 + 5 = 9$$
$$3^2 + 7 = 16$$

a) Fill in the next two lines of the pattern,

___ + ___ = ___

___ + ___ = ___

[3]

b) Complete the following line which comes later in the pattern.

___ + ___ = 121

[2]

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10. Write the following events in order, with the **most** probable (i.e. **most** likely) first and the **least** probable (i.e. **least** likely) last. Give your answer as a sequence of letters, e.g. BACED.

A: Being born on a Wednesday;
B: A meteorite falls on the College tomorrow;
C: Rolling a 4 with a fair die;
D: Obtaining a head when a fair coin is tossed;
E: Obtaining an even number when two odd numbers are multiplied together.

Answer: _____ [3]

11.a) Rosa takes 37 minutes to travel to work each morning. She leaves home at 8.15 a.m. What time does she arrive at work?

Answer: _____ [1]

b) The journey home in the evening takes the same time. She arrives home at 6.23p.m. At what time did she leave work?

Answer: _____ [2]

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12. Curtain material costs £10.20 per metre.

a) How much will it cost to buy 10 metres?

Answer: £ _____ [1]

b) Mr Rutter buys a length of material costing £25.50.
How many metres does he buy?

Answer: _____m [3]

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13. The distance from Calais to Paris is 320 km.
5 miles is approximately 8 kilometres.

Calculate the approximate distance in miles from Calais to Paris.

Answer: _____ miles [2]

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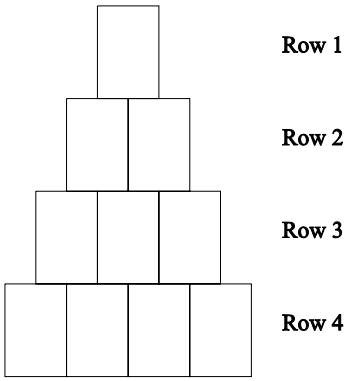
14. Shortcrust pastry is made using flour and fat in the ratio 2:1.

How many grams of flour are needed to make 900 grams of shortcrust pastry?

Answer: _____ grams [3]

15.



Cans are often stacked like this in a supermarket display.

a) Find the total number of cans in the first four rows.

Answer: _____ [2]

b) How many rows would be needed to display 28 cans?

Answer: _____ [3]

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16. Three bus services stop at my bus stop. Service A departs every 3 minutes, service B every 5 minutes and service C every 8 minutes.

If all three services leave my stop at 10.00 a.m., at what time will they next leave my stop together? (Assume that all three services always run on time).

Answer: _____ [3]

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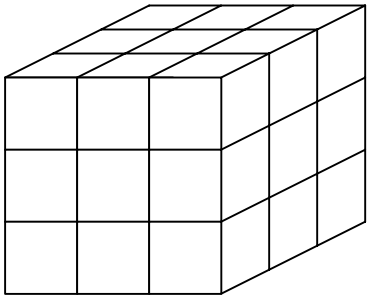
17. A cube with sides 3 cm is made from smaller cubes of side 1cm as shown.



a) How many small cubes are used in making the bigger cube?

Answer: _____ [2]

b) If the bigger cube is painted blue all over, how many small cubes will have three blue faces?

Answer: _____ [2]

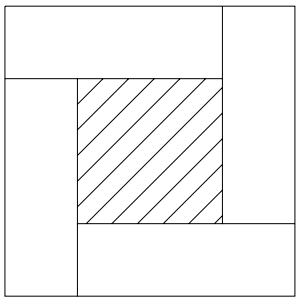
c) How many small cubes share a face with 5 other small cubes?

Answer: _____ [2]

d) How many small cubes share a face with exactly 2 other small cubes?

Answer: _____ [2]

18. Four rectangles each of length 27 cm and width 13 cm are arranged to form the square shape shown below (the diagram is not drawn to scale).



Find

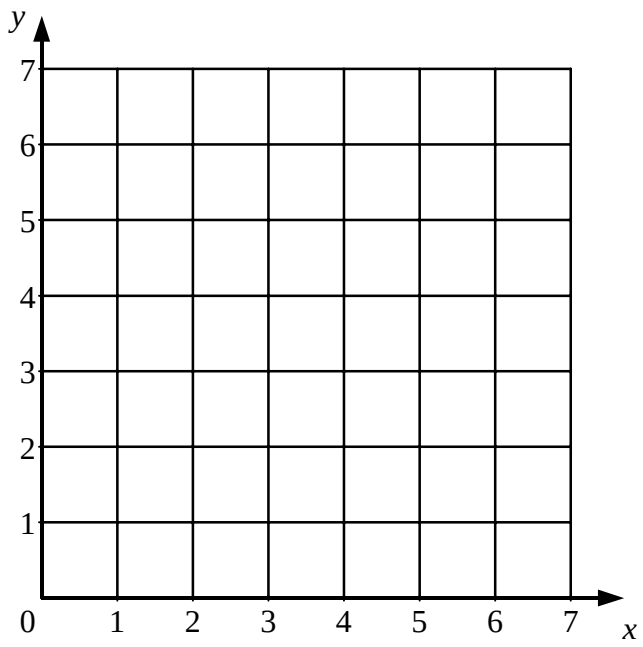
a) the perimeter of this square shape,

Answer: _____ cm [2]

b) the area of the shaded inner square.

