MATHEMATICS-IN-ACTION/*WISKUNDE-IN-AKSIE*: QUESTION PAPER FOR GRADE 6 AND 7

MONDAY 12 JUNE 2017 – 14:00-15:00

TIME: 60 MINUTES

Examiner: Prof. Marthie van der Walt
Moderator: Dr Annalie Roux

INSTRUCTIONS

**Requisites: HB-pencil, eraser, sharpener and calculator.**

1. Question paper must be completed in HB-pencil only (pen not allowed).
2. You may use a calculator when writing this question paper.
3. Learners should make sure that their question paper consists of all the pages (18 pages and 42 questions).
4. Learners should immediately fill in their personal details on the answer sheet. **School and learner code MUST be clearly written on the answer sheet.**
5. Answer all questions on the **answer sheet** provided. All multiple choice questions (questions 1 to 40) are answered on the **front page** and questions 41 and 42 are answered on the **back** of the answer sheet.
6. **Answer sheet for multiple choice questions:** Choose only one of the options (a, b, c, d or e) and use the answer sheet provided to indicate, clearly shaded, the answer you choose. Only **one** answer per question is allowed. No marks will be allocated if more than one answer is given in a question.
7. Calculations can be done on the question paper or on a separate clean page that the teacher/invigilator may give to you.
8. A maximum of **60 minutes** are allowed to complete the question paper.
9. Your answer sheet (multiple choice answers on the front page and at the back the answer sheet for questions 41 and 42) must be handed in after 60 minutes.
10. NB! Answer the first 40 questions on the multiple choice answer sheet. When the learner has finished this, he/she can turn over the answer sheet and complete questions 41 and 42 at the back of the answer sheet.

MULTIPLE CHOICE QUESTIONS

1. Find the missing fraction: $\dfrac{9}{2} \times \dfrac{2}{3} = \dfrac{9}{2} \div -\,?$

    a. $\dfrac{2}{3}$

    b. $\dfrac{3}{2}$

    c. $\dfrac{2}{2}$

    d.   3

    e. $\dfrac{3}{3}$

2. Name the fraction indicated by the arrow on the number line.
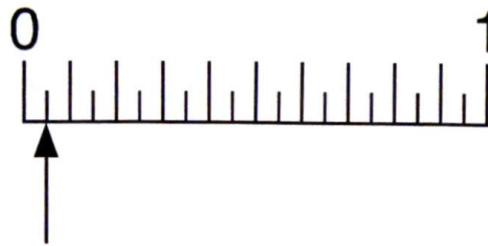
    a. $\dfrac{1}{2}$

    b. $\dfrac{2}{10}$

    c. $\dfrac{1}{20}$

    d. $\dfrac{1}{9}$

    e. $\dfrac{1}{10}$

3. Renee, Jessica and Ann are competing in an obstacle course race. How many different ways can they finish?

    a.   3
    b.   2
    c.   9
    d.   8
    e.   6

4. There are 186 children taking swimming lessons at the pool. If 10 children are assigned to each instructor, how many instructors are needed?

    a. 186

    b. 10

    c. 18

    d. 19

    e. 20

5. John weighs 57,368 kg. Write this number in expanded form using base-ten numerals, and place value.

    a. $(5 \times 10) + (7 \times 10) + (3 \times 10) + (6 \times 10) + (8 \times 10)$

    b. $(5 \times 1000) + (7 \times 100) + (3 \times 100) + (6 \times 10) + (8 \times 1)$

    c. $(5 \times 1000) + (7 \times 100) + (3 \times 10) + (6 \times 1) + (8 \times 1)$

    d. $(5 \times 10) + (7 \times 1) + (3 \times \frac{1}{10}) + (6 \times \frac{1}{10}) + (8 \times \frac{1}{10})$

    e. $(5 \times 10) + (7 \times 1) + (3 \times \frac{1}{10}) + (6 \times \frac{1}{100}) + (8 \times \frac{1}{1000})$

