INSTRUCTIONS TO CANDIDATES:

(*To be read out by the External Invigilator before the start of the examination*)

There are **46** questions in this paper worth **50 marks**. Attempt ALL questions, even if you are not sure of some of the answers.

The Examination is divided into three parts:

PART A: Multiple Choice   (Questions 1 to 25)

PART B: Short Answer   (Questions 26 to 45)

PART C: Extended Response   (Questions 46)

The Answer Sheet is part of the Examination Booklet. Take out the middle pages and remove the Answer Sheet by tearing along the perforation. You may use the blank sheet for rough work.

Write your candidate number, name and school name in the space given on the **Answer Sheet**.

For each question in **PART A** choose the best answer and write its LETTER in the space given on the Answer Sheet.

For each question in **PART B** and **PART C** work out the answer and write the answer in the spaces provided on the **Answer Sheet**.

If you find a question very difficult, do not spend too much time thinking about it. Leave the question out and go on with the rest of the paper. If you have time at the end, return to the difficult questions and think about them more carefully.

Write your answers in **BLUE** or **BLACK** ink (pen or biro).

If you decide to change an answer, make your correction as shown below so that it is clear to the markers what your final answer is. Do NOT use correction fluid on your answer sheet.

Q.2 | ✗ B

Hand in **BOTH** the Answer Sheet and the papers used for rough work at the end of the examination.

Extra time will not be allowed to complete the examination under any circumstances.

The penalty for cheating or assisting others to cheat in national examinations is non-certification.

DO NOT TURN OVER THE PAGE AND DO NOT WRITE UNTIL YOU ARE TOLD TO START.

PART A: **MULTIPLE CHOICE**   **25 MARKS**

For each question, choose the correct answer by writing A, B, C or D in the space provided on the ANSWER SHEET.

QUESTION 1

If x is less than 0, then x^2 will be

A.   negative   B.   positive
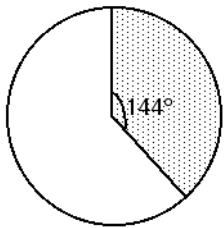
C.   negative or positive   D.   zero

QUESTION 2

As a cleaner Jimmy earns K105 per week. How much does he earn per month?

A.   K210   B.   K315

C.   K420   D.   K525

QUESTION 3

What percentage of the circle is shaded?

A.   30   B.   35

C.   40   D.   45

QUESTION 4

Written in simple fraction 0.65 is

A. $\dfrac{1}{8}$ B. $\dfrac{2}{7}$

C. $\dfrac{13}{20}$ D. $\dfrac{2}{3}$

QUESTION 5

$2a^{\frac{1}{3}}$ can be written as;

A. $\sqrt[3]{2a}$ B. $2\sqrt[3]{a}$
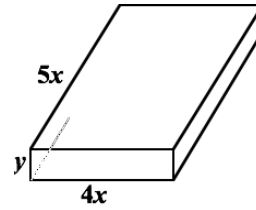
C. $\dfrac{2a}{3}$ D. $2a^3$

QUESTION 6

Calculate, $\dfrac{27 \times 81}{3 \times 9}$ and give your answer in index form.

A. 3^5 B. 3^4

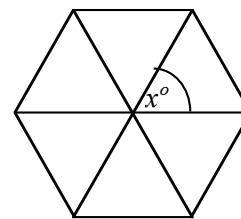C. 3^3 D. 3^2

QUESTION 7

Which algebraic expression represents the volume of this rectangular prism?

A. $9x^2 y$ B. $9xy^2$
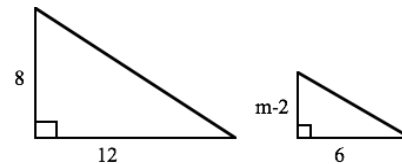
C. $20xy$ D. $20x^2 y$

QUESTION 8

What is the value of angle x in this regular hexagon?

A.   70°

B.   80°

C.   60°

D.   50°

QUESTION 9

What is the value of 'm' in the similar triangles shown?
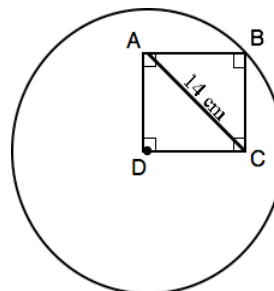

A.   3   B.   4

C.   5   D.   6

QUESTION 10

A square of sides ABCD is inscribed in a circle with side D at the centre of the circle.
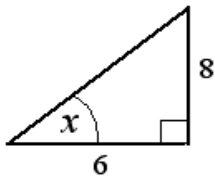
What is the radius of the circle in centimetres?

