Name ..... Class .....

Calculator Crossover Paper 10

GCSE Mathematics · Foundation and Higher

40 marks · 45 minutes · Calculator

1 (a) Write 2 060 000 in standard form.

..... **(1)**

(b) The distance from the Earth to the Moon is 3.84×10^5 km.

A spacecraft travels at an average speed of 2.6×10^4 km/h.

Work out the time it takes the spacecraft to travel from the Earth to the Moon.

Give your answer in hours and minutes, correct to the nearest minute.

..... hours

..... minutes **(2)**

[Question 1: 3 marks]

2 Nadia measures the length, L cm, of a piece of wire.

She writes down $L = 6.3$ after truncating her measurement to 1 decimal place.

Write down the error interval for L.

..... **(2)**

[Question 2: 2 marks]

3 In a sale, all prices are reduced by 18%.

The sale price of a pair of trainers is £72.98

Work out the price of the trainers before the sale.

£..... **(3)**

[Question 3: 3 marks]

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

..... **(2)**

(b) Factorise $x^2 - 9x + 20$

..... **(2)**

(c) Simplify fully $(2a^3b^2)^4$

..... **(2)**

[Question 4: 6 marks]

5 Oliver invests £12 000 for 5 years.

The investment earns compound interest at a rate of 2.8% per year.

Work out the value of the investment at the end of 5 years.

Give your answer correct to the nearest penny.

£ ..... **(3)**

[Question 5: 3 marks]

6 Two running clubs take part in a 5 km race.

The 8 runners from the Harbour club have a mean time of 27.5 minutes.

The 12 runners from the Valley club have a mean time of 24.2 minutes.

Work out the mean time for all 20 runners.

..... minutes **(3)**

[Question 6: 3 marks]

7 n is an integer.

List all the values of n such that $-7 < 3n + 2 \leq 14$

..... **(3)**

[Question 7: 3 marks]

8 In a choir, the ratio of the number of boys to the number of girls is 3 : 5

6 more boys join the choir.

The ratio of the number of boys to the number of girls is now 2 : 3

How many girls are in the choir?

..... **(3)**

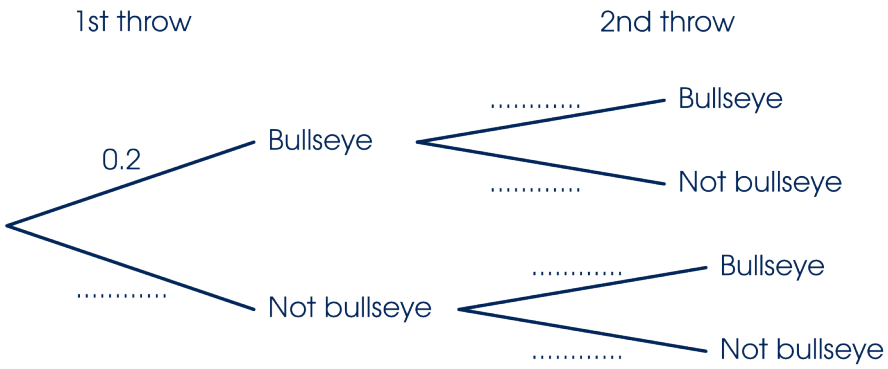
[Question 8: 3 marks]

9 Freya throws a dart at a dartboard two times.

The probability that she hits the bullseye with each throw is 0.2

Whether she hits the bullseye on one throw is independent of the other throw.

(a) Complete the probability tree diagram.



(2)

(b) Work out the probability that Freya hits the bullseye exactly once.

..... **(2)**

[Question 9: 4 marks]

10 (a) Make t the subject of the formula $y = \frac{5 - 2t}{3}$

$t =$ ..... **(2)**

(b) Work out the value of t when $y = -4.6$

$t =$ ..... **(1)**

[Question 10: 3 marks]

11 *ABC* is a right-angled triangle.

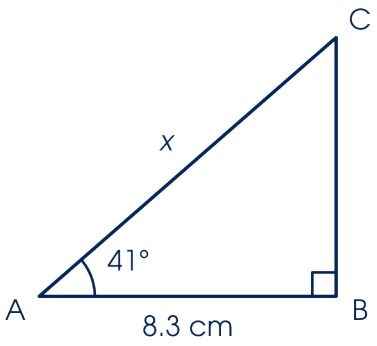


Diagram NOT accurately drawn

Work out the length of the side marked *x*.

Give your answer correct to 1 decimal place.

..... cm **(3)**

[Question 11: 3 marks]

12 A circular pond has an area of 90 m^2.

Priya wants to put a fence around the edge of the pond.

Fencing is sold in whole metres.

Each metre of fencing costs £12.50

Work out the cost of the fencing Priya needs to buy.

You must show your working.

£ ..... **(4)**

[Question 12: 4 marks]

TOTAL FOR PAPER IS 40 MARKS