6. Lara ran $\frac{3}{4}$ of a km and walked $\frac{3}{8}$ of a km. How much further did Lara run than walk?

    a. $\frac{5}{8}$ km

    b. $\frac{6}{8}$ km

    c. $\frac{1}{4}$ km

    d. $\frac{1}{4}$ km

    e. $\frac{3}{8}$ km

7. We are two natural numbers. Our difference is 30 and our biggest common factor is 15 and our sum is 120. What numbers are we?

    a. 15 and 30, because our biggest common factor is 15

    b. 15 and 45, because our difference is 30 and our greatest common factor is 15

    c. 15 and 105, because our sum is 120 and our greatest common factor is 15

    d. 45 and 75, because our difference is 30 and our greatest common factor is 15

    e. 30 and 45, because our greatest common factor is 15

8. What is the approximated value of $\frac{-193}{211}$?

    a. $-\frac{1}{2}$

    b. -1

    c. 1

    d. $\frac{1}{2}$

    e. 90

9. Which pair of triangles shows a slide?

    a.   b.   c.
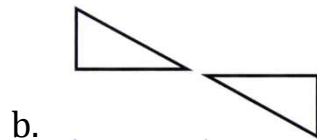
    d.   e. None of these.

10. The prime factors of 108 are

   a. 2 and 3

   b. 2^3 and 3^3

   c. 2^2 and 3

   d. 2^2 and 3^3

   e. 3^2 and 2^3

11. The figure below is a pyramid on a square base. Which net fits the pyramid?

   a.   b.   c.   d.   e.
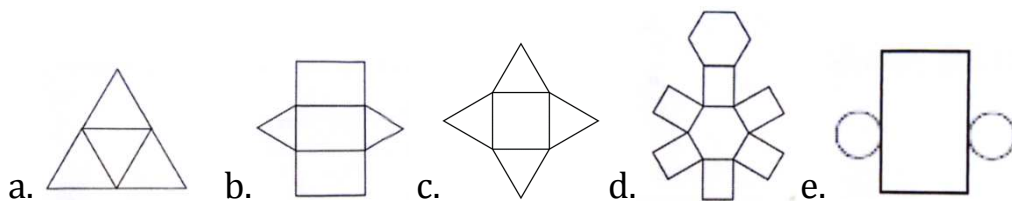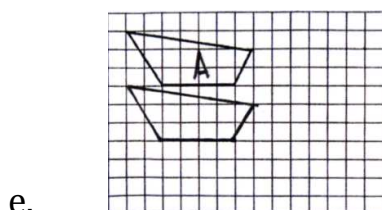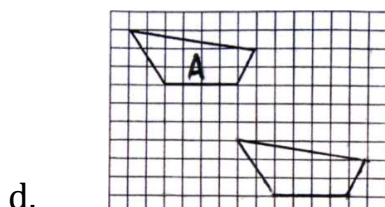
12. Find the value of A

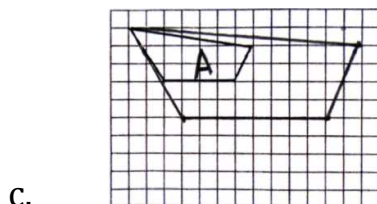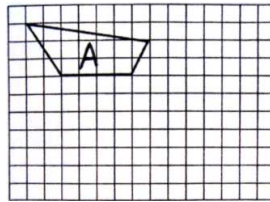| 1	2	3
4	5	6
7	8	9
27	38	A

   a. 39

   b. 49

   c. 12

   d. 51

   e. 54

13. Calculate:
    (7 hours   46 minutes   29 seconds)   minus   (3 hours   27 minute s   52 seconds)

    a.   4 hours   18 minutes   37 seconds
    b.   3 hours 28 minutes 32 seconds
    c.   4 hours 28 minutes 23 seconds
    d.   4 hours 29 minutes 32 seconds
    e.   3 hours 28 minutes 77 seconds

14. Translate the figure A 6 units right and 6 units down

a.

b.

c.

d.

