SEKOLAH BUKIT SION (HIGH SCHOOL)

CENTRE NUMBER: ID 138

CANDIDATE NUMBER: | | | | |

CANDIDATE NAME:

MATHEMATICS **0580/22**
PAPER 2 (EXTENDED) **May/June 2022**

E-PORTFOLIO (SPECIMEN 2) **30 MARCH 2022**
80 minutes

INSTRUCTIONS:

- Answer all questions.
- Use a black or dark blue pen.
- Use HB pencil for any diagrams or graphs.
- Write your name, centre number and candidate number in the boxes provided in each page.
- Write your answer to each question in the space provided.
- Do not use an erasable pen or correction fluid or tape.
- You may use a scientific calculator where appropriate.
- You must show all necessary working clearly.
- Give non-exact numerical answers correct to 3 significant figures, or 1 decimal place for angles in degrees, unless a different level of accuracy is specified in the question.
- Use the calculator value of π or 3.142.

INFORMATION:

- The total number of marks in this paper is 50.
- The number of marks for each question or part question is shown in brackets [].

Question 01

The temperature at midnight is -8.5 °C.
The temperature at 11 am is -1 °C.

Work out the difference between the temperature at midnight and the temperature at 11 am.

Answer: …… [1]

Question 02

Change 45% to fraction in lowest terms.

Answer: …… [1]

Question 03

Angelique rents a room for a party.
The cost of renting the room is $15.50 for the first hour and then $7.25 for each additional hour.
She pays $95.25 in total.

Work out the total number of hours she rents the room for.

Answer: …… [3]

Question 04

Express 2593.42 correct to 2 significant figures.

Answer: …… [1]

Question 05

Alex borrows $28 000 for 6 years at a rate of 5.5% per year compound interest.
Calculate the **total compound interest** he pays for the loan at the end of 6 years.
Give your answer correct to the nearest dollar.

Answer: …… [3]

Question 06

Without using a calculator, work out $\frac{1}{3} \div \frac{7}{6} + \frac{1}{5}$.

You must show all your working and give your answer as a fraction in its simplest form.

Answer: …… [4]

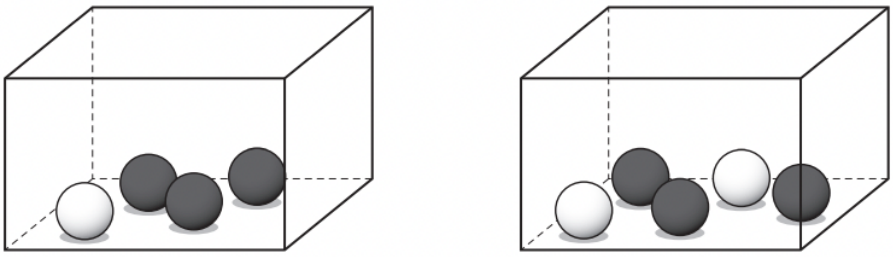
Question 07

A fence is made from 32 identical pieces of wood.
Each piece of wood is of length 200 cm correct to the nearest centimetre.

Calculate the **lower bound** for the total length of the wood used to make this fence, in metres.
Write down you full calculator display.

Answer: …… [2]

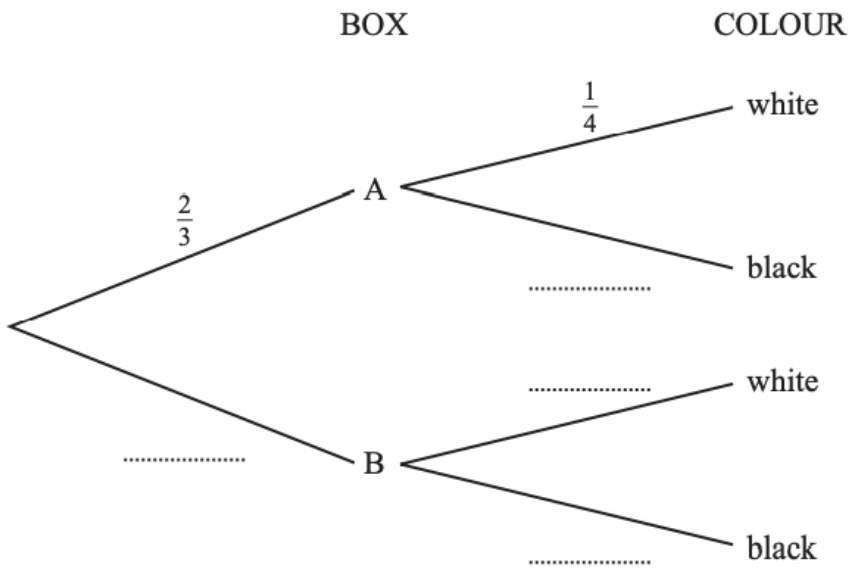
Question 08



Box A contains 3 black balls and 1 white ball.
Box B contains 3 black balls and 2 white balls.

