



## MATHEMATICS-IN-ACTION / WISKUNDE-IN-AKSIE:

### QUESTION PAPER FOR GRADE 6 AND 7

26 JULY 2016

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 calculators 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. What is the solution to the problem below?

$$0 \times 9 + 8 = 8$$

$$9 \times 9 + 7 = 88$$

$$98 \times 9 + 6 = 888$$

$$987 \times 9 + 5 = 8\ 888$$

$$9\ 876\ 543 \times 9 + 1 = ?$$

- a. 88 888
- b. 88 888 888
- c. 888 888
- d. 8 888 888
- e. 888 888 888

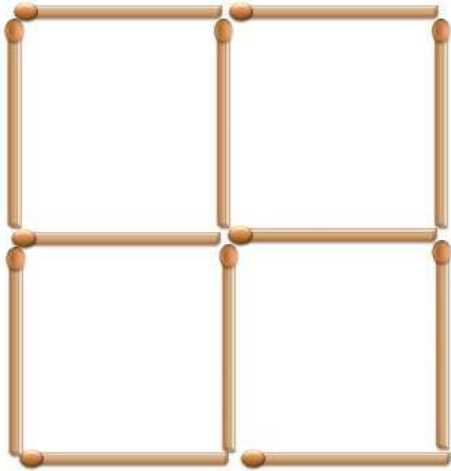
2. A large grocery store has 354 cases of canned vegetables in the storeroom. During the past month, they removed 87 cases, 53 cases, 42 cases, and 67 cases from the storeroom to put on the shelves. Also, the store received two lots of 80 cases each. How many cases are in the storeroom now?

- a. 249
- b. 105
- c. 185
- d. 354
- e. 265

3. Calculate:  $3\frac{3}{7} - 2\frac{1}{2}$

- a.  $1\frac{5}{28}$
- b.  $\frac{13}{14}$
- c.  $\frac{11}{42}$
- d.  $5\frac{13}{14}$
- e.  $1\frac{1}{14}$

4. Matchsticks are arranged in such a way that four small squares are formed within a big square. Find the minimum number of matchsticks you have to remove so that there are no squares remaining in the picture.

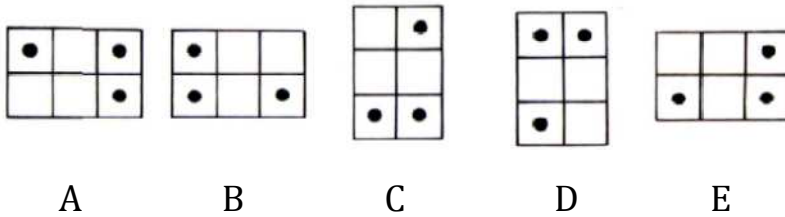


- a. 4  
b. 3  
c. 2  
d. 5  
e. 1
5. "How much money do you have?" asked Petrusia. "Well", said her sister Moira, "if Rudy gives me four rand, then he will have only half as much as Delene. But if Delene gives me four rand instead, then the three of us will have the same amount of money." How much money did they each have to start with?
- a. Moira had R8, Rudy R16 and Delene R12  
b. Moira had R8, Rudy R8 and Delene R16  
c. Moira had R12, Rudy R12 and Delene R12  
d. Moira had R20, Rudy R12 and Delene R16  
e. Moira had R8, Rudy R12 and Delene R16
6. Find the odd one out in these numbers:

69; 333; 159; 735; 452; 17 367

- a. 452  
b. 159  
c. 17 367  
d. 69  
e. 735

7. Which one doesn't fit in the sequence?



- a. C  
b. E  
c. A  
d. B  
e. D

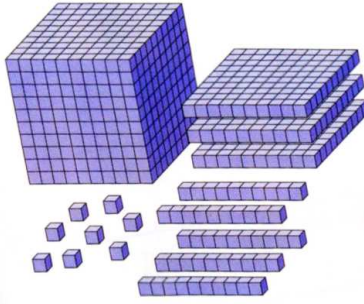
8. Ms Tsamai owns her own business. As a weekly salary, she earns two and a half times as much as Ricardo, her shop assistant. Ms Tsamai earns R20 000 per week. How much is Ricardo paid per week?

