TONBRIDGE SCHOOL

Year 7 Entrance Examination
SPECIMEN

Mathematics

May of Year 7

Time allowed: 1 hour

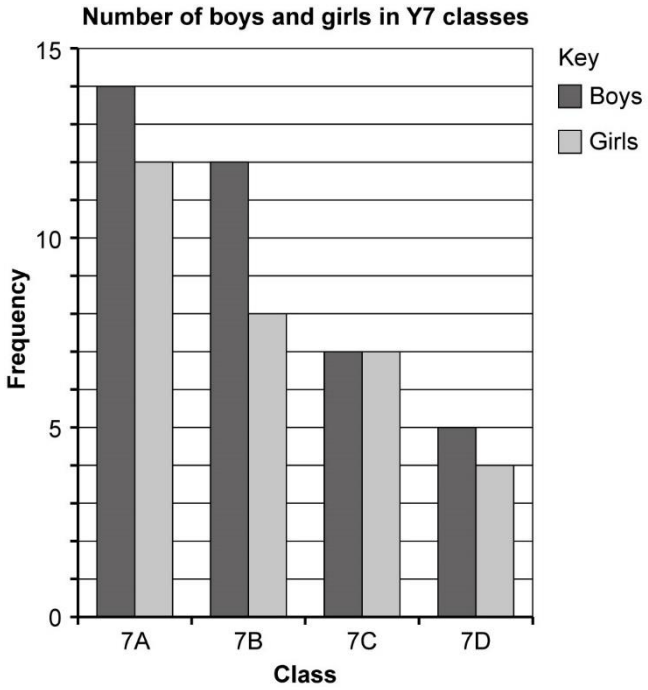
Total Marks 100.

Name: _____

Current School: _____

Calculators may not be used.
Write all your answers on this paper.
Answer as many questions as you can.
You should give working to show how you got your answer.
Do not worry if you think you have not covered one topic, just go on to the next question.

1. The bar chart shows the number of pupils in the four year 7 classes at a certain school.



a) How many girls in class 7D?

Answer: _____ (1)

b) How many boys in total in all four classes?

Answer: _____(2)

c) What is the ratio of boys to girls in class 7B? Give your answer in its simplest form.

Answer: _____:_____(2)

2. Four friends are shopping in their local supermarket.

a) Anton buys a chocolate bar for £0.84 and a can of drink for £0.78. How much do they cost in total?

Answer: £ _____ (2)

b) Boris buys a tube of suncream that costs £8.62. How much change does he receive from a £10 note?

Answer: £ _____ (2)

c) Bottles of vintage lemonade cost £1.37. Charles buys 5 of these. What is the total cost?

Answer: £ _____ (2)

d) Danny buys six doughnuts which cost a total of £2.76. How much does each doughnut cost?

Answer: _____ p (2)

Turn over

3. Calculate

a) $4 + 5 \times 3 - 2$

Answer: _____(2)

b) 3×2^2

Answer: _____(1)

4. From the list of numbers: 5, 6, 8, 23, 27, 45, 72
(You may use each number more than once or not at all)

a) A factor of 12

Answer: _____(1)

b) A multiple of 15

Answer: _____(1)

c) A prime number bigger than 10

Answer: _____(1)

5.

a) Write 0.2 as a fraction in its lowest terms.

Answer: _____(2)

b) Write these numbers in order from the smallest to the largest:

$$0.3, \quad \frac{8}{25}, \quad 33\%, \quad \frac{1}{3}$$

Answer: _____, _____, _____, _____(3)

6. A packet of sweets contains 15 red, 25 blue and 10 green. A larger packet of sweets has the colours in the same ratio and contains 22 green. How many blue are there in the larger packet.

Answer: _____(3)

Turn over

7. The number of goals scored by a Tonbridge hockey team in their four matches last season were: 4, 6, 1, 6

a) Find the mean number of goals scored.

Answer: _____(3)

b) Find the median number of goals scored.

Answer: _____(2)

c) What is the range of the number of goals scored?

Answer: _____(1)

8. If $a = 3$, $b = 5$ and $c = -2$, find the value of;

a) ab^2

Answer: _____(2)

b) $(bc)^2$

Answer: _____(2)

c) $\frac{a+b}{c}$

Answer: _____(2)

d) $\frac{2b-c}{a}$

Answer: _____(2)

e) $a - \frac{b}{c}$

Answer: _____(2)

Turn over

9. Calculate, giving your answers as fractions or mixed numbers;

a) $\frac{1}{4} + \frac{1}{3}$

Answer: _____(2)

b) $3\frac{1}{4} - 1\frac{2}{5}$

Answer: _____(3)

c) $2\frac{1}{2} \times 1\frac{3}{5}$

Answer: _____(3)

d) $\frac{4}{5} \div \frac{3}{10}$

Answer: _____(2)

10. Simplify

a) $7a - 4a + 2a - a$

Answer: _____(2)

b) $3b \times b^2$

Answer: _____(1)

c) $\frac{4c^2}{8}$

Answer: _____(1)

d) $\frac{3d+3d}{4}$

Answer: _____(2)

e) $3 - 2(e - 1)$

Answer: _____(3)

11. Write down the next two terms of the following sequences;

a) 2, 4, 7, 11, ...