e.
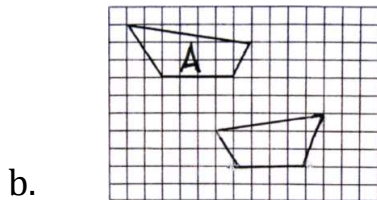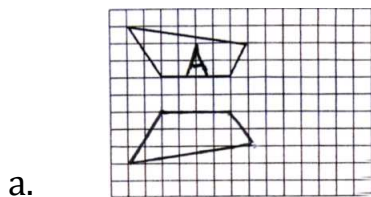
15. Two of the following numbers are the same value; which ones are they?

$$80\%;\ 0{,}88;\ \frac{1}{8};\ 0{,}08;\ \frac{8}{10}$$

    a. 80% and $0{,}88$

    b. 80% and $\frac{1}{8}$

    c. $0{,}88$ and $\frac{1}{8}$;

    d. 80% and $\frac{8}{10}$

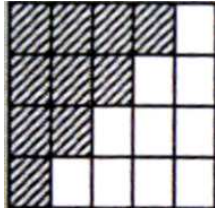   e. $\frac{1}{8}$ en and $0{,}08$

16. Fill in the next step

$$\frac{1}{2}+\frac{3}{4}=\boxed{};\quad \frac{1}{2}\times\frac{3}{4}=\boxed{}$$

    a. $\frac{1}{2}+\frac{3}{4}=\frac{1\times3}{2\times4}$; $\frac{1}{2}\times\frac{3}{4}=\frac{1\times3}{2\times4}$

    b. $\frac{1}{2}+\frac{3}{4}=\frac{1+3}{2+4}$; $\frac{1}{2}\times\frac{3}{4}=\frac{1\times3}{2\times4}$

    c. $\frac{1}{2}+\frac{3}{4}=\frac{2+3}{4}$; $\frac{1}{2}\times\frac{3}{4}=\frac{1\times3}{2\times4}$

    d. $\frac{1}{2}+\frac{3}{4}=\frac{1+3}{2+4}$; $\frac{1}{2}\times\frac{3}{4}=\frac{2\div3}{1\div4}$

    e. $\frac{1}{2}+\frac{3}{4}=\frac{1-3}{2-4}$; $\frac{1}{2}\times\frac{3}{4}=\frac{1+3}{2+4}$

17. Which of the following is false?

    a. $3 < 12$

    b. $-3 < -12$

    c. $3 > -12$

    d. $-3 > -12$

    e. $3 > -12$

18. What percentage of the figure is shaded?

    a.   10

    b.   10%

    c. $\dfrac{10}{20}$

    d.   50

    e.   50%

19. Calculate: $(2 \times 3)^2 - (17 - 12)^2 - (4 + 5)$

    a.   18

    b.   9

    c.   2

    d.   11

    e.   26

20. Which one of the following figures is a 90^0 rotation of Figure A?

A

a.   b.   c.   d.   e. None of these

21. A new restaurant will be opening soon and therefore the owners must buy tables and chairs. The owners paid R53 933,57 for tables and R89 544,99 for chairs. How much money did they spend on tables and chairs?

    a. R143 478, 56

    b. R133 478,56

    c. R143 477,56

    d. R143 478,46

    e. R133 478,46

22. What digital time corresponds with the analogue time on the watch?

    a. `10:25`

    b. `9:32`

    c. `9:20`

    d. `3:08`

    e. `3:32`

23. If the area of P, Q and R respectively is 12cm², 15cm² and 24cm², what is the area of S?
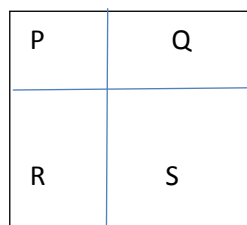
    a. 27cm²

    b. 36 cm²

    c. 81cm²

    d. 30cm²

    e. 40cm²

24. If: A x 4 = E; B ÷ 4 = E; C + 4 = E; D − 4 = E and A + B + C + D = 100.
Calculate the values of A, B, C, D and E.

 a. A = 20; B = 12; C = 64; D = 16; E = 64
 b. A = 12; B = 20; C =12; D = 64; E = 16
 c. A = 64; B = 20; C = 12; D = 16; E = 16
 d. A = 4; B = 64; C = 12; D = 20; E = 16
 e. A = 16; B = 16; C = 12; D = 20; E = 16