- a. R50 000,00  
b. R25 000,00  
c. R4 000,00  
d. R8 000,00  
e. R2 500,00

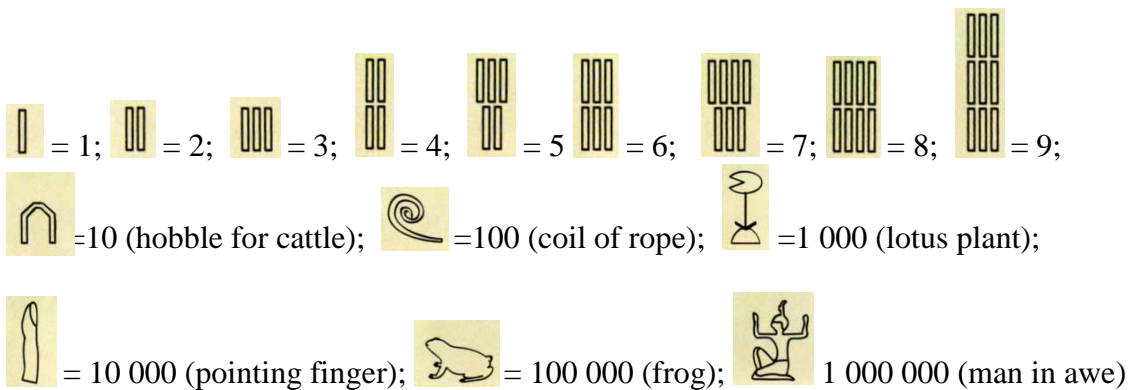
9. The teachers at FUN LEARNING Primary school are planning a field trip for 385 learners. It will cost R13 420,00 for transportation and R8 645,00 for tickets to the museum. If the school charges each learner R70,00, how much money will they have left to buy lunch for the learners?

- a. R13 420,00  
b. R22 065,00  
c. R26 950,00  
d. R4 885,00  
e. R1 269,00

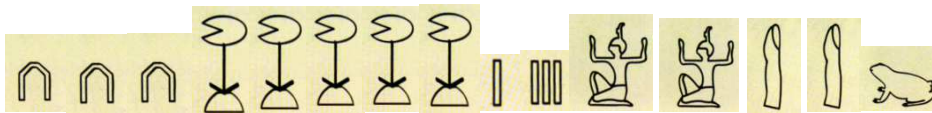
10. To round the whole number represented by the base-ten blocks to the nearest hundred, which block(s) need to be added? (one cube block equals one unit)



- a. 2 tens and 2 units  
 b. 2 tens and 4 units  
 c. 2 units and 4 tens  
 d. 4 units and 4 tens  
 e. 7 tens and 2 units
11. The ancient Egyptian number system was base ten. This number system was not positional. The hieroglyphs (artistic pictures or symbols) representing the powers of ten, could be placed in any order – horizontally or vertically. Below these hieroglyphs are listed with the number value each one represents.

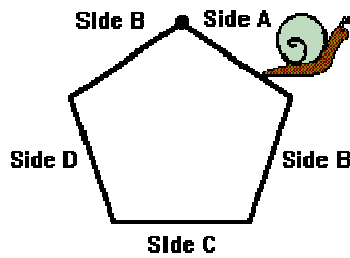


What number is presented below?



- a. 212 534  
 b. 3 542 021  
 c. 354 221  
 d. 2 159  
 e. 2 125 034

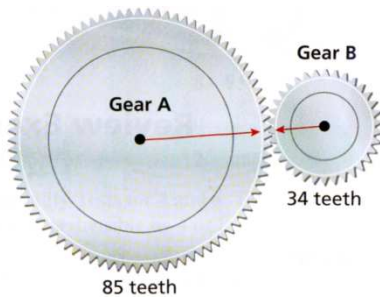
12. Steve the Snail started crawling at the dot. What side will he be on when he has crawled  $\frac{13}{20}$  of the distance around the regular pentagon of equal sides?



