SA Mathematics Challenge 2015
GRADE 7 FIRST ROUND

SA Wiskunde-uitdaging 2015
Graad 7 Eerste Ronde

NOTE:
- Answer the questions according to the instructions on the answer sheet.
- You may use a calculator.
- The questions test insight. Complex calculations will therefore not be necessary.
- We hope you enjoy it!

LET OP:
- Beantwoord die vrae volgens die instruksies op die antwoordblad.
- Jy mag 'n sakrekenaar gebruik.
- Die vrae toets insig. Omslagtige berekeninge is dus onnodig en tydrowend.
- Ons hoop jy geniet dit!

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1. The product of three consecutive numbers is eight times their sum. What are the three numbers ?

1. Die produk van drie opeenvolgende getalle is agt keer hul som. Wat is die drie getalle?

(A) 2, 3, 4   (B) 4, 5, 6   (C) 3, 4, 5   (D) 5, 6, 7   (E) 6, 7, 8

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2. In how many different ways can the number 30 be written as the sum of two positive even numbers, if the order does not matter?

2. Op hoeveel verskillende maniere kan die getal 20 geskryf word as die som van twee positiewe ewe getalle as die volgorde nie saak maak nie?

(A) 7   (B) 8   (C) 9   (D) 14   (E) 15

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3. In this magic square, the sum of the three numbers in any row, column or diagonal is the same. What is the value of X?

3. In hierdie towervierkant is die som van die drie getalle in elke ry, kolom en hoeklyn gelyk. Wat is die waarde van X?

10	25	4
x	13	

(A) 1   (B) 22   (C) 19   (D) 16   (E) 7

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4. An ordinary die is rolled. Which of the following is the most likely number thrown?

4. 'n Gewone dobbelsteen word gegooi. Watter van die volgende is die mees waarskynlike resultaat?

(A) Odd / Onewe   (B) Even / Ewe   (C) Prime / Priem   (D) Factor of 6 / Faktor van 6   (E) Factor of 12 / Faktor van 12

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5. The total surface are of a cube is 54 cm^2. What is the volume of the cube?

5. Die buite-oppervlakte van 'n kubus is 54 cm^2. Wat is die volume van die kubus?

(A) 9 cm^3 (B) 27 cm^3 (C) 18 cm^3 (D) 36 cm^3 (E) None of these / Nie een hiervan nie
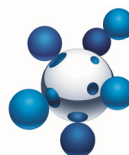
6. Which fraction lies midway between $\frac{1}{4}$ and $\frac{1}{6}$?

6. Watter breuk is presies tussen $\frac{1}{4}$ en $\frac{1}{6}$?

(A) $\frac{1}{5}$ (B) $\frac{5}{24}$ (C) $\frac{7}{24}$ (D) $\frac{3}{10}$ (E) $\frac{9}{48}$

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7. A triangle is inscribed in a rectangle as shown. The area of the shaded triangle is 12 cm^2. What is the area of the rectangle?

7. 'n Driehoek word soos hieronder in 'n vierkant getrek. Die oppervlakte van die verdonkerde driehoek is 12 cm^2. Wat is die oppervlakte van die reghoek?
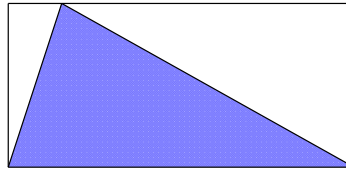
(A) 15 cm^2 (B) 18 cm^2 (C) 24 cm^2 (D) 30 cm^2 (E) 36 cm^2

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8. In this net of a cube the faces have been numbered, as shown. If the net is folded to form a cube, what is the largest possible sum of the numbers on three faces which have a common vertex?

8. Die net van 'n kubus se sye is genommer, soos getoon. As die net gevou word om 'n kubus te vorm, wat is die grootste moontlike som van die getalle op die drie sye by die hoeke van die kubus?
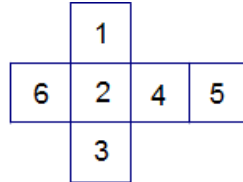
(A) 15   (B) 14   (C) 13   (D) 12   (E) 1

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9. Given two identical barrels. One barrel is full, and the other is half full. Their weights are 86 kg and 53 kg. What is the weight of an empty barrel?

