



**MATHEMATICS**

**03**

Paper 1

October 2017

Marks: 60

TIME: 90 Minutes

**INSTRUCTIONS**

- Answer all questions on the answer sheet provided.
- When you are told to begin, work as fast and as accurately as you can. If you cannot answer a question, do not spend too much time on it; go to the next question and come back to it later.
- You may do rough work on the test paper or on a sheet of blank paper. **DO NOT** use the answer sheet for rough work.
- Four possible answers are given for each question. Select the answer you think is the best and fill the oval for that answer on your answer sheet.
- Be sure to fill the ovals like this:** Erase completely answers that you wish to change. **DO NOT** make any stray marks on your answer sheet. If more than one oval is filled for a question it will be marked wrong. Be sure the oval you fill on your answer sheet is for the question you are working on in the test paper. **DO NOT mark the ovals like this:** If you do, your answers will be marked wrong.
- Sample questions are given to help you. Read them carefully before doing the questions.

**YES**

17  A  B  C  D

18  A  B  C  D

19  A  B  C  D

**NO**

1  A  B  C  D

2  A  B  C  D

3  A  B  C  D

4  A  B  C  D

**SAMPLE QUESTIONS**

- Work out 
$$\begin{array}{r} 1.1 \\ + 0.4 \\ \hline \end{array}$$

A	1.5
B	1.3
C	0.7
D	0.6
- Work out 
$$\begin{array}{r} 3.5 \\ - 0.9 \\ \hline \end{array}$$

A	4.4
B	4.6
C	2.8
D	2.6

SAMPLE 1

A  B  C  D

SAMPLE 2

A  B  C  D

*This question paper contains 17 printed pages.*

1. What is nine hundred thousand five hundred and thirty when written in numerals?

- A 900 530
- B 950 030
- C 95 030
- D 90 530

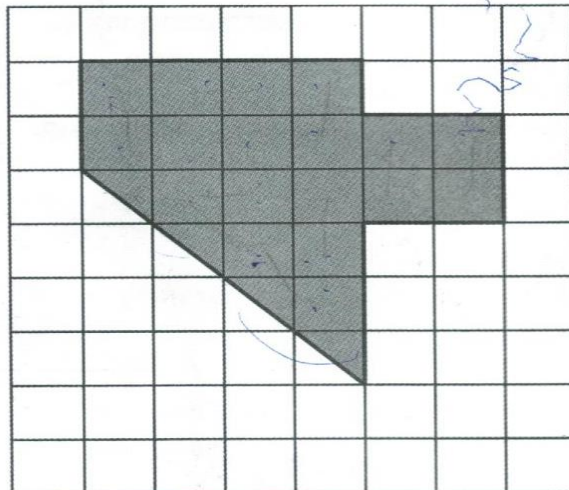
2. What is 307 040 when written in expanded form?