- a. Side B  
 b. Side C  
 c. Side D  
 d. Side E  
 e. Side A
13. Cups are sold 6 in a packet and plates are sold 8 in a packet. If you want to have the same number of each item for a party, what is the least number of packages of each you need to buy?
- a. 4 packages of cups and 4 packages of plates  
 b. 3 packages of cups and 3 packages of plates  
 c. 4 packages of cups and 3 packages of plates  
 d. 3 packages of cups and 4 packages of plates  
 e.  $3\frac{1}{2}$  packages of cups and 3 packages of plates
14. There are 27 learners in the class. Seven of them have six colouring pens and 11 of them have 12 colouring pens. How many colouring pencils are there in the classroom?
- a. 45  
 b. 77  
 c. 18  
 d. 174  
 e. 216

15. Hassan gave 60% of a sum of money to his daughter, and 25% of the remainder of the sum to his son. He still has R240,00 left. How much was the original sum of money?
- a. R320,00
  - b. R800,00
  - c. R60,00
  - d. R80,00
  - e. R480,00
16. What is the remainder when  $5\,647 \times 8\,276 \times 5\,465$  is divided by 5?
- a. 0
  - b. 1
  - c. 2
  - d. 3
  - e. 4
17. Best Buys Shop is having a 30% discount sale for everything in their store. You want to buy a shirt which was previously priced at R150,00 and you want a pair of pants that was previously priced at R240,00. How much will your total bill be after the discount?
- a. R507,00
  - b. R390,00
  - c. R117,00
  - d. R234,00
  - e. R273,00

18. How many revolutions (360 degrees turns) must each gear in the diagram below make before the arrows line up again? Gear B has 34 teeth and Gear A has 85 teeth.



- a. Gear A: 5 revolutions; and Gear B: 5 revolutions  
 b. Gear A: 2 revolutions; and Gear B: 3 revolutions  
 c. Gear A: 2 revolutions; and Gear B: 4 revolutions  
 d. Gear A: 2 revolutions; and Gear B: 5 revolutions  
 e. Gear A: 4 revolutions; and Gear B: 5 revolutions
19. The ratio of the number of smiles to the number of frowns on the faces of the learners was 13 to 2. If 52 learners were smiling, how many were frowning?
- a. 13  
 b. 2  
 c. 4  
 d. 52  
 e. 8
20. Kyle drives the local bus. When he leaves in the morning on his journey he has 13 people on board. At the next housing estate he picks up another 15. The next stop is the Happy Primary School, here he drops 15 people and picks up 14 people. At the stop by the Fun High School, he picks up another 8 people but also drops 4. A bus has just got into the bus stop nearby so here he picks up 8 people and drops 12. How many people are on the bus when he pulls into the City Central Bus Stop which is the next stop?
- a. 27  
 b. 58  
 c. 31  
 d. 89  
 e. 52



21. If my bus to the rugby match leaves in 29 minutes and it is now 14:35, at what time does the bus leave?
- a. 16:46
  - b. 15:04
  - c. 03:04
  - d. 14:40
  - e. 15:40

22. The floor of a living room is square and has a surface area of 53 square metres. What are the dimensions (length of the sides) of the floor to the nearest tenth of a metre? Joanne does the following calculation to help her solve her problem:

$$7 \text{ m} \times 7 \text{ m} = 49 \text{ m}^2$$

$$8 \text{ m} \times 8 \text{ m} = 64 \text{ m}^2$$

$$7,1 \text{ m} \times 7,1 \text{ m} = 50,41 \text{ m}^2$$

$$7,2 \text{ m} \times 7,2 \text{ m} = 51,84 \text{ m}^2$$

$$7,3 \text{ m} \times 7,3 \text{ m} = 53,29 \text{ m}^2$$

$$7,4 \text{ m} \times 7,4 \text{ m} = 54,76 \text{ m}^2$$

Help Joanne to choose the correct dimension:

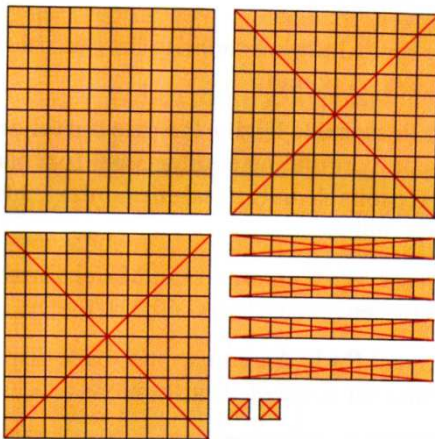
- a. 7,1 m
  - b. 7,3 m
  - c. 7 m
  - d. 7,2 m
  - e. 8 m
23. If researchers calculated that if there were just 1 000 people in a rural town, there would be 200 children; 250 people would not have food or shelter, and 50% would speak English, what fraction of the 1 000 people will not have food or shelter?
- a. One fifth
  - b. One quarter
  - c. Two hundred and fifty people
  - d. Fifty per cent
  - e. Five hundred people

