## الصـف

## القياس الخارجي لتحصيل الطلاب

 رياضيات
## مارس 2011

تعليمات الاخختبار

■ الرجاء التأكد من حصولك على ورقة إجابة إضافةً إلى ورقة الاختبار . - الر جاء التأكد من صحة بياناتك: اسمكك وتاريخ ميلادك ورقم eSIS في المساحة المخصصة في ورقة إجابتك. في حال عدم وجودها فعليك أن تكتبها في المكان المخصص لها مستخارماً الأرقام الحديثة: 3، 2، 1.

■ الر جاء التأكّد من مطابقة مادة الاختبار والصف في ورقة الإجابة مع ورقة الاختبار . ■ اختر الإجابة الصحيحة من بين الإجابات المحتملة D، (D، C، وظلّل الدائرة في ورقة الإجابة. ■ يتضمن هذا الاختبار 35 سؤالاً، منها 30 سؤالاً من نوع الاختيار من متعدد، و5 أسئلة مغتو حة. ■ الرجاء استخامد قلم الرصاص لتظليل دائرة الإجابة الصحيحة التي حددتها في ورقة الإجابة. - إذا أخطأت في إجابتك، فامحُ كليٌّا التظليل ثم ظلّل دائرة إجابتك الجديدة. - تأكد أن كل الدو ائر في ورقة إجابتك مظللة. ■ 5 من الأسئلة ذات الإجابة المفتو حة تتطلّب منك أن تكتب إجابتك في المساحة المخصصة لها في ورقة الإجابة مستخدماً قلم الحبر الأزرق أو الأسود.

- الوقت المخصص للإجابة عن الأسئلة: 75 دقيقة.
- • لا يسمح باستخدام الآلة الحاسبة خلال الاختبار.

The solution to $3 x>15$ can be shown using a number line.
Which number line shows the solution?

A


## B



Which one of these fractions is equal to 1.4 ?
A $1 \frac{1}{4}$
B $\frac{21}{15}$
C $\frac{14}{5}$
D $1 \frac{4}{9}$

3 Continue the pattern in reverse.
What is the value of $b$ when $a=1$ ?

| $a$ | 1 | 2 | 3 | 4 | 5 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $b$ |  | 2 | 6 | 18 | 54 |

A - 1

B 0
C $\frac{1}{2}$
D $\frac{2}{3}$

When Alia pours her cake mixture into this cake-tin it fills it to 5 cm below the top.


What is the volume of the cake mixture?
A. $2800 \mathrm{~cm}^{3}$

B $4200 \mathrm{~cm}^{3}$
C $4600 \mathrm{~cm}^{3}$
D $5600 \mathrm{~cm}^{3}$
$x=1.6^{2}, \quad y=1.6 \div 0.2, \quad z=1.6 \times 2$
The values of $x, y$ and $z$ are calculated.
The numbers are then ordered from smallest to largest.
Which is the correct order?
A $y, x, z$
B $z, x, y$
C $x, z, y$
D $x, y, z$

Which one of these has an axis of symmetry?
Diagrams are not drawn accurately.

A


B


C


D


7 The fuel usage of five small cars (in litres per 100 km ) is shown in this table.

| Car | Fuel usage |
| :---: | :--- |
| Buzz | $5 \mathrm{~L} / 100 \mathrm{~km}$ |
| Micro | $6 \mathrm{~L} / 100 \mathrm{~km}$ |
| Zip | $6 \mathrm{~L} / 100 \mathrm{~km}$ |
| Wink | $4 \mathrm{~L} / 100 \mathrm{~km}$ |
| Flash | $4 \mathrm{~L} / 100 \mathrm{~km}$ |

What is the average fuel usage per 100 km for these cars?
A 4 L
B 5 L
C 6 L
D 7 L


What is the size of angle $m$ in this diagram?
The diagram is not drawn accurately.
A $47^{\circ}$
B $48^{\circ}$
C $64^{\circ}$
D $66^{\circ}$

Given the formula $C=3(a-5 b)$
and that $b=7$ and $C=33$, what is the value of $a$ ?
A 23
B 40
C 46
D 64

10 A motel has 85 rooms. One weekend 51 of these rooms were occupied.
What percentage of the rooms were occupied?
A $51 \%$
B 60\%
C 66\%
D 75\%


Not drawn accurately

What is the size of angle $k$ in this diagram?
A $55^{\circ}$
B $57^{\circ}$
C $67^{\circ}$
D $68^{\circ}$

12 When simplified by expanding the brackets and collecting like terms, what does this expression equal?
$3(5 c-2 d)-2(4 c-5 d)$
A $7 c-18 d$
B $7 c-7 d$
C $7 c+4 d$
D $7 c+8 d$

13 This kite has two angles marked.


Not drawn accurately

What is the size of another of the interior angles of the kite?
A. $74^{\circ}$
B. $95^{\circ}$
C. $105^{\circ}$
D. $126^{\circ}$

14 It takes Ahmed 20 minutes to ride his bicycle home from school.
The distance he cycles is 4 km .
At what average speed does Ahmed cycle home from school?
A $12 \mathrm{~km} / \mathrm{hr}$
B $16 \mathrm{~km} / \mathrm{hr}$
C $80 \mathrm{~m} / \mathrm{min}$
D $250 \mathrm{~m} / \mathrm{min}$

