Alleyn's

Name: ....

Candidate number: ....

ENTRANCE & SCHOLARSHIP EXAMINATION

For 11+ Candidates
MATHEMATICS

Time allowed: 1 hour

Calculators MAY NOT be used. Answer as many questions as you can. If you cannot do a question, leave it and go on to the next. Show your working, as there may be marks given for working out.

MULTIPLE CHOICE

Circle the correct answer to the questions in this section

1. How many minutes are there in four hours?

(a) 4   (b) 60   (c) 460   (d) 240   (e) 3600

2. Which of these fractions is equal to 0.2?

(a) $\dfrac{1}{2}$ (b) $\dfrac{1}{3}$ (c) $\dfrac{1}{4}$ (d) $\dfrac{1}{5}$ (e) $\dfrac{1}{6}$

3. Which of these is the smallest?

(a) 0.0801   (b) 0.801   (c) 0.081   (d) 0.08   (e) 0.0888

4. The most likely height of an eleven-year-old boy is:

(a) 0.14cm   (b) 1.4cm   (c) 14cm   (d) 140cm   (e) 1400cm

5. $20 - 3 \times 2 + 4 =$

(a) 2   (b) 10   (c) 12   (d) 18   (e) 38

6. Two of the angles in a triangle are 45^0 and 48^0. The third angle is:

(a) 3^0 (b) 83^0 (c) 87^0 (d) 93^0 (e) 97^0

7. What is the area of a square whose perimeter is 20cm?

(a) $20cm^2$ (b) $25cm^2$ (c) $30cm^2$ (d) $100cm^2$ (e) $400cm^2$

8. How long is it, in hours and minutes, between 11:22 and 22:11?

(a) 10 hrs 11 mins   (b) 11 hrs 11 mins   (c) 10 hrs 49 mins   (d) 11hrs 49 mins

(e) 33 hrs 33 mins

9. What is the value of the digit 7 in the number 32.679?

(a) seven hundred   (b) seventy   (c) seven tenths   (d) seven hundredths

(e) seven thousandths

10. I buy 6 packets of crisps from the 98p store where everything costs 98p. How much change do I get from £10?

(a) £4.12   (b) £5.94   (c) £5.88   (d) 98p   (e) £6.98

Show your working when answering these questions:

11. (a) 153 + 388 =   (b) 704 − 555 =

(c) 32 x 57 =   (d) 4938 ÷ 6 =

12. (a) $\dfrac{1}{5} + \dfrac{1}{5} =$ (b) $\dfrac{4}{5} + \dfrac{1}{10} =$

(c) $\dfrac{3}{4} - \dfrac{1}{2} =$ (d) $5 - \dfrac{3}{8} =$

13. Write down the next two numbers in these sequences:

(a) 3, 7, 11, 15, ..., ...

(b) 42, 38, 34, 30, ..., ...

(c) 4, 7, 11, 16, ..., ...

(d) 50, 48, 44, 38, ..., ...
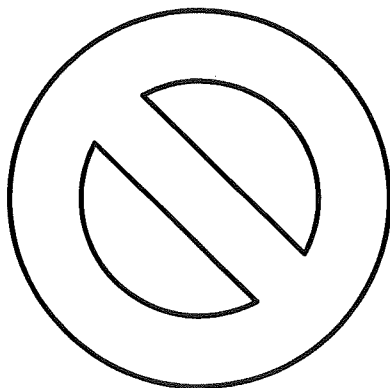
(e) 6, 12, 24, 48, ..., ...