24. Arrange the numbers 25; 4; 5; 80; 8 and 2 using each of the six numbers only once so that the equation below is true:

$$\square \times \square \div \square = \square \div \square \times \square$$

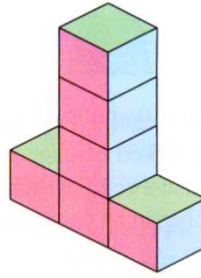
Which one is the correct one?

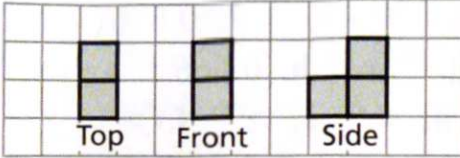
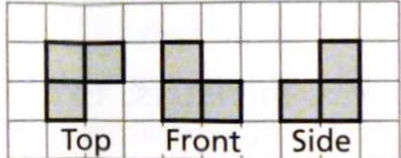
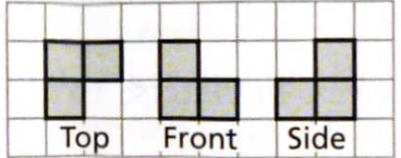
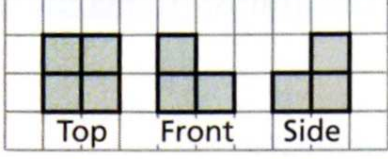
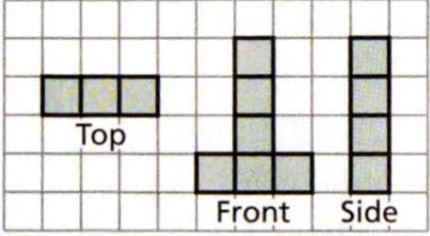
- a.  $25 \times 4 \div 5 = 80 \div 8 \times 2$   
 b.  $4 \times 45 \div 80 = 8 \div 2 \times 25$   
 c.  $5 \times 25 \div 80 = 8 \div 2 \times 4$   
 d.  $80 \times 8 \div 2 = 4 \div 25 \times 5$   
 e.  $2 \times 80 \div 25 = 5 \div 8 \times 4$
25. Using base-ten blocks to subtract decimals: Write down the subtraction problem represented in this model. (A small square represents one hundredth and a cross inside a block means that the value was subtracted.)



- a.  $34,2 - 24,2$   
 b.  $3,42 - 2,42$   
 c.  $342 - 242$   
 d.  $1,00 + 2,42$   
 e.  $2,42 - 1,00$

26. Indicate which group resembles the top, front and side views of the stack of cubes below.

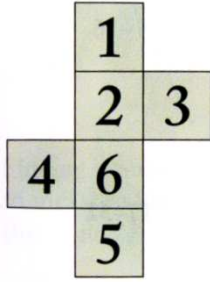


- a. 
- b. 
- c. 
- d. 
- e. 

27. Minny can tie a knot in 45 seconds. How long will it take her to tie 5 knots without stopping?

- 45 seconds
- 22 minutes and 5 seconds
- 3 minutes and 75 seconds
- 3 minutes and 45 seconds
- 22 hours and 5 minutes

28. Which cube is made when the net below is folded?



- a.
- b.
- c.
- d.
- e. Any one of a to d

29. The teachers of FUN LEARNING Primary School plans a trip to the museum for 385 learners. Each bus holds 46 passengers. The law is strictly enforced. How many buses are needed?

- a. 8 buses
- b. 8,36 buses
- c. 9 buses
- d. 10 buses
- e. 8,5 buses

30. Becky wants to paint the walls in her bedroom. A litre of paint will cover  $11 \text{ m}^2$ . She measures the surface to be painted and it is  $44 \text{ m}^2$ . She wants to give the surface a double coat. How many litres of paint should she buy?

