KING HENRY VIII SCHOOL

Name:	Candidate Number:

SAMPLE 13+ Mathematics Entrance Examination

Time: 1 hour

Materials Required

Pen, HB pencil and eraser

Instructions for Candidates

Fill in your name and candidate number in the boxes at the top of this page.
Answer **ALL** the questions in the spaces provided.
Write in blue or black ink only; use pencil for drawings and graphs only.
Do **NOT** use correcting fluids.

Information for Candidates

The total mark for this paper is 60.
The marks for the various parts of questions are shown in round brackets; e.g., **(3)**.
Calculators must not be used.

Advice to Candidates

Show all stages in any calculations.
Work steadily through the paper.
Do not spend too long on one question.
If you cannot answer a question, leave it out and attempt the next one.
Return at the end to those you have left out.

DO NOT TURN OVER UNTIL INSTRUCTED TO DO SO

Leave blank

Answer ALL questions.

Write down your answers in the spaces provided.

Do NOT use a calculator. You must write down all stages in your working.

1. Work out

(a) $7 \times (-8)$

.....

(b) $(-12) \div (-3)$

.....

(c) $(-6) - (-3)$

.....

(d) $12 - 3 \times 2 + 4$

.....

(4)

SAMPLE

Leave blank

2. Work out

(a) 402 – 178

.....

(b) 52 – 28.54

.....

(c) 29 × 35

.....

(d) 3.8 × 0.74

.....

(e) 5.44 ÷ 0.4

.....

(10)

SAMPLE

Leave blank

3. Work out, simplifying your answers,

(a) $\frac{6}{7} \times \frac{14}{15}$

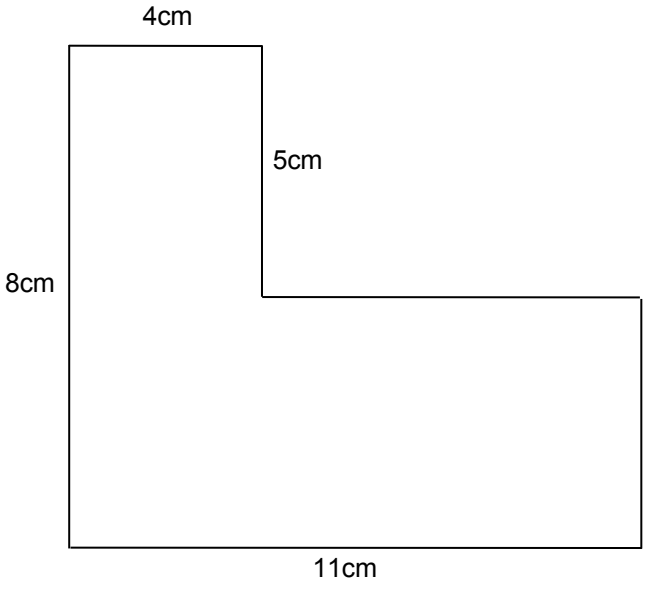
.....

(b) $\frac{5}{12} + \frac{7}{18}$

.....

(4)

4. The diagram shows the floor plan of a room (not drawn to scale). All of the angles are right angles.
Work out the area of the floor.
Include the units in your answer.



.....

(3)

Leave blank

5. Solve the equations

(a) $4x - 12 = 36$

x = ...

(2)

(b) $5x - 3 = 2x + 12$

x = ...

(2)

Leave blank

6. (a) Work out

(i) $\frac{4}{7}$ of £3.64

.....
(2)

(ii) 35% of 65 metres.

.....
(2)

(b) Change $\frac{3}{8}$ into:

(i) a decimal

.....
(1)

(ii) a percentage.

.....
(1)

SAMPLE

Leave blank

7. (a) Simplify

(i) $3p - 4p + 8p$

……..
(1)

(ii) $5z - 4y - 3z + 3y$

……..
(1)

(b) Expand and simplify $4(x + 2y) + 3(2x - 5y)$

……..
(2)

8. Here are Jemima's last 10 English homework marks:

5, 8, 9, 3, 7, 9, 1, 5, 9, 10

(a) Write down the modal mark.

……
(1)

(b) Work out the median mark.

……
(1)

(c) Work out the range of the marks.

……
(1)

(d) Work out the mean mark.

……
(2)

Leave blank

9. ABC is an isosceles triangle.

The angle B is 50°. What are the three possible values of angle A?

…… °

(3)

10. The **surface area** of a cube is 150 cm².
Work out the **volume** of the cube.

…… cm^3

(2)

SAMPLE

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11. Davina has a bag of 50 counters. 24 are red, 8 are yellow and the rest are green or blue. She takes a counter from the bag at random.

a. What is the probability that the counter is red? Express your answer as a fraction in its simplest form.

.....

(2)

b. What is the probability that the counter is not yellow? Express your answer as a fraction in its simplest form.

.....

(2)

c. If the probability that the counter is green is $\frac{1}{10}$, how many **blue** counters are in the bag?

.....

(2)

12. a. List all of the factors of 48

.....

(2)

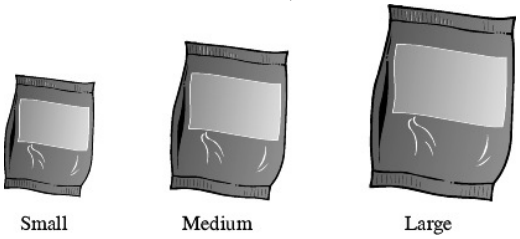
b. Find the highest common factor of 48 and 32

.....

(2)

Leave blank

13. Isaac has three packets of sweets: small, medium and large.



There are n sweets in the small packet.
There are **twice** as many sweets in the **medium** packet as there are in the **small** packet.

(a) Write down an expression, in terms of n, for the number of sweets in the **medium** packet.

.....
(1)

There are 15 more sweets in the **large** packet than in the **medium** packet.

(b) Write down an expression, in terms of n, for the number of sweets in the **large** packet.

.....
(1)

Isaac opens all the packets and counts the sweets.
Altogether, there are 135 sweets.

(c) Form an equation in n and solve it.

n = ...
(2)

(d) How many sweets were there in the **large** packet?

.....
(1)

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SAMPLE

ANSWERS:

1) a) -56 b) 4 c) -3 d) 10
2) a) 224 b) 23.46 c) 1015 d) 2.812 e) 13.6
3) a) 4/5 b) 29/36
4) 53 cm^2
5) a) 12 b) 5
6) a) i) £2.08 ii) 22.75m b) i) 0.375 ii) 37.5%
7) a) i) 7p ii) 2z-y b) 10x-7y
8) a) 9 b) 7.5 c) 9 d) 6.6
9) 50°, 80° or 65°
10) 125
11) a) 12/25 b) 21/25 c) 13
12) a) 1,2,3,4,6,8,12,16,24,48 b) 16
13) a) 2n b) 2n+15 c) 5n+15=135; n=24 d) 63