Abdul chooses a box and then chooses a ball from this box at random
The probability that he chooses box A is $\frac{2}{3}$.

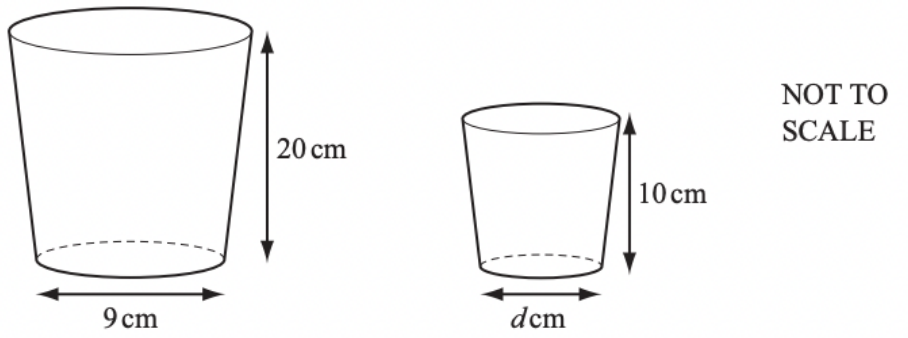
(a) Complete the probability tree below. [2]



(b) Find the probability that Abdul chooses a black ball.

Answer: ..... [3]

Question 09



The diagrams show two mathematically similar containers.
The larger container has a base with diameter 9 cm and a height 20 cm.
The smaller container has a base with diameter d cm and a height 10 cm.

(a) Find the value of d.

Answer: ..... [1]

(b) The larger container has a capacity of 1600ml.
Calculate the capacity of the smaller container.

Answer: ..... [2]

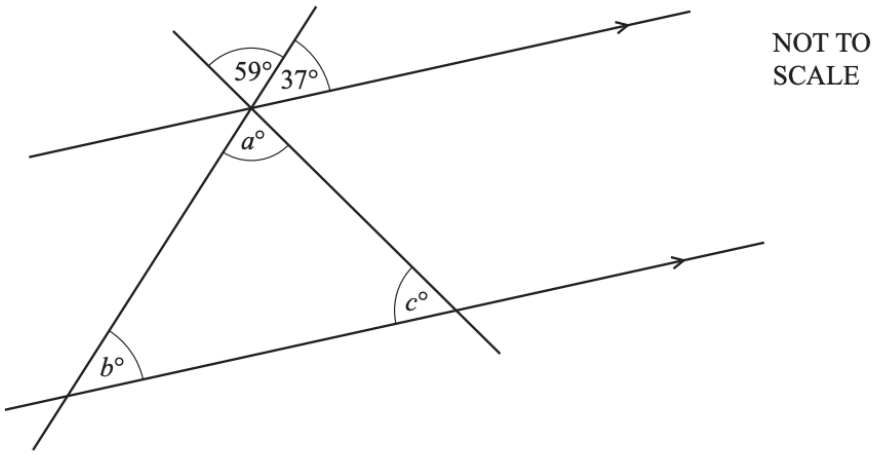
Question 10

Find the smallest integer value of x that satisfies the inequality $5x - 3 > 3x + 7$.

Answer: ..... [2]

Question 11

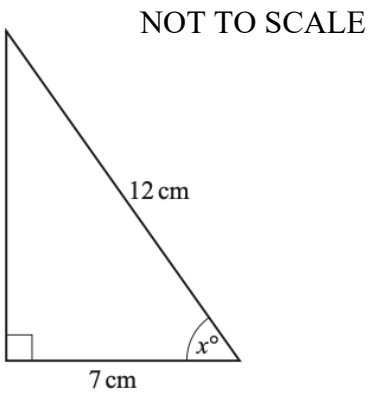
The diagram shows two parallel lines intersected by two straight lines.
Find the values of a, b and c.



Answer: ……..…… [3]

Question 12

Calculate the value of x.