14. Put the following in order, starting with the smallest:

5.67,   6.57,   7.56,   57.6,   5.76,   67.5

....
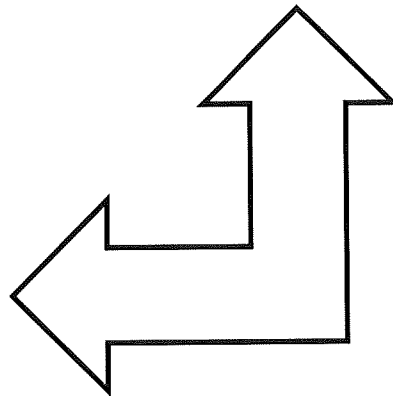
15. Draw any lines of symmetry on these shapes. Some may have none or more than one.

(a)   (b)
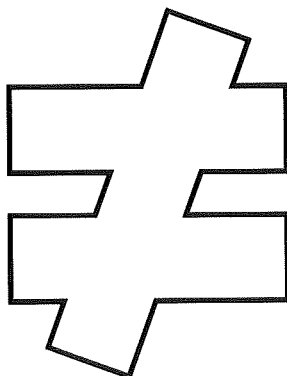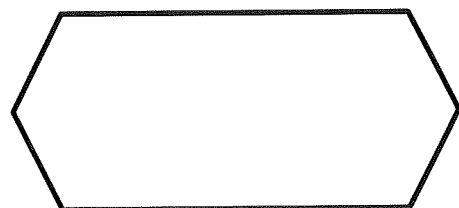
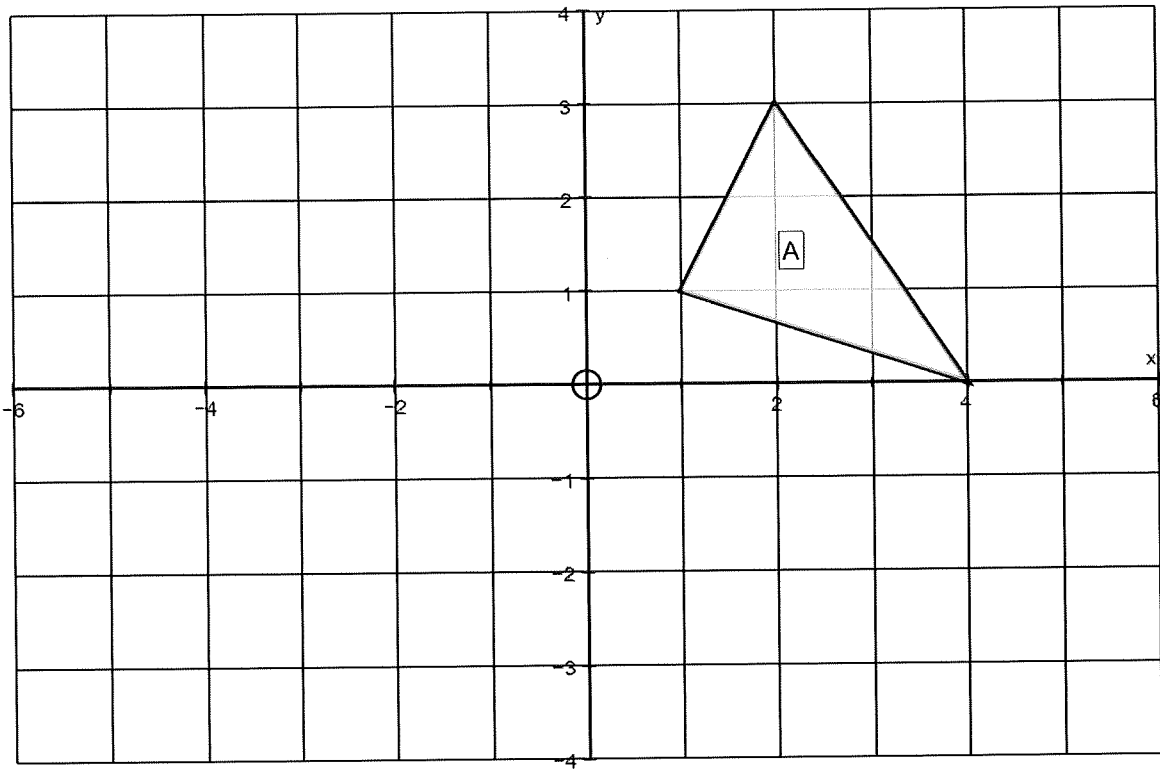(c)   (d)

16.