- a. 7,6 litres
- b. 8 litres
- c. 44 litres
- d. 11 litres
- e. 33 litres

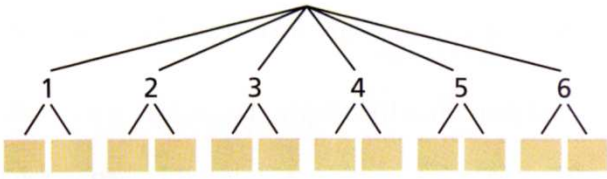
31. A photographer wants to arrange Carmen, Juan, Gary and Marianne in a specific order for a portrait. In how many ways can they be arranged?
- a. 14 ways
  - b. 36 ways
  - c. 12 ways
  - d. 1 ways
  - e. 24 ways
32. The table below shows the average percentage mark of Grade 6 learners for the ANA Mathematics papers by province in 2013 and 2014:

Province	Average % in 2013	Average % in 2014
Eastern Cape	33	36,8
Free State	40	47,7
Gauteng Province	44,7	51,1
KwaZulu-Natal	41,2	43,8
Limpopo Province	32,9	35,3
Mpumalanga	33,6	39,9
Northern Cape	35,6	39,3
North West Province	36,5	38,8
Western Cape	44,9	50,9
National	39	43,1

Which province's average percentage mark in Grade 6 Mathematics for the ANA papers increased the most from 2013 to 2014?

- a. Free State
- b. Mpumalanga
- c. Gauteng Province
- d. Western Cape
- e. Eastern Cape

33. You flip a coin and roll a six-sided dice. What is the chance that you will flip heads and roll a four?



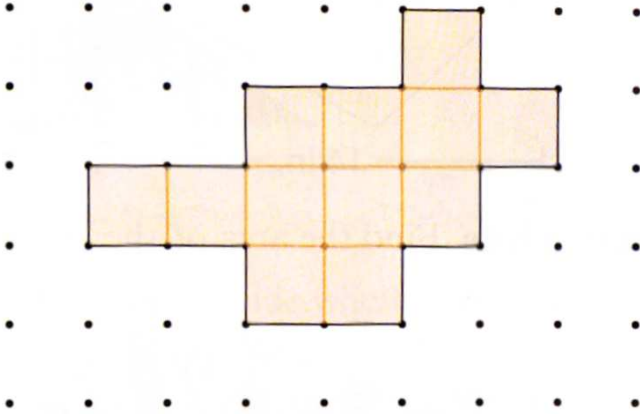
- a.  $\frac{12}{2}$   
 b. 1  
 c. 12  
 d.  $\frac{1}{12}$   
 e.  $\frac{6}{2}$
34. Calculate:  $1\frac{7}{8} \div (\frac{3}{4})^2$
- a.  $9\frac{1}{3}$   
 b.  $\frac{3}{9}$   
 c.  $3\frac{1}{3}$   
 d.  $\frac{16}{9}$   
 e.  $1\frac{7}{128}$

35. The perimeter of the star is equal to the perimeter of the regular hexagon. The perimeter of the hexagon is 72 cm. How long is each side of the star?

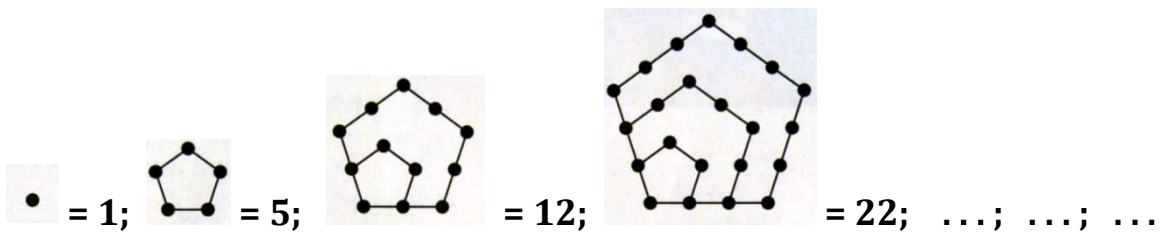


- a. 6 cm  
 b. 9 cm  
 c. 7,5 cm  
 d. 7,2 cm  
 e. 8 cm

36. The polygon shown is formed by joining squares – each of one square centimeter – on dot paper. First find the perimeter and then the area of the polygon.