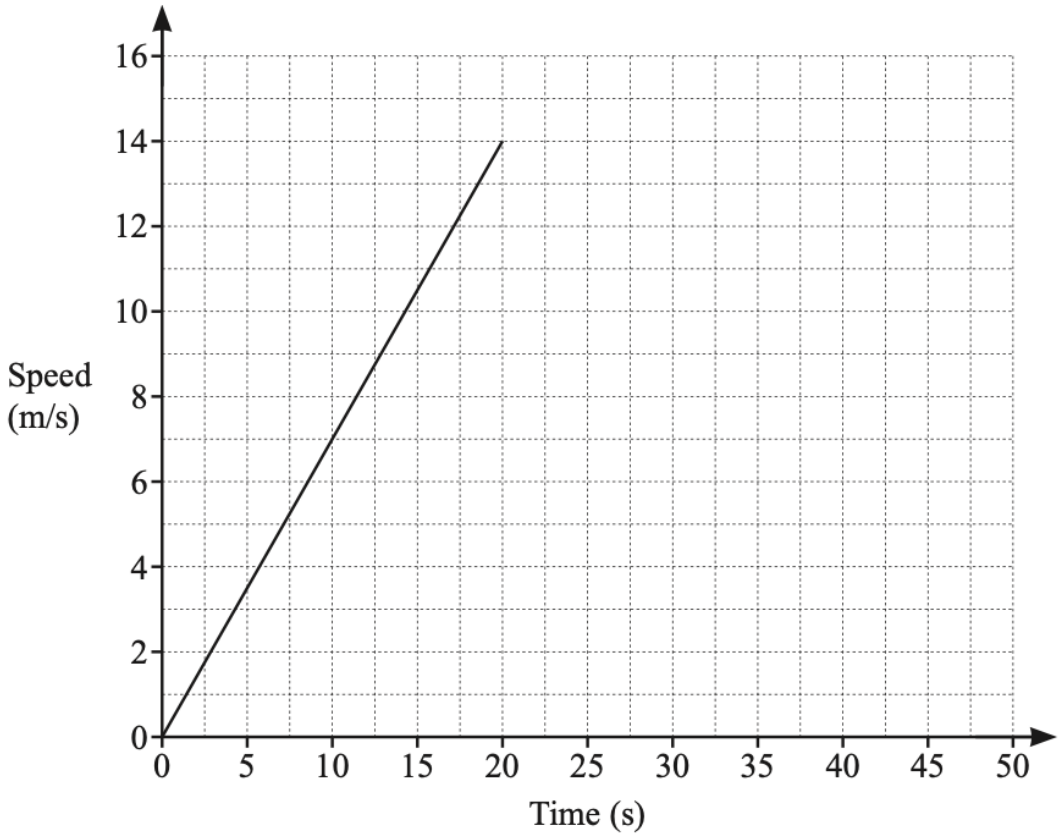


Answer: …… [2]

Question 13

A car starts its journey by accelerating from rest at a constant rate of 0.7 m/s^2 for 20 seconds, before reaching a constant speed of 14 m/s.
It then travels at a constant speed of 14 m/s for 15 seconds.
The car then decelerates at constant rate and comes to full stop after 10 seconds.

(a) On the grid, complete the speed-time graph for the car's journey. [2]



(b) Calculate the total distance covered by the car.

Answer: ..... [3]

Question 14

Solve the simultaneous equations.
You must show all your working.

$$y = x^2 - 9x + 21$$
$$y = 2x - 3$$

Answer: x = ... y = ...

x = ... y = ... [4]

Question 15

Alvin invests $4600 for 6 years.
It earns simple interest of 1.25% per year.

Calculate his total money after 6 years.

Answer: ..... [3]

Question 16

Hank flies from Los Angeles to Shanghai.

(a) The flight departs on Friday 22 July at 21 40.
The flight takes 13 hours 35 minutes.
The local time in Shanghai is 15 hours ahead of the local time in Los Angeles.

Find the day, date and time in Shanghai when hank's flight arrives.

Day …… Date …… Time …… [2]

(b) The cost of the flight is $920.
The exchange rate is $1 = 6.87 Chinese yuan.
Find the cost of the flight in yuan.

Answer: …… [1]

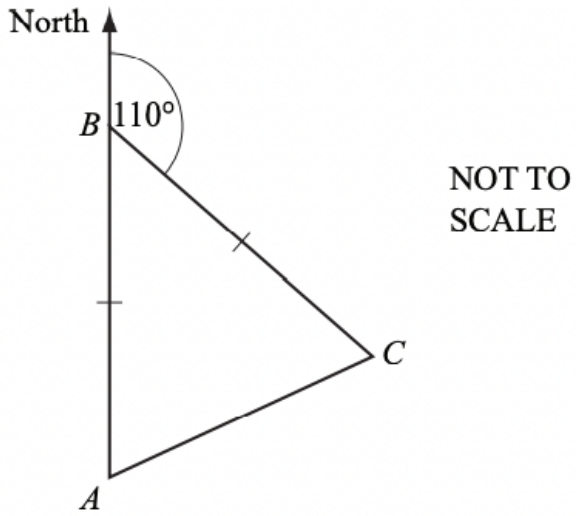
(c) The cost of Hank's flight is 20% **less than** its original price.
Find the original cost of his flight, in dollars.

Answer: …… [2]

Question 17

The route for the sponsored walk in winter is triangular
Senior students start at A, walk North to B, then walk on a bearing 110° to C.
They then return to A.
$AB = BC$.

Calculate the bearing of A from C.



Answer: …… [3]

**** E N D O F EXAM ****