- A  $300\ 000 + 70\ 000 + 40$
- B  $300\ 000 + 7\ 000 + 40$
- C  $30\ 000 + 7\ 000 + 40$
- D  $30\ 000 + 700 + 40$

3. What is the value of  $810 \times 1\ 000$ ?

- A 810
- B 8 100
- C 81 000
- D 810 000

4. What is the area of the shaded shape below?

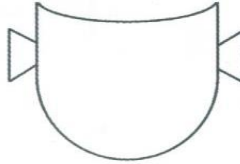


- A 20 squares
- B 22 squares
- C 24 squares
- D 26 squares

5. What is 205 thebe when written in Pula?

- A P20.50
- B P20.05
- C P2.50
- D P2.05

6. How many lines of symmetry does the figure below have?



- A 0
- B 1
- C 2
- D 3

7. Work out

$$\begin{array}{r} 81\ 229 \\ + 42\ 538 \\ \hline 123\ 767 \end{array}$$

- A 123 757
- B 123 766
- C 123 767
- D 123 768

8. What is the lowest common multiple of 12 and 20?

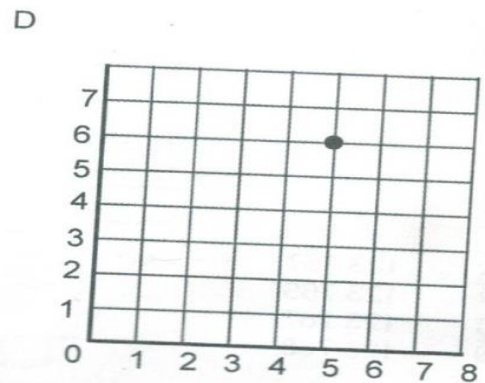
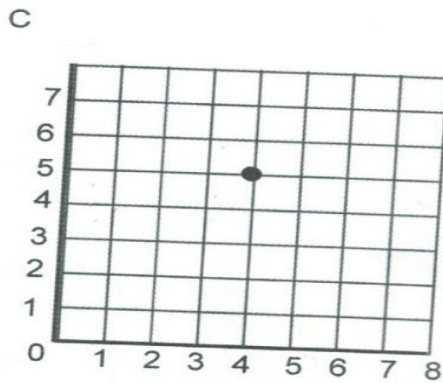
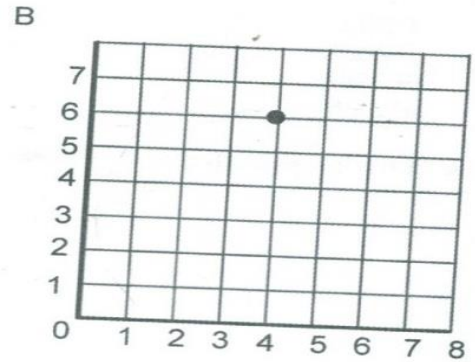
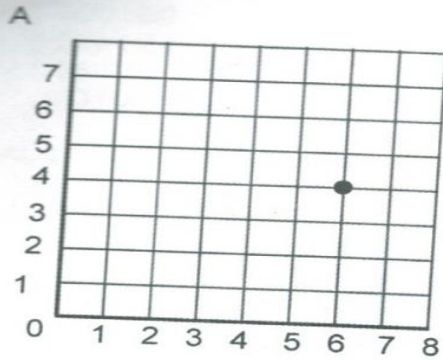
- A 24
- B 40
- C 60
- D 120

9. Arrange the following numbers in order of size starting with the largest.

1.22	1.34	1.31	1.23
------	------	------	------

- A 1.22, 1.23, 1.31, 1.34
- B 1.31, 1.23, 1.31, 1.22
- C 1.23, 1.22, 1.31, 1.34
- D 1.34, 1.31, 1.23, 1.22

10. Which of the diagrams below shows the correct plotting of the point (4, 6)?



11. Which of the following is the smallest unit of length?

- A Centimetre
- B Kilometre
- C Millimetre
- D Metre

12. What is the value of  $y$  in the equation  $y - 14 = 8$ ?

- A 23
- B 22
- C 21
- D 20

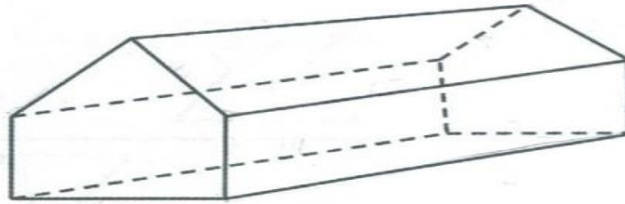
13. Mary saved P585 on the first day. She then saved P255 on the second day. How much money did Mary save altogether in the two days?

- A P740
- B P830
- C P840
- D P850

14. What is the next fraction in the pattern  $\frac{2}{3}, \frac{3}{5}, \frac{4}{7}, \frac{5}{9}, \dots$ ?

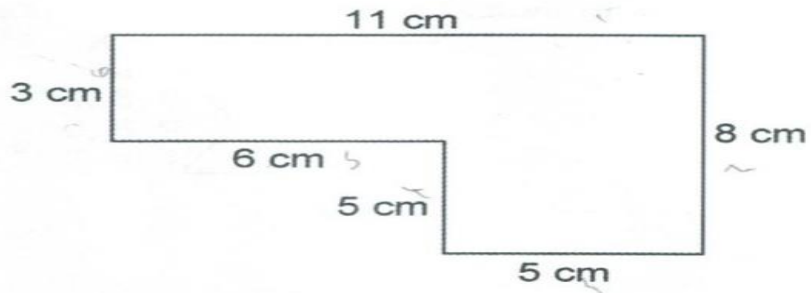
- A  $\frac{7}{11}$
- B  $\frac{6}{11}$
- C  $\frac{7}{10}$
- D  $\frac{6}{10}$