Answer: _____ cm^2 [3]

19.



a) On the grid above, plot and label the points $A(0,3)$, $B(2,5)$, $C(6,3)$ and $D(2,1)$.

[4]

b) Join ABCD.

[1]

c) What name is given to this shape?

Answer: _____ [1]

d) Find the coordinates of the point of intersection of the diagonals.

Answer: _____ [2]

e) Draw on any lines of symmetry.

[1]

f) Calculate the area of ABCD.

Answer: _____cm^2 [4]

20. My age is a multiple of 7. Next year it will be a multiple of 5. I am more than 20 years old, but less than 80. How old am I?

Answer: _____ [3]

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21. A piece of wire 30cm long is bent into the shape of a rectangle. If the rectangle is twice as long as it is wide, what is its area?

Answer: _____ cm^2 [3]

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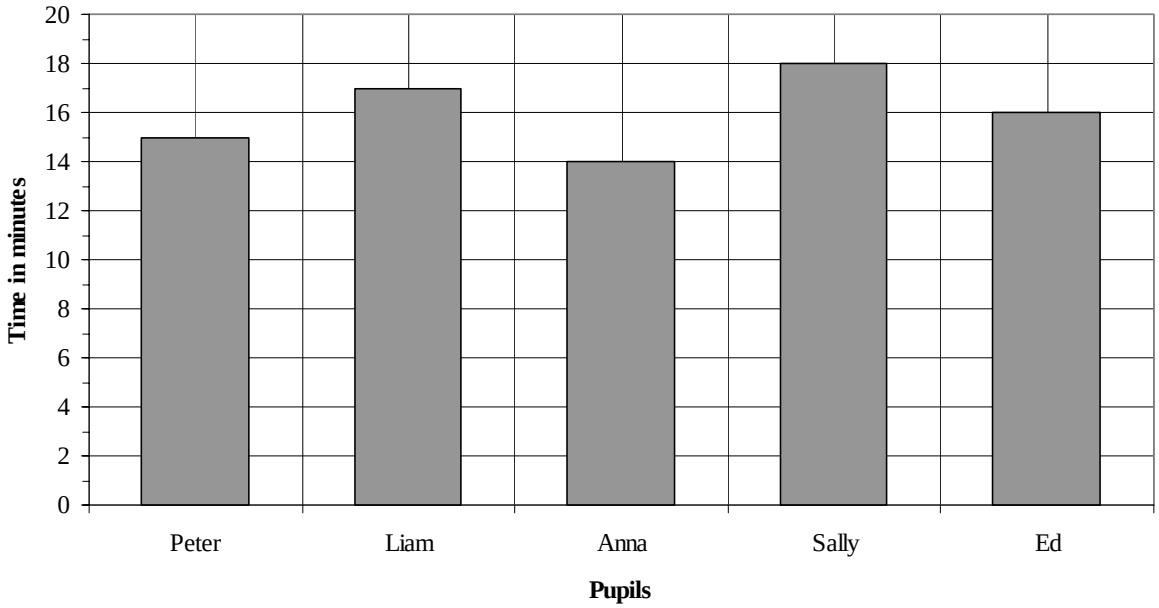
22. The graph below shows the times taken to walk around the school field by 5 pupils.



Find:

a) the difference in minutes between the slowest and fastest times,

Answer: _____ minutes [2]

b) the sum, in minutes, of the individual times,

Answer: _____ minutes [2]

c) the average time, in minutes, of the five times.

Answer: _____ minutes [3]

Peter walked at 4 km/h.

d) How far is it around the school field?

Answer: _____ km [3]

23. Two numbers are ‘clotted’ by multiplying them together and then writing the answer backwards.

For example, 6 and 7 are ‘clotted’ to give 24 because $6 \times 7 = 42$ and 42 written backwards is 24.

a) What is the result of ‘clotting’ 8 and 9?

Answer: _____ [2]

b) With which number must 4 be ‘clotted’ with to give 42?

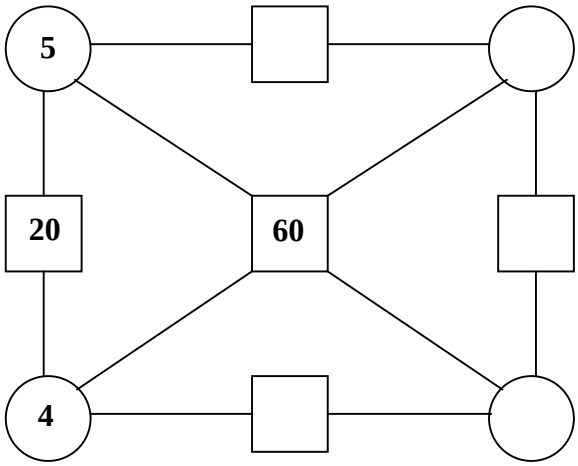
Answer: _____ [2]

c) Find two whole numbers which ‘clot’ to give 53.

Answer: _____ [3]

24. Along any line drawn, the numbers in the two circles at the end of a line should multiply to make the number in the square between the two circles.

Fill the remaining squares and circles with numbers obeying this rule.



[3]

End of Examination