25. In the quadrilateral ABCD, angle A is 210^0, angle D is two thirds of angle A, and angle B is 90^0. Find angle C.
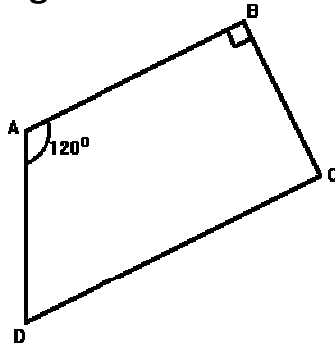
 a. Angle C is 210^0

 b. Angle C is 70^0

 c. Angle C is 60^0

 d. Angle C is 360^0

 e. Angle C is 120^0

26. M and N are the midpoints of the sides of a square with side lengths s. What is the ratio of the area of triangle AMN to the area of the complete square?
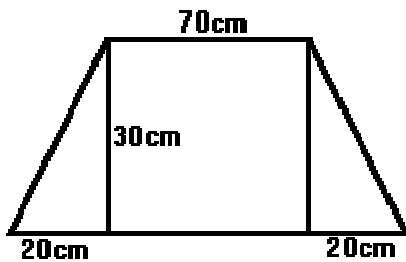

 a. 2:4

 b. 1:8

 c. S:2S

 d. 2:8
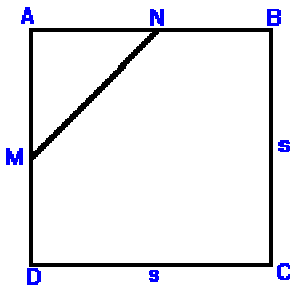
 e. $\frac{1}{2}:8$

27. Which statement is true?

   a. 12 is a multiple of 3

   b. 39 is a prime number

   c. 21 is the square of 7

   d. 67 is divisible by 11

   e. 6 is a factor of 45

28. Two carpenters decided to design desks for students at the primary school. The figure below indicates the dimensions of the design for each desk. How much wood will they need for one desk? (in cm²)

   a. 189 000 cm

   b. 2 700 cm²

   c. 2 100 cm²

   d. 3 300 cm²

   e. 3 300 cm

29. Which statement is not true?

   a. A kite has 4 equal sides
   b. All the angles of a square are 90⁰
   c. A triangle has three angles and three sides
   d. An isosceles triangle has two equal sides and two equal angles
   e. A parallelogram has two pairs of parallel sides

30. A number line from 0 to 2 is divided into seven equal segments. Which fraction names point B?

   a. $\dfrac{3}{7}$

   b. $\dfrac{4}{14}$

   c.   3

   d. $1\dfrac{1}{7}$

   e.   1

31. How many thousands equal 40 hundreds?

   a.   4 thousands
   b.   40 thousands
   c.   400 hundreds
   d.   1 ten thousand
   e.   4 hundreds

32. Calculate: $8 + 48 \div 8 + (3^3 \times 10)$

   a.   104
   b.   284
   c.   277
   d.   97
   e.   40,75

33. Koos has a bag of suckers that he can share equally among 3, 4 or 8 friends with none left over. What is the least amount of suckers that can be in the bag?

   a.   12
   b.   8
   c.   24
   d.   48
   e.   32

34. **What number does the Dienes (Base 10) blocks indicate?**
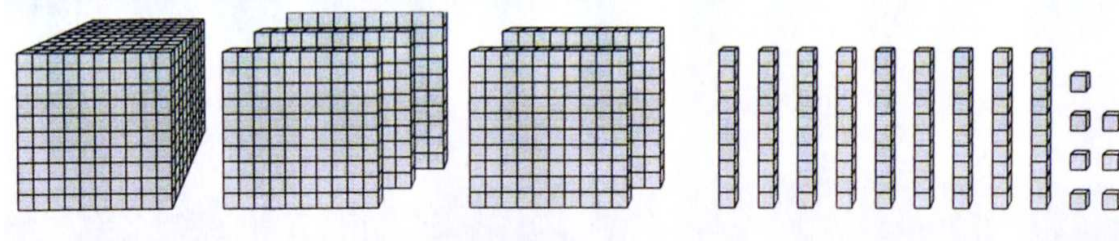
    a.   10 597
    b.   10 500 97
    c.   1 597
    d.   10 329,7
    e.   1 329,7