15. How many edges does the prism below have?



- A 7
- B 10
- C 15
- D 17

16. What is the perimeter of the figure shown below?



- A 18 cm
- B 28 cm
- C 38 cm
- D 88 cm

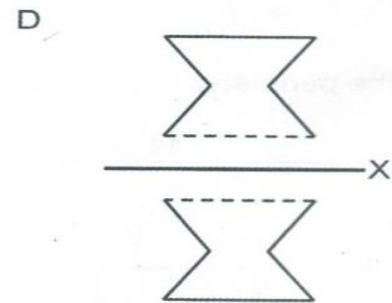
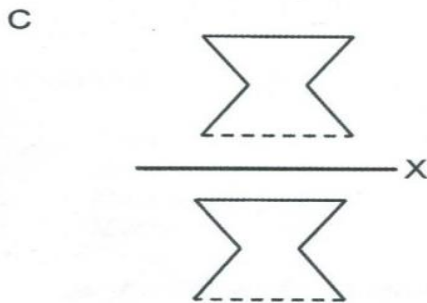
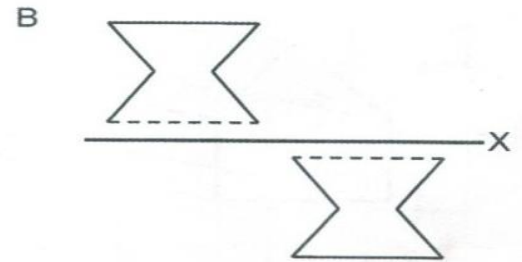
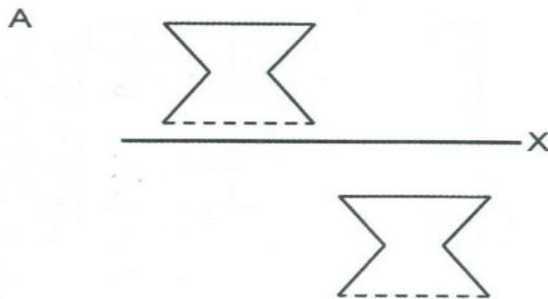
17. What is 15:24 hours when expressed in 12 hour clock notation?

- A 3.24 pm
- B 3.24 am
- C 5.24 pm
- D 5.24 am

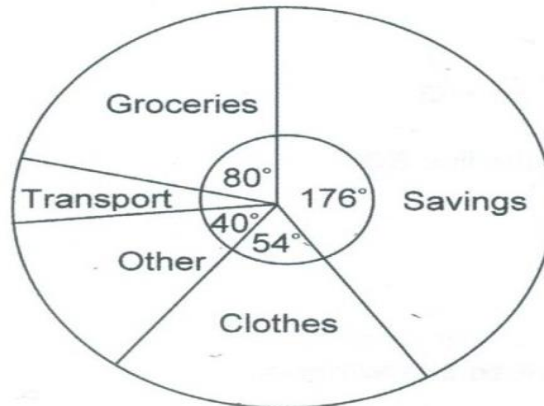
18. The time in Sydney is 8 hours ahead of the time in Gaborone. If the time in Gaborone is 10:00 hours, what would be the time in Sydney?

- A 02:00 hours
- B 08:00 hours
- C 16:00 hours
- D 18:00 hours

19. Which of the diagrams below shows a reflection on the line X?



The pie chart below shows how Oratile spends her monthly income. Use it to answer questions 20 and 21.



20. What is the sector angle for transport?

- A 10°
- B 20°
- C 30°
- D 40°

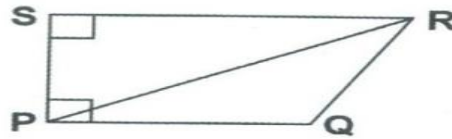
21. Which item takes the largest share of Oratile's income?

- A Groceries
- B Savings
- C Clothes
- D Other

22. Which of the following are factors of 45?

- A 1, 2, 5, 9
- B 1, 3, 5, 9
- C 3, 6, 9, 20
- D 3, 4, 12, 15

Use the figure below to answer question 23.



23. Which line is parallel to the line **RS**?

- A **SP**
- B **QR**
- C **PR**
- D **PQ**

Use the numbers below to answer questions 24 and 25.