(a) Reflect shape A in the y-axis and label the new shape B.

(b) Reflect shape B in the x-axis and label the new shape C.

17. Bob does a spelling test every day for a week. His scores, out of 20, were:

12, 15, 20, 6 and 7

(a) What was the mean score for the five tests?

(b) What was the range?

(c) A set of four numbers 10, 12, 15, and X have a mean of 10. What is X?

18. (a) According to Jamie Oliver, when making a sponge cake, the perfect ratio of flour to sugar is 120:280. What is this ratio in its simplest form?

(b) I am making a scale model of my yacht, which is 8m long. If the scale is 1:20, how long will the model yacht be (in cm)?

(c) My friend Dave is making a scale model of The Shard. The Shard is 320m tall and his model is 160cm tall. What is the scale of the model, in its simplest form?

19. (a) An icicle measured 2.06m at the start of a sunny day, but only 78cm at the end of the day. What length of icicle had melted?

(b) When I lay a new patio in my back garden, I will need 300kg of gravel. How many 12kg bags do I need to buy?

20.
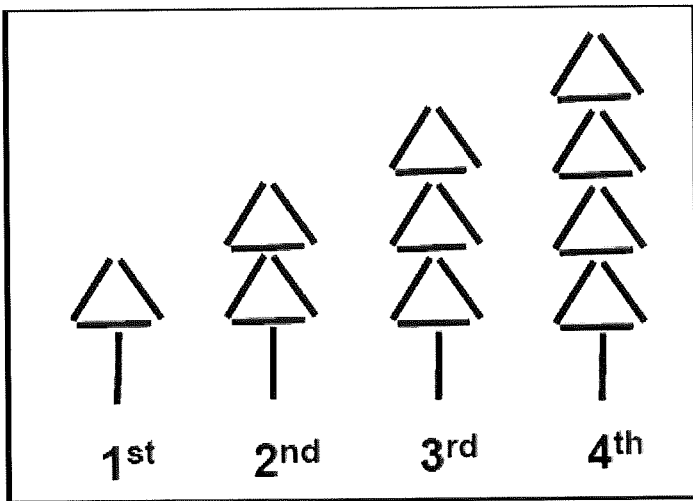
This picture shows some trees made out of matches. Complete the table below:

Tree Number	1	2	3	4	5	10
Matches Needed		7		13		

Adam is trying to find a formula that links the Tree number, T, to the number of Matches, M. Fill in the gaps to help him:

M = ... T + ...

21. On my wall I want to put some stickers of Ant and Dec. The space I have available is 60cm by 35cm and the stickers are each 5cm by 10cm. What is the maximum number of stickers I can fit on the wall?

22. There are 5 red balls and 10 green balls in a bag. If I take one ball out at random, what is the probability, as a fraction in its simplest form, of getting:

(a) A red ball?
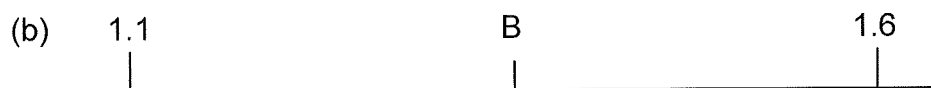
(b) A green ball?

(c) A yellow ball?

(d) How many red balls do I need to add to the bag so that the probability of getting a green ball is $\frac{1}{3}$?

23. These pictures show parts of a scale with equal gaps between each marking. What number should replace each letter?

(a)　　3.4　　　　　　　　　　　A　　　　　　　　　　3.8

A = ……..

(b)　　1.1　　　　　　　　　　　B　　　　　　　　　　1.6

B = ……..