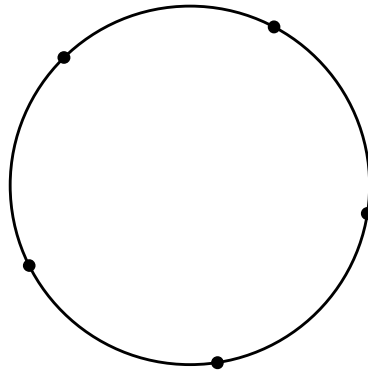


- a. 20 cm;  $12 \text{ cm}^2$   
 b. 18 cm;  $18 \text{ cm}^2$   
 c. 12 cm;  $20 \text{ cm}^2$   
 d. 18 cm;  $12 \text{ cm}^2$   
 e. 20 cm;  $20 \text{ cm}^2$
37. The numbers 1, 5, 12, 22, . . . are called pentagonal numbers since they can be displayed as shown below. What will be the next three pentagonal numbers?



- a. 4; 7; 10  
 b. 13; 16; 19  
 c. 51; 70; 92  
 d. 12; 35; 70  
 e. 35; 51; 70

38. If you draw triangles by joining any 3 of the 5 points on the circumference of the circle, how many triangles can you draw?



- a. 5  
b. 12  
c. 9  
d. 10  
e. 15
39. There are 16 recycling bins in the school. Eight of them contain only paper waste, five contain only plastic, and three contain both paper and plastic waste. How many contain neither paper nor plastic waste?
- a. 8  
b. 5  
c. 16  
d. 0  
e. 3
40. A ball that rebounds  $\frac{4}{5}$  as high as it bounced on the previous bounce is dropped from a height of 20 metres. How high does it bounce on the fourth bounce?
- a. 16 metres  
b. 12,4 metres  
c. 20 metres  
d. 10,24 metres  
e. 8,192 metres

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



**QUESTION 41:**

The Grade 6-learners are writing a test on percentages. Frannie is one of the Grade 6 learners. The appropriate question with Frannie's answers are provided below.

**Test questions:**

- (i) *In a sale, all the prices are reduced by 25%. Julie sees 'n jacket that cost R320,00 before the sale. How much does it cost on the sale?*
- (ii) *In the second week of the sale, the prices are reduced by 25% of the previous week's price. In the third week of the sale, the prices are reduced again by 25% of the previous week's price. In the fourth week of the sale, the prices are reduced again by 25% of the previous week's price. How much will Julie pay for the jacket in the fourth week of the sale after the reductions?*

**Answer the questions on Frannie's answers posed to you.****QUESTION 41.1:**

Three (3) marks are allocated to the question.

Frannie's answers to question (i) is:  $320 \times .25 = 80$   
 $320 - 80 = 240$

- How many marks will you allocate Frannie's answer? [1]
- Explain why. [2]

**QUESTION 41.2:**

Frannie's answers to question (ii) is:

$4 \times 25\% = 100\%$   
*So the prices will all be R0,00 after the four reductions.*

- Six (6) marks are allocated to question (ii). How many marks out of 6, will you allocate to Frannie's answer? [1]

**If you gave Frannie full marks (6) in 41.2, you don't have to answer 41.3 and 41.4. Please answer question 42.**

**QUESTION 41.3:**

If you didn't allocate full marks to Frannie in 41.2, what is the mistake Frannie made? [2]

**QUESTION 41.4:**

How would you explain to Frannie what her mistake is and show her how to do the sum to eliminate the error in future. [4]

**QUESTION 42:**

➤ Explain why Mathematics is important for your future. [6]

---oOo---

**THE FOLLOWING RESOURCES ARE ACKNOWLEDGED:**

- Hall, G. 1991. The Kingfisher book of mindbenders. Kingfisher Books
- Larson, R., & Silbey, R. 2015. Mathematical practices. Cengage learning.
- Sobecki, D., Bluman, A.G., & Achtick-Matthews A. 2011. Math in our world. McGrawHill
- <http://www.education.gov.za/LinkClick.aspx?fileticket=ajR9otls4HM%3d&tabid=569&mid=2131>
- South Africa Population (2016) – Worldometers
- [www.worldometers.info/world-population/south-africa-population/](http://www.worldometers.info/world-population/south-africa-population/)
- <http://people.stfx.ca/rtnacdon/mathproblems/>
- <http://www.aplusclick.com/grade7.htm>