22	19	20	24	26	25	25
----	----	----	----	----	----	----

24. What is the range of the numbers?

- A 7
- B 24
- C 25
- D 26

25. What is the median of the numbers?

- A 7
- B 23
- C 24
- D 25

26. What is 30% when expressed as a decimal?

- A 3.0
- B 0.3
- C 0.03
- D 0.003

27. A student is given the sequence 7, 11, 15, 19, ...  
How will he get the next number in the sequence?

- A add 2 to the last number
- B add 4 to the last number
- C multiply the last number by 2
- D multiply the last number by 4

28. Which of the fractions below is the same as the ratio 8:7?

A  $\frac{7}{15}$

B  $\frac{8}{15}$

C  $\frac{7}{8}$

D  $\frac{8}{7}$

29. A total of 824 073 youths and adults registered for the 2014 elections. The number of youths who registered for the elections was 389 870. How many adults registered for the elections?

A 434 203

B 435 203

C 535 203

D 544 203

30. Mrs Nkalo reared chickens on her farm. She slaughtered 654 of them and 457 died in a storm. She was then left with 379 chickens. How many chickens did she have in the farm?

A 1 650

B 1 490

C 1 450

D 1 370

31. Given that  $z = 6y - x$ , calculate the value of  $z$  when  $x = 3$  and  $y = 4$ .

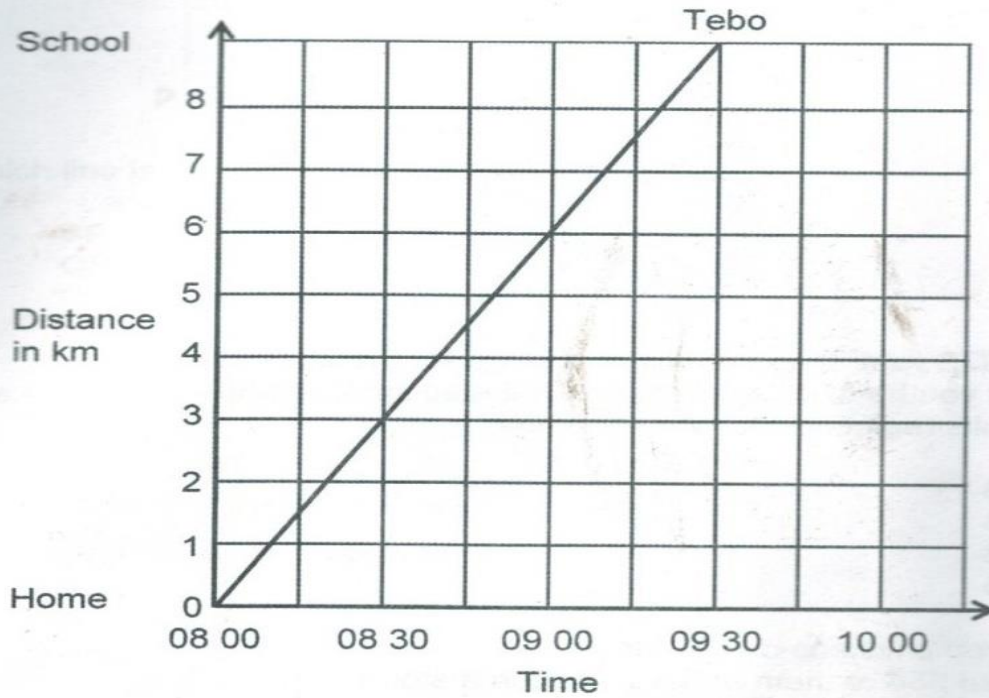
A 5

B 6

C 14

D 21

The diagram below shows Tebo's journey from home to school. Use it to answer question 32.



32. How far from home was Tebo at 08 30?
- A 8 km
  - B 5 km
  - C 3 km
  - D 2 km
33. What is the value of  $4\ 812 \times 13$ ?
- A 52 556
  - B 60 556
  - C 62 556
  - D 63 356
34. There are 9 pieces of metal.  
Each piece of metal has a mass of 2.45 kg.  
What would be the total mass of the 9 pieces of metal?
- A 18.05 kg
  - B 21.65 kg
  - C 22.00 kg
  - D 22.05 kg