A.   7   B.   14

C.   21   D.   28
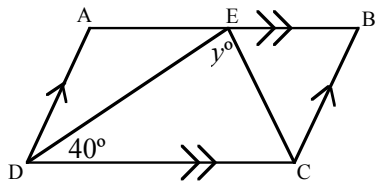
QUESTION 11

What is the value of $\cos x$ in the figure?

A. 0.6

B. 0.8

C. 1.25

D. 1.67

QUESTION 12

ABCD is a parallelogram.

Given $\angle AEC$ as 165°, find y.

A.   40°

B.   50°

C.   125°

D.   135°

QUESTION 13

Simplify $\dfrac{x^2 - y^2}{3(x - y)}$

A. $\dfrac{x^2 - y^2}{3x - 3y}$

B. $\dfrac{(x - y)^2}{3}$

C. $\dfrac{x + y}{3}$

D. $\dfrac{x - y}{3}$

QUESTION 14

Factorise the quadratic expression, $x^2 - x - 6$.

A. $(x + 3)(x - 2)$

B. $(x - 6)(x + 1)$

C. $(x - 3)(x + 2)$

D. $(x + 1)(x - 6)$

QUESTION 15

Solve for x in the equation, $\dfrac{2x + 1}{3} = 2x - 1$.

A.   4

B.   3

C.   1

D.   -1

QUESTION 16

Simplify $\dfrac{2^{(x+2)}}{2^{(x-1)}}$

A. $\dfrac{1}{8}$

B. $\dfrac{1}{2}$

C.   2

D.   8

QUESTION 17

Calculate and give your answer in ordinary numbers.

$$\dfrac{(4 \times 10^{-3})(6 \times 10^{12})}{3 \times 10^7}$$

A.   8

B.   80

C.   800

D.   8 000

QUESTION 18

Six students set for a Mathematics test that was out of 10 marks and the results are given as:

$4, 8, 5, 7, 9$ and 3

What is the median score?

A.   4

B.   5

C.   6

D.   7

QUESTION 19

A man is paid K5.00 per hour for a 35-hour week and for overtime he is paid time-and-a-half.
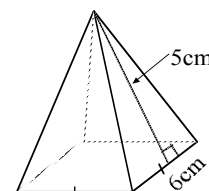
How much money would he be paid for the week if he worked 45 hours?

A.   K200

B.   K225

C.   K250

D.   K275

QUESTION 20

Shown is a diagram of a square based pyramid.
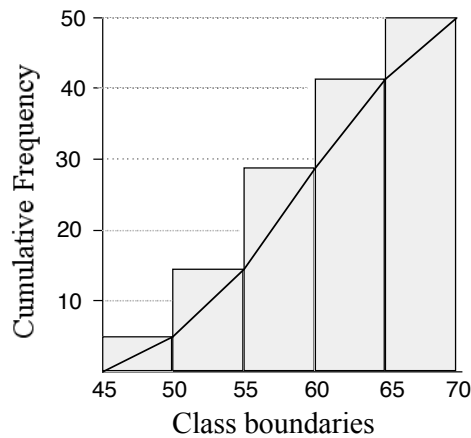
What is the surface area of this pyramid in square centimetres?

A. 81

B. 96

C. 126

D. 156

For question 21 and 22 refer to the information given.

The weight in kilograms of Grade 10 students in a class is presented on a cumulative frequency histogram and polygon.

QUESTION 21

What is the total number of students in the class?

A.   41   B.   50

C.   65   D.   70

QUESTION 22

What is the frequency of the 65-69 class?