9. Daar is twee identiese vate. Een vat is vol en die ander is half-vol. Hul gewigte is 86 kg en 53 kg. Wat is die gewig van 'n leë vat?

(A) 33 kg   (B) 69,5 kg   (C) 16,5 kg   (D) 20 kg   (E) 26,5 kg

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10. Triangle *ABC*, *ADE* and EFG are all equilateral. Points *D* and *G* are midpoints of *AC* and *AE* respectively and *AB* = 4 cm. What is the perimeter of figure *ABCDEFGA*?

10. Driehoeke *ABC*, *ADE* en EFGus is almal gelyksydig. Punte *D* en *G* is die middelpunte van *AC* en *AE* onderskeidelik en *AB* = 4 cm. Wat is die omtrek van figuur *ABCDEFGA*?
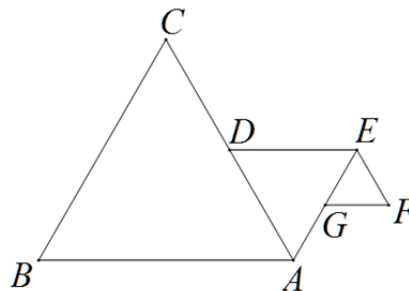

(A) 15 cm   (B) 21 cm   (C) 12 cm   (D) 18   (E) 13 cm

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11. John spent R100 to purchase three different kinds of sandwiches for a class party. There were ten times as many R1 sandwiches as R2 sandwiches and the rest were R5 sandwiches. How many R5 sandwiches did he buy?

11. John het altesaam R100 gespandeer om drie verskillende soorte toebroodjies vir 'n klaspartytjie te koop. Hy het tien keer soveel R1-toebroodjies as R2-toebroodjies gekoop en die res was R5-toebroodjies. Hoeveel R5-toebroodjies het hy gekoop?

(A) 4   (B) 5   (C) 6   (D) 7   (E) 8

12. How many two-digit odd numbers can be made using the digits 1, 2, 3, 4, 5, 7, 8 if each digit can be used only once in a number?

12. Hoeveel twee-syfer onewe getalle kan gevorm word met die syfers 1, 2, 3, 4, 5, 7, 8 as elke syfer slegs een keer in 'n getal gebruik word?

(A) 22   (B) 23   (C) 24   (D) 25   (E) 26

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13. What is the difference between the 50th number and the 100th number of the sequence 6; 12; 18; 24;…. ?

13. Wat is die verskil tussen die 50ste getal en die 100ste getal in die getalry 6; 12; 18; 24;…. ?

(A) 294   (B) 300   (C) 306   (D) 282   (E) 312

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14. A large square below is divided into four equal smaller squares. One of the squares is divided into eight equal parts; one is divided into four equal parts and the other into two equal parts. The remaining square is untouched.

What fraction of the large square is shaded?

14. Die groot vierkant hieronder word in vier kleiner vierkante verdeel. Een van die vierkante word verdeel in agt gelyke dele, een in vier gelyke dele, een in twee gelyke dele, en die laaste vierkant word nie verdeel nie.

Watter breuk van die groot vierkant is verdonker?
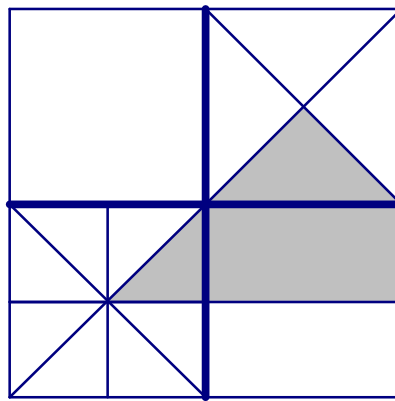
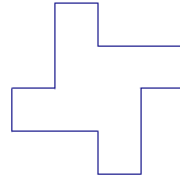(A) $\frac{7}{8}$ (B) $\frac{7}{16}$ (C) $\frac{7}{32}$ (D) $\frac{7}{24}$ (E) $\frac{1}{4}$

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15. What is the smallest whole number n so that $245 \times n$ is a perfect square?

15. Wat is the kleinste heelgetal n sodat $245 \times n$ 'n volkome vierkant is?

(A) 5   (B) 35   (C) 20   (D) 4   (E) 2

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16. The bases of four equilateral triangles are sides of a square, as shown below. Four circles, each with a radius of 2 cm, are inscribed in the square. What is the perimeter of the four-corner star?