35. Which of the following is **not** a square number?
- A 1
  - B 2
  - C 4
  - D 9
36. Work out  $2.132 - 1.304$ .
- A 0.828
  - B 0.038
  - C 0.928
  - D 1.828
37. A school cooks 15 kilograms of meat for 20 students. How many kilograms of meat does the school need to cook for 30 students?
- A 22.5 kg
  - B 22.1 kg
  - C 21.5 kg
  - D 10 kg
38. Thuto bought a pair of shoes at P276.55. He later sold it making a profit of P109.05. What was Thuto's selling price?
- A P375.50
  - B P385.50
  - C P385.60
  - D P386.60
39. Which expression below is the same as the sum of 16 and 9?
- A  $16 + 9$
  - B  $16 - 9$
  - C  $16 \div 9$
  - D  $16 \times 9$
40. Which of the following is a leap year?
- A 1932
  - B 1942
  - C 1962
  - D 1982

41. In a group of 20 students, 7 play netball.  
A student is chosen at random from the group.  
What is the probability that the chosen student plays netball?

A  $\frac{20}{7}$

B  $\frac{20}{13}$

C  $\frac{13}{20}$

D  $\frac{7}{20}$

42. Work out  $13 - 2\frac{2}{5}$ .

A  $8\frac{3}{5}$

B  $10\frac{3}{5}$

C  $11\frac{2}{5}$

D  $11\frac{3}{5}$

43. An aerobics club had 225 members in summer.  
In winter the number of the members reduced to 180.  
What is the percentage decrease in the number of members?

A 20%

B  $22\frac{1}{2}\%$

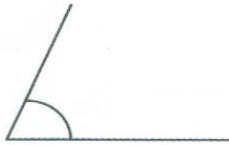
C 25%

D  $64\frac{4}{9}\%$

44. What is 3.154 when rounded to two decimal places?

- A 3.00
- B 3.20
- C 3.15
- D 3.16

45. Which of the following is an estimate of the size of the angle shown below?



- A  $20^\circ$
- B  $70^\circ$
- C  $160^\circ$
- D  $260^\circ$

46. Which of the following expressions is equal to 8?

- A  $2^4$
- B  $2^3$
- C  $4^2$
- D  $4^4$

47. A group of 6 pupils collected a total of 54 stamps.  
What is the mean number of stamps collected by the group?

- A 324
- B 60
- C 30
- D 9

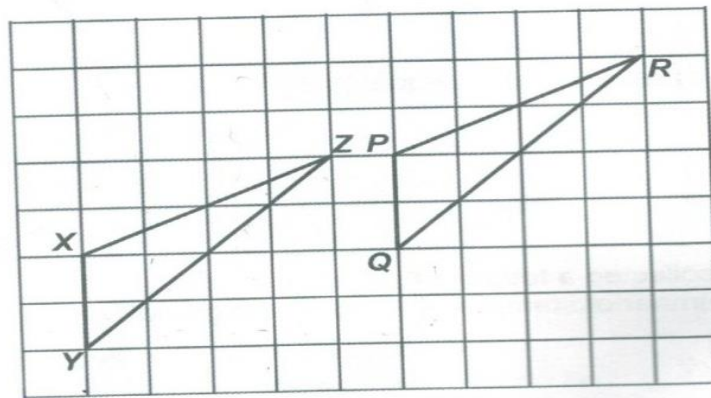
48. Zandile cycled a distance of 76 km in 2 hours.  
What was her speed in km/h?

- A  $\frac{2}{76}$
- B 33
- C 38
- D 152

49. During general cleaning,  $\frac{1}{2}$  of the pupils in a class clean the classroom,  $\frac{1}{3}$  of the pupils clean the toilets and the rest clean the school grounds. What fraction of the class cleans the school grounds?

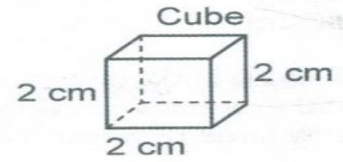
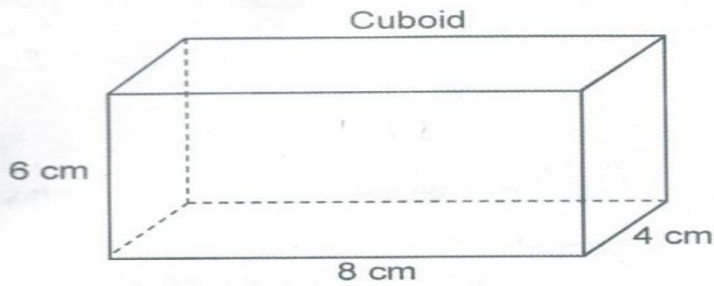
- A  $\frac{1}{6}$
- B  $\frac{1}{5}$
- C  $\frac{3}{5}$
- D  $\frac{2}{3}$