A.   45   B.   20

C.   9   D.   5

QUESTION 23

What is the most likely equation of this graph?
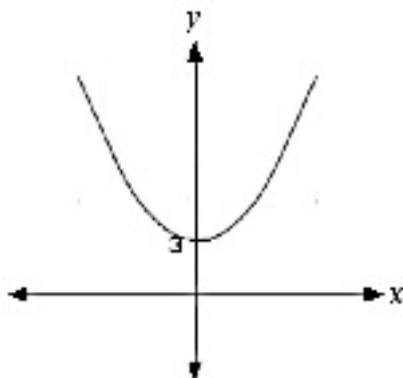
A. $y = \dfrac{3}{x^2}$ B. $y = -x^2 + 3$

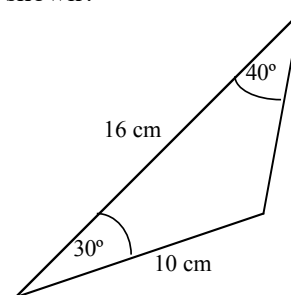C. $y = x^2 + 3$ D. $y = x^2 - 3$

QUESTION 24

Solve for x in the equation, $x^2 - x - 12 = 0$.

A. $x = 3$ and $x = -4$

B. $x = -3$ and $x = 4$

C. $x = 3$ and $x = 4$

D. $x = -3$ and $x = -4$

QUESTION 25

Which expression represents the area of the triangle shown?

A. $160\sin 30°$

B. $160\sin 40°$

C. $80\sin 30°$

D. $80\sin 40°$

PART B: SHORT ANSWER   20 MARKS

Work out the answer and write it in the space provided on the ANSWER SHEET

QUESTION 26

Mary has 2 meri blouses and 3 laplaps.

How many different combinations of outfit can she wear to church on Sunday?

QUESTION 27

A car travels 180 kilometres in $2\frac{1}{2}$ hours.

What is its average speed in kilometres per hour?

For questions 28 and 29 refer to the information given.

In a survey, 50 women were asked what brand of rice they cooked in their homes and the result was tabulated.

Rice brand	Frequency
Trukai	12
Roots	20
Ezy Cook	15
Jasmin	3

QUESTION 28

What percentage of women cooked Jasmin rice?

QUESTION 29

If this information were presented on a pie graph, then what would be the size of the sector angle in degrees for the Roots brand?

QUESTION 30

Jenny has a gross fortnightly salary of K860. She is charged 15% personal income tax and also is repaying a loan at K45 per fortnight.
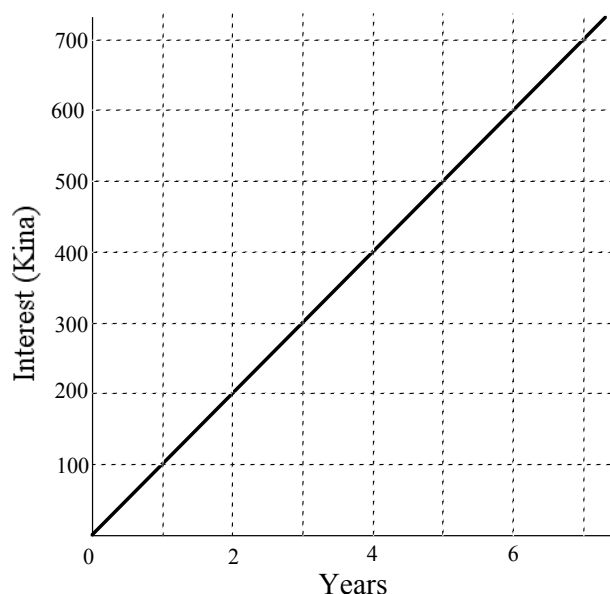
What is her net salary in kina?

QUESTION 31

K40.00 is 5% of the price of a computer printer.

What is the price of the printer in kina?

For question 32 and 33 refer to the graph.

The graph shown indicates the simple interest earned for a certain investment at 10% per annum over a number of years.

QUESTION 32

What is the interest in kina earned in $4\frac{1}{2}$ years?
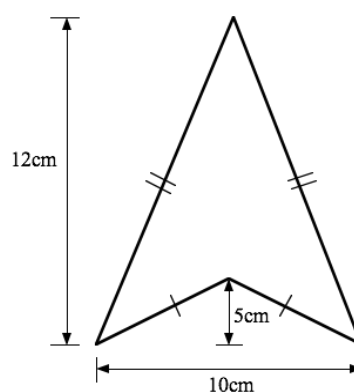
QUESTION 33

What was the principle or the amount of money invested in kina?