24.

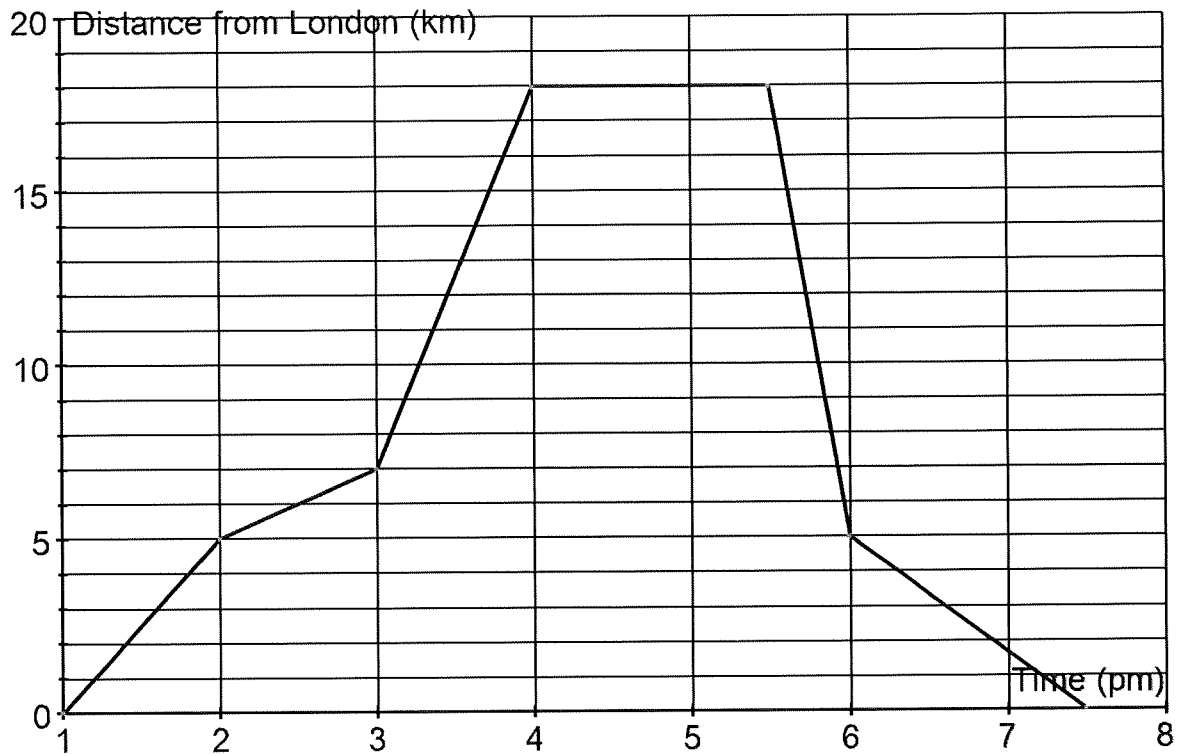The point A (3,1) has been marked.

(a) Mark the point B with co-ordinates (0,3)

(b) Mark the point C with co-ordinates (-2,0)

(c) A fourth point D makes a square when combined with A, B and C. Write down the co-ordinates of D:

(d) What is the area of the square?

25.

This distance-time graph shows a lorry driver's journey from London to Guildford and back, one afternoon. She left home at 1pm.

    (a) How far was she from London at 2.30pm?

    (b) How far is it from London to Guildford?

    (c) For how long did she stop in Guildford?

    (d) Between which two times was she driving the fastest?

26. Place the numbers 1 to 9 inclusive, once each, in these gaps to make this sum correct:

$$\bigcirc \; \bigcirc \; \bigcirc \; \bigcirc$$
$$\times \; 3$$
$$\overline{}$$
$$\bigcirc \; \bigcirc \; \bigcirc \; \bigcirc \; \bigcirc$$