Answer: _____, _____(2)

b) $\frac{2}{3}$, 2, 6, 18, ...

Answer: _____, _____(2)

A sequence follows the rule:

Treble and add one

c) Explain why if the first term is $-\frac{2}{9}$ the second term is $\frac{1}{3}$

(2)

d) Find the fourth term

Answer: _____(2)

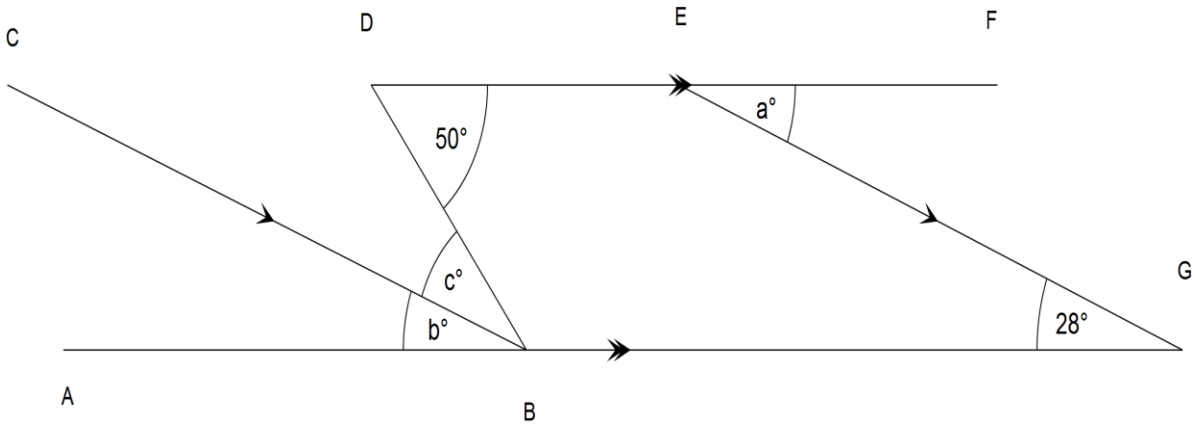
12. A tennis racket costs £85 originally. In a sale it is reduced by 15%. What is the sale price?

Answer: £ _____ (2)

I score 42 out of 48 on a test. What percentage is that?

Answer: _____ % (2)

13. In the diagram below the straight lines ABG and DEF are parallel. Lines CB and EG are also parallel. Find the angles marked a, b, c in the diagram.
The diagram is not drawn accurately.



Answer: $a =$ _____(2)

$b =$ _____(2)

$c =$ _____(1)

14. Solve the equations (showing clear working);

a) $3x - 4 = 20$

$x =$ _____ (2)

b) $2 - x = 3(1 - x)$

$x =$ _____ (3)

c) $\frac{x}{3} = \frac{x-4}{2}$

$x =$ _____ (3)

15. Draw;

a) A quadrilateral with no line of symmetry but order two rotational symmetry,

(2)

b) A trapezium with a line of symmetry,

(2)

c) A rhombus with the two diagonals having lengths 6cm and 4cm.

(2)

16. Using some or all of the digits 1,3,5,7,0 make;
(each digit may only occur once so the three digit number 113 is not allowed but 507 is)

a) A three digit even number

Answer: _____(1)

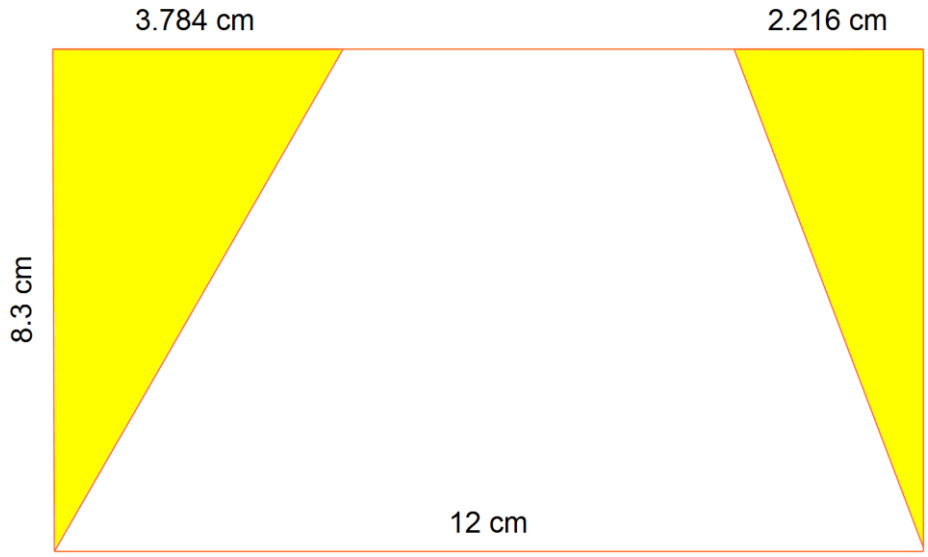
b) The smallest three digit multiple of 5

Answer: _____(1)

c) The largest possible multiple of 3 (this does not have to be a three digit number and may have more digits).

Answer: _____(2)

17. Find the total area of the shaded regions. *The diagram is not drawn accurately.*



Answer: _____ cm^2 (3)

End of questions