QUESTION 34

If a rectangle of length 100 cm and width 45 cm is shrunk 10 times, what will be the new area in square centimetres?
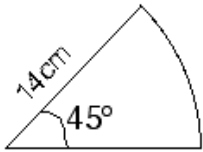
QUESTION 35

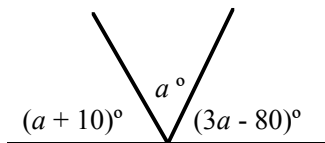Calculate the area of the figure in square centimetres.

QUESTION 36

Calculate the perimeter of the sector in centimetres.

Use $\pi = \dfrac{22}{7}$.

QUESTION 37

What is the value of 'a' in the figure below?

QUESTION 38

Of Dan's fortnightly income of K500, he places aside $\dfrac{1}{20}$ of it as savings.

How much in kina would he have saved in 6 months?

QUESTION 39

Jacinta is sent to the market to buy pineapples and watermelons for a big feast.

She buys a total of 36 watermelons and pineapples in the ratio of 5:4 respectively.

If a watermelon costs K5 each then how much in kina did she spend on watermelons?

QUESTION 40

The mean of;

$x + 3,\ 2x + 1,\ 2x + 2,\ 3x + 2$ and $4x + 1$ is 9.

What is x?

QUESTION 41

The equations of two straight lines are $y = 2x + 5$ and $y = 4x - 1$

Give the co-ordinate of their point of intersection.

For 42 and 43 refer to the information below.

An antenna fitted to the end of a 3 metre pole is mounted from the top of a building. A 25 metre rope is tied to the antenna end and anchored to the ground at a distance of 15 metres from the base of the building.
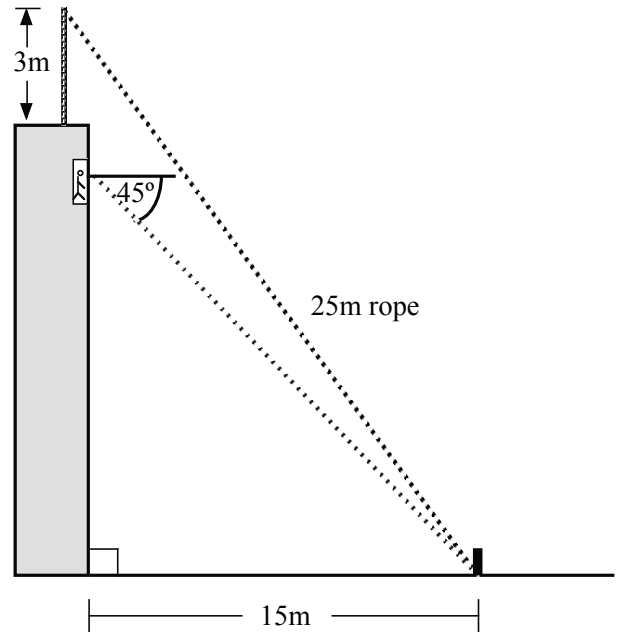
Trigonometry Table

Angle	sin	cos	tan
45°	0.7	0.7	1

QUESTION 42

Calculate the height of the building in meters.

QUESTION 43

A boy stands on the top floor of the building and looks down to the anchor at an angle of depression of 45°.

At what height in metres is he looking down from?

For questions 44 and 45 refer to the information below.

Vehicle A and Vehicle B start off together from the same starting point and travel non-stop along the same road.

Vehicle A travels at an average speed of 70 kilometres per hour and Vehicle B travels at an average speed of 65 kilometres per hour.

QUESTION 44

How long would it take Vehicle A to cover 105 kilometres?

QUESTION 45

How far apart in kilometres would the vehicles be in two hours time?

PART C: EXTENDED RESPONSE   5 MARKS

Refer to the advertisement below and write your answers in the spaces provided on the ANSWER SHEET.

PRICES SLASHED
ALL STOCKS MUST CLEAR

*500g packet chicken pieces
   normally K10, now less K2

*1000g whole chicken
   normally K15, now 20% off

*2kg whole chicken
   normally K24, now only K20

a)   What is the price in kina of 8 packets of 500g chicken pieces?

b)   What is the sale price in kina of a 1000g whole chicken?

c)   For the best buy Jane buys one 1000g whole chicken compared to Mary who buys two 500g packet of meat.

       How much more in kina does Jane save compared to Mary?

d)   What is the percentage discount on the 2kg whole chicken?

e)   How much in kina will Tony pay if he decides to purchase two packets of 500g chicken pieces and one 2kg whole chicken?

END OF EXAMINATION