15 Which one of these is the same as $6 w^{2} x \times 3 x^{3} w^{4}$ ?
A $9 x^{3} w^{6}$
B $9 w^{8} x^{4}$
C $18 x^{3} w^{8}$
D $18 w^{6} x^{4}$

16 What fraction is equal to $0.5 \dot{7}$ ?
A $\frac{4}{7}$
B $\frac{19}{33}$
C $\frac{57}{100}$
D $\frac{52}{90}$


What is the area of the shaded wall of this building?
A $65 \mathrm{~m}^{2}$
B $77 \mathrm{~m}^{2}$
C $81 \mathrm{~m}^{2}$
D $91 \mathrm{~m}^{2}$

18 Which of these points on the number plane is closest to $(-2,-1)$ ?
A $(-4,1)$
B $(2,-1)$
C $(-4,-2)$
D $(-1,2)$

19 The distance around the earth is approximately $4 \times 10^{4} \mathrm{~km}$.
The distance from the earth to the moon is approximately $3.8 \times 10^{5} \mathrm{~km}$.
How much further is a trip to the moon than a trip around the earth?
A $0.2 \times 10^{1} \mathrm{~km}$
B $2 \times 10^{4} \mathrm{~km}$
C $3.4 \times 10^{4} \mathrm{~km}$
D $3.4 \times 10^{5} \mathrm{~km}$

20 The total surface area of this rectangular prism is exactly $1000 \mathrm{~cm}^{3}$ Its height is 5 cm and its length is 20 cm .


What must its width be?
A 10 cm
B 16 cm
C 20 cm
D 32 cm

21 In this diagram what is the value of $m$ ?
A $256^{\circ}$
B $284^{\circ}$
C $296^{\circ}$
D $308^{\circ}$


Not drawn accurately

22 A botanist plants 12 tomato seeds and records how many days it takes each plant to reach a height of 10 cm .

Her results are:

| 20 | 23 | 19 | 25 | 21 | 18 | 19 | 23 | 38 | 22 | 19 | 28 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

Which of these statements is correct for the median, range and mode of this data-set?
A range $<$ mode $<$ median
B median < range < mode
C median < mode < range
D mode < range < median

23 A number has 10 subtracted from it. This result is then multiplied by 3 to give an answer of 13

What was the original number?
A $-5 \frac{2}{3}$
B $5 \frac{2}{3}$
C $7 \frac{2}{3}$
D $14 \frac{1}{3}$


The diagram above shows rectangle $A B C D$ such that $A F$ is parallel to $E C$.
$F C=5, C D=8$ and $E D=6$
What is the area of the shaded region?
A 20
B 30
C 40
D 50

25 Hamda used 6 equilateral triangles to draw a hexagon.
Then she cut the hexagon into three equal parts.
Which shape could the three parts be?
A Squares
B Rectangles
C Trapeziums
D Rhombuses
$4 z+1<0$
When is this inequality true?
A Whenever $z$ is greater than -5
B Whenever one quarter of $z$ is less than 1
C Whenever one quarter of $z$ is greater than 1
D Whenever $z$ is less than $-\frac{1}{4}$

Part of a straight line graph is shown.


Which of the following points satisfies the equation to the graph?
A $(-1,-1)$
B $(-2,1)$
C $(-2,2)$
D $(-3,4)$

This table shows corresponding values of $x, y$ and $z$.
The patterns continue.

| $x$ | -1 | 0 | 1 | 2 |
| :---: | :---: | :---: | :---: | :---: |
| $y$ | 5 | 3 | 1 | -1 |
| $z$ | 20 | 23 | 26 | 29 |

What value of $x$ will make $y=z$ ?
A -20
B -4
C 11
D 20

29 Aysha cut this block of cheese into 4 smaller pieces.
She cut the block into halves twice, as shown.


What is the volume of each piece?
A 30 cubic centimetres
B 40 cubic centimetres
C 60 cubic centimetres
D 120 cubic centimetres

Seven numbers are shown below:

$$
2, \quad 4, \quad 8, \quad 10, \quad 10, \quad 10,12
$$

Their mean (average) is 8
One number is then deleted.
The mean of the remaining six numbers remains the same.
Which number was deleted?
A 7
B 8
C 10
D 12

For questions 31-35, write each answer in the correct space in your answer booklet.

31 Work out the value of
$16^{\frac{1}{2}}+27^{\frac{1}{3}}$

Show your working and write your answer in your answer booklet.
(2 marks)

Look at the calculation in your answer booklet.
Put numbers in the boxes so it is equivalent to
$\frac{1}{2}+\frac{1}{9}$
(2 marks)

Look at the expression below
$3 x^{2} \times 2 x y^{2} \times\left(y^{2} z\right)^{2}$

In your answer booklet, write this expression as simply as possible.
(2 marks)

34 Salem is thinking of a number.

He says:
"My number is 80 to one significant figure and 85 to two significant figures".
In your answer booklet, write an example of what Salem's number could be.
(1 mark)

35 In your answer booklet, write down two numbers that have a difference of 7 and a product of 60