35. **Gavin has two-rand coins, one-rand coins and 50-cent coins in the ratio of 8 : 1 : 2. If 30 of Gavin's coins are 50 cent coins, how many one-rand-coins does Gavin have?**

    a.   120
    b.   15
    c.   12
    d.   60
    e.   240

36. **Calculate the volume of the rectangular prism below. The cubes provided in the figure indicate the length, breadth and depth of the prism. Each cube is one cubic unit.**
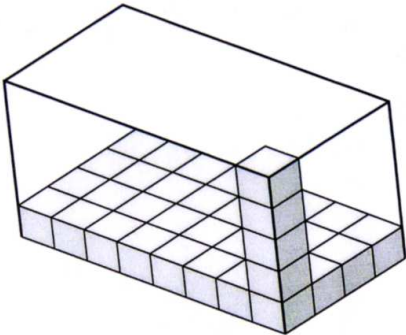
    a.   44 cubic units
    b.   160 units
    c.   16 cubic units
    d.   20 units
    e.   160 cubic units

37. Which of the following is closest to 7 700?

    a.   7 820
    b.   7 560
    c.   7 740
    d.   7 630
    e.   7 870

38. How many fish were caught on the fishing trip?
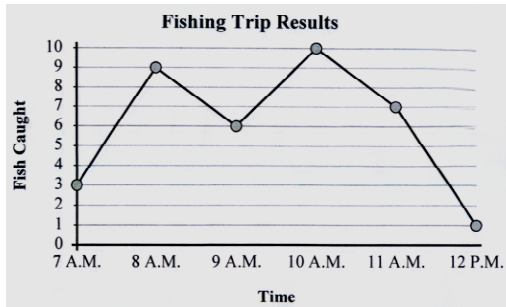
    a.   36
    b.   12
    c.   9
    d.   10
    e.   15

39. Karen's cell phone company charges a fixed per-minute fee with no other monthly fees. The table below shows the number of minutes used and the amount charged for some of Karen's phone calls last month. What is the cost of a 15-minute call?

<div align="center">Cell phone costs</div>

Length of call in minutes	Total cost of the call
12	R4,80
14	R5,60
18	R7,20
21	R8,40
23	R9,20

    a.   R10,40
    b.   R6,00
    c.   R7,00
    d.   R9,20
    e.   R35,20

40. The ratio of the number of boys to the number of girls in a school is 3:8. There are 120 more girls than boys. If the number of boys increases by 3 and the number of girls decreases by 12, what will be the new ratio of the number of boys to the number of girls?

    a.   5:12
    b.   3:8
    c.   3:12
    d.   6:20
    e.   8:3

> **Questions 41 and 42** should be done at the back of the multiple-choice answer sheet, in the spaces provided.

QUESTION 41   [8 marks]

Consider the square flag provided below.

41.1   Draw symmetrical lines that are perpendicular to each other on the given figure.

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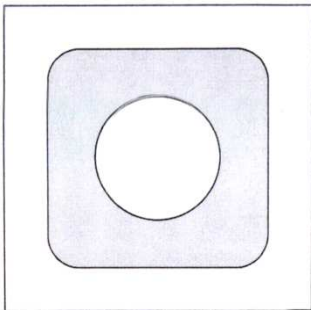
41.2   How would you explain to someone in your class that the lines you drew in 41.1 are lines of symmetry (explain using words).

41.3   How will you explain to someone in your class that the lines you drew in 41.1 are perpendicular to each other?

41.4   Explain why it is not possible to draw two different lines of symmetry that are parallel to each other.

QUESTION 42 [7 marks]

Kevin says he must pay 0.4 of his salary for household rent. His salary is R12 000 per month. Kevin has calculated his rent to be R4 000.

42.1   Is Kevin correct?   (1)

42.2   Explain your answer in words and show/do the complete calculations.   (2 x 3)

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