## External

Measurement of
Student Achievement

May 2010

## Mathematics

## TEST INSTRUCTIONS

- Please make sure that you have a separate answer sheet with this test paper.
- Please check that the answer sheet has your details printed on it. If not, print your name and date of birth on your answer sheet in the area provided.
- Please check that the subject and grade number on your answer sheet matches this question paper.
- This test has 40 QUESTIONS. Each question has four possible answers. Only one is correct.
- Please use a pencil only to shade in the answer bubble of your choice on your answer sheet.
- Choose the correct answer from $\mathrm{A}, \mathrm{B}, \mathrm{C}$ or D and shade this bubble in on your MATHEMATICS ANSWER SHEET.
- If you make a mistake then rub out your answer completely and shade in the bubble of your new answer.
- All answers must be marked on your ANSWER SHEET. You are allowed 1 hour and 10 minutes for this test.

1 What is the result of the expression $\frac{3}{4}-\frac{1}{3}$ ?
A $\frac{4}{7}$
B $\frac{2}{7}$
C $\frac{5}{12}$
D $\frac{2}{1}$
$p=\frac{r}{4}(7+3 Q)$
What is the value of $p$ when $r=2$ and $Q=9$ ?

A 10
B $10 \frac{1}{4}$
C 17
D $34 \frac{1}{2}$


In this isosceles triangle, what is the value of $x$ ?
A 20
B 40
C 55
D 70

4 Which number is largest?
A $2.3 \times 10^{-1}$
B 0.203
C 0.023
D $2.029 \times 10^{-1}$

5 The bar graph below shows the number of hours of sport played by 5 boys in one week.


How many more hours did Fariq play sport than did Malik?
A 4
B 5
C 6
D 10

6 Three friends competed in a high jump contest.
Abdul jumped 145 cm .
Faisal jumped 138 cm .
Kahil jumped 128 cm .
What was the average (mean) height jumped?
A 135 cm
B 137 cm
C 138 cm
D 139 cm

Look at this triangular prism.


Which one of the following nets can be used to make this triangular prism?

A

B

C

D

8
A taxi charges 5 Dhs for the call and then 3 Dhs for each kilometre travelled.
The distance from my home to the airport is 17 kilometres.
To take a taxi from home to the airport would cost
A $(5+3) \times 17$ Dhs
B $5+3 \times 17$ Dhs
C $(3+17) \times 5$ Dhs
D $(5+17) \times 3$ Dhs

Which of these diagrams is not a net of a cube?

A

B

C

D

10 The cube root of 99 is
A between 2 and 5 .
B between 5 and 15 .
C between 15 and 30 .
D more than 30 .

11 It took Khalida 7 minutes to walk to the bus stop.
She waited 4 minutes for the bus.
The bus trip to school took 43 minutes, arriving at school at 8.02 am .
What time did Khalida leave home?
A 7.08 am
B 7.15 am
C 6.48 am
D 6.58 am

12 If $t=5$, what is the value of $t^{3}-t^{2}$ ?
A 1
B 5
C 25
D 100

In the diagram, $A B=A C$.


What is the value of $z$ ?
A $115^{\circ}$
B $120^{\circ}$
C $125^{\circ}$
D $130^{\circ}$

14 A hippopotamus was born July 5. The graph shows the changes in mass for the first 9 weeks of its life.

Mass of Baby Hippopotamus (first 9 weeks)


Which week did the baby hippopotamus gain the most mass?

A between July 12 and 19.
B between July 26 and August 2.
C between August 9 and 16 .
D between August 30 and September 6.

The way a digit is displayed on a calculator is wrong.
When a subtraction is keyed into it the display looks like this.
The incorrect symbol is shown three times.
$731 \mathscr{\&}-2 \mathscr{A} 79=4 \mathscr{6} 37$
What is the value of the symbol $\mathscr{H}$ ?
A 0
B 2
C 6
D 8

16 Nada bought half a kilogram of strawberries．
She counted the strawberries and found she had 20.
What is the average mass of a strawberry？
A 20 g
B 25 g
C 40 g
D 50 g

17 The three number sentences contain three different symbols．
Each symbol corresponds to a different number．
国＋ $\boldsymbol{*}=$
（）＋+ ＝贮
阿 + ）$=36$
What number does the represent？
A 4
B 6
C 9
D 12

18 A hexagonal prism is a shape which has 12 vertices．
How many faces and edges does it have？
A 6 faces and 12 edges
B 8 faces and 18 edges
C 6 faces and 18 edges
D 8 faces and 12 edges

19 Here is a map of an island.


4 km

What is the area of the island?
A less than 14 square kilometres
B 15 or 16 square kilometres
C 17 or 18 square kilometres
D more than 18 square kilometres

20 The diagram shows a number sentence in the form of a cycle.
The number $S$ returns unchanged.


What is the value of $S$ ?
A 5
B 10
C 13
D 21

Which one of these numbers is a multiple of 4?
A 614
B 164
C 194
D 914

What is the value of $z$ in this diagram?