50. Which translation moves triangle *XYZ* onto triangle *PQR*?



- A 5 steps to the right and 2 steps up
- B 2 steps to the right and 5 steps up
- C 5 steps to the left and 2 steps down
- D 2 steps to the left and 5 steps down

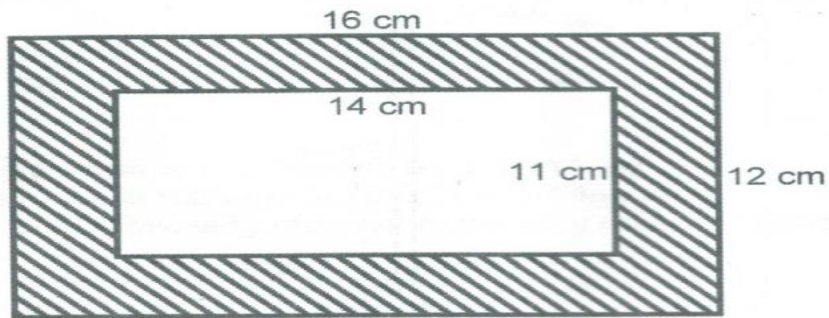
A cuboid and a cube are shown in the diagram below.  
Use it to answer question 51.



51. How many of the cubes can fit in the cuboid?

- A 10
- B 20
- C 24
- D 96

52. What is the area of the shaded region in the diagram below?



- A  $28 \text{ cm}^2$
- B  $38 \text{ cm}^2$
- C  $48 \text{ cm}^2$
- D  $346 \text{ cm}^2$

53. Mompati has 40 bottles each containing 0.75 litres of cooking oil.  
He also has 10 bottles, each containing 5 litres of cooking oil.  
How many litres of cooking oil does Mompati have altogether?

- A 53 ℓ
- B 78 ℓ
- C 80 ℓ
- D 350 ℓ

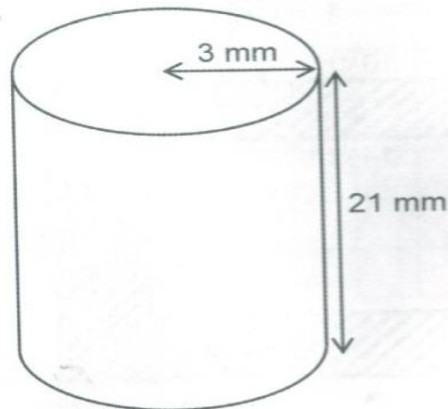
54. Tsothe used a 100 cm wire to form a rectangular shape. The width of the rectangular shape is 20 cm. What is the length of the rectangular shape?

A 30 cm  
B 40 cm  
C 60 cm  
D 80 cm

55. Daniel has 20 000 ℓ of water in a container. He draws 4 550 ℓ of water for his cattle and 6 450 ℓ for his vegetable garden. How many litres of water are left in the container?

A 9 000 ℓ  
B 9 100 ℓ  
C 10 000 ℓ  
D 19 000 ℓ

The diagram below shows a cylinder of radius 3 mm and height 21 mm. Use it to answer question 56.



56. What is the volume of the cylinder? Use  $\pi = \frac{22}{7}$ .

A  $584 \text{ mm}^3$   
B  $594 \text{ mm}^3$   
C  $924 \text{ mm}^3$   
D  $5\,958 \text{ mm}^3$

57. A trader has agreed to supply 7 200 cans of beef.  
He supplied 180 boxes containing 24 cans each.  
How many **more** cans of beef does he need to supply?

- A 3880
- B 2980
- C 2880
- D 2780

58. Which of the following statements is true about an isosceles triangle?

- A All its sides are equal
- B All its angles are equal
- C It has one line of symmetry
- D The sum of its interior angles is  $360^\circ$

59. Use the example below to answer question 59.

The digit product of 26 is  $2 \times 6 = 12$

Which of the numbers below has a digit product of 4?

- A 31
- B 41
- C 62
- D 82

60. Lebang's mass is represented by  $(x + 1)$  kilograms.  
Katlo's mass is represented by  $(2x + 1)$  kilograms.  
Which of the following represents the total mass for Lebang and Katlo?

- A  $3x + 1$
- B  $3x + 2$
- C  $4x + 3$
- D  $6x$