16. Die basisse van vier gelyksydige driehoeke vorm die sye van 'n vierkant, soos hieronder getoon. Vier sirkels, elk met 'n radius van 2 cm, pas presies in die vierkant. Wat is die omtrek van die vier-punt ster?
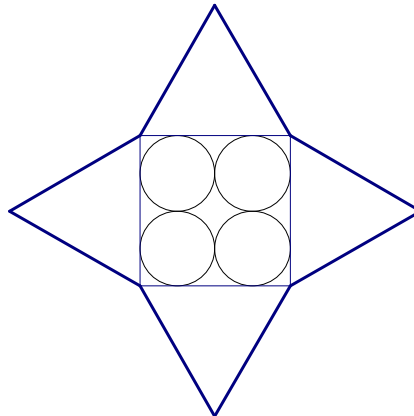
(A) 16 cm   (B) 32 cm   (C) 24 cm   (D) 96 cm   (E) 64 cm

17. In the figure, all the long sides are the same length, and twice as long as each of the short sides. The angles are all right angles. If the area of the figure is 200 cm^2, what is its perimeter?

17. In die figuur hieronder het al die lang sye ewe lank, en die lang sye is twee keer so lank as elk van die kort sye. Die hoeke is almal regte hoeke. As die oppervlakte van die figuur 200 cm^2 is, wat is die omtrek van die figuur?

(A) 100 cm   (B) 200 cm   (C) 60 cm   (D) 80 cm   (E) 120 cm

18. The length of the side of a big equilateral triangle is four times the length of a side of a smaller equilateral triangle. What is the largest number of these small triangles that will fit into one big triangle without overlapping?
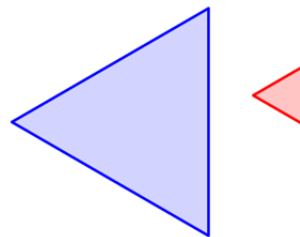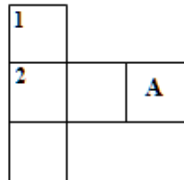
18. Die sylengte van 'n groot gelyksydige driehoek is vier keer die sylengte van 'n kleiner gelyksydige driehoek. Wat is grootste getal van hierdie klein driehoekies wat in een groot driehoek kan pas sonder oorvleueling?

(A) 8   (B) 9   (C) 12   (D) 16   (E) 27

19. This cross-number puzzle uses only three-digit powers of 2 and 5, as shown in the clues. What is the digit in the square marked A?
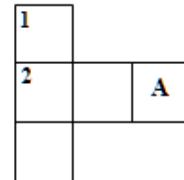
19. Hierdie getal-blokkiesraaisel gebruik slegs drie-syfer magte van 2 en 5, soos in die leidrade getoon. Wat is die syfer in blokkie A?

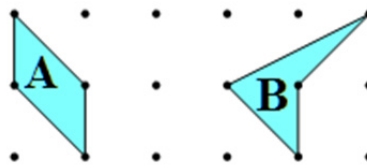**DOWN:**   **ACROSS:**
1. 5^m **2**. 2^n

AF: **DWARS:**
1. 5^m **2**. 2^n

(A) 0   (B) 2   (C) 4   (D) 6   (E) 8

20. Figures A and B are drawn on a 1 × 1 grid as shown.

20. Figure A en B word hieronder op 'n 1 × 1 rooster getrek.

Which of following statements is true?

Watter van die volgende bewerings is waar?

(A) The area of Figure A is more than the area of Figure B
(B) The area of Figure A is less than the area of Figure B
(C) The figures have the same area and the same perimeter
(D) The figures have the same area, but the perimeter of A is more than the perimeter of B
(E) The figures have the same area, but the perimeter of A is less than the perimeter of B

(A) Die oppervlakte van Figuur A is groter as dié van B
(B) Die oppervlakte van Figuur A is kleiner as dié van B
(C) Die figure het gelyke oppervlaktes en gelyke omtrekke
(D) Die figure het gelyke oppervlaktes, maar die omtrek van A is groter as dié van B
(E) Die figure het gelyke oppervlaktes, maar die omtrek van A is kleiner as dié van B