## Diagram not to scale

A 47
B 51
C 57
D 61

What is a simpler form of the expression: $5(3 a-3 b)-3(a-b)$ ?
A $5 a-12 b$
B $5 a-18 b$
C $12 a-12 b$
D 12a-18b


All the angles in this figure are right angles.
What is its perimeter?
A 46 cm
B 54 cm
C 64 cm
D 68 cm

The times of sunrise and sunset through the year at Abu Dhabi are shown in the graph below.


What is the number of hours of daylight for the longest day?
A 10 hours
B 11 hours
C 14 hours
D 19 hours

What is 0.12 as a fraction?

A $\frac{11}{90}$
B $\frac{11}{99}$
C $\frac{12}{90}$
D $\frac{12}{99}$

The two pentagons shown are similar.


The area of pentagon $A B C D E$ is $29 \mathrm{~cm}^{2}$.
What is the area of the shaded part?
A $87 \mathrm{~cm}^{2}$
B $232 \mathrm{~cm}^{2}$
C $261 \mathrm{~cm}^{2}$
D $290 \mathrm{~cm}^{2}$

28 What is the equation of the straight line that passes through the points $(-3,1)$ and $(6,4)$ ?
A $3 y=x+6$
B $3 y=x-6$
C $y=3 x+2$
D $y=3 x-2$

In the diagram below, $\angle B A P=\angle P Y X$ and $A P=P Y$.


What is the length of $P X$ ?
A 9 cm
B 10 cm
C 11 cm
D 20 cm


This symmetrical ' $V$ ' shape is made from 2 parallelograms.
What is its area?
A $30 \mathrm{~cm}^{2}$
B $48 \mathrm{~cm}^{2}$
C $64 \mathrm{~cm}^{2}$
D $80 \mathrm{~cm}^{2}$


This cylindrical can has a height of 10 cm .
It holds 1 litre of water.
What is the diameter of the base?
A $\frac{10}{\sqrt{\pi}}$
B $\frac{20}{\sqrt{\pi}}$
C $\frac{200}{\pi}$
D $\sqrt{\frac{200}{\pi}}$


Two of the angles in pentagon $A B C D E$ are $120^{\circ}$.
The other 3 angles are all equal.
All 5 sides of the pentagon are the same length.
What is the value of $x$ ?

A 20
B 30
C 35
D 40

33 What is the largest prime factor of 1716 ?
A 7
B 11
C 13
D 17


Pattern 1


Pattern 2


Pattern 3

If there are $t$ triangles in pattern $p$, then
A $t=4(p+1)-4$
B $t=4(p+1)+4$
C $t=p^{2}-(p-2)^{2}$
D $t=(p+1)^{2}-p^{2}$

For the set of data $\{1,2,2,3,5,7,8\}$
A mean < median < mode
B mode < mean < median
C median < mode < mean
D mode < median $<$ mean

Which of these is the net of a prism?


A


B


C


D

379 is $15 \%$ of which number?
A 45
B 54
C 60
D 135

38 The mean of $a, b$ and $c$ is 10 . The mean of $a, b, c, d$ and $e$ is 24 .
What is the mean of $d$ and $e$ ?
A 21
B 14
C 90
D 45


What is the value of $x$ ?
A 18
B 36
C 58
D 72


These graphs have been drawn without scales on the axes.
The equations of the lines $P, Q$ and $R$, not necessarily in matching order are:
(1) $y=2 x+2$
(2) $y=2 x-2$
(3) $y=-2 x+2$

What are the correct labels for the graphs?

|  | P | Q | R |
| :---: | :---: | :---: | :---: |
| $\mathbf{A}$ | $(1)$ | $(2)$ | $(3)$ |
| B | $(2)$ | $(1)$ | $(3)$ |
| C | $(3)$ | $(2)$ | $(1)$ |
| $\mathbf{D}$ | $(3)$ | $(1)$ | $(2)$ |

