



**basic education**

Department:  
Basic Education  
**REPUBLIC OF SOUTH AFRICA**

# **ANNUAL NATIONAL ASSESSMENT**

## **GRADE 3**

## **MATHEMATICS**

## **SET 2: 2012 EXEMPLAR**

## GUIDELINES FOR THE USE OF ANA EXEMPLARS

### 1. General overview

The Annual National Assessment (ANA) is a summative assessment of the knowledge and skills that learners are expected to have developed by the end of each of the Grades 1 to 6 and 9. To support their school-based assessments and also ensure that learners gain the necessary confidence to participate with success in external assessments, panels of educators and subject specialists developed exemplar test questions that teachers can use in their Language and Mathematics lessons. The exemplar test questions were developed from curriculum work that covers Terms 1, 2 and 3 of the school year and a complete ANA model test for each grade has been provided. The exemplars, which include the ANA model test, supplement the school-based assessments that learners must undergo on a continuous basis and do not replace them.

### 2. The structure of exemplar questions

The exemplars are designed to illustrate different techniques or styles of assessing the same skills and/or knowledge. For instance, some content knowledge or a skill can be assessed through a multiple-choice question (where learners select the best answer from the given options) or a statement (that requires learners to write a short answer or a paragraph) or other types of questions (asking learners to join given words/statements with lines, to complete given sentences or patterns, to show their answers with drawings or sketches, etc.). So, if teachers and learners find a number of exemplar questions that are structured differently but are asking the same thing, they should understand that this is deliberate and learners must respond to all the exemplar questions. Exposure to a wide variety of questioning techniques or styles gives learners the necessary confidence to confront tests.

### 3. Links with other learning and teaching resource materials

For the necessary integration, some of the exemplar texts and questions have been deliberately linked to the grade-relevant workbooks. The exemplars have also been aligned with the requirements of the National Curriculum Statement Grades R to 12 (NCS), the provisions of the Curriculum and Assessment Policy Statements (CAPS) for the relevant grades and the National Protocol for Assessment. Together these documents, plus any others that a school may provide, make up a rich resource base to help teachers in planning lessons and conducting formal assessment (assessment of learning).

### 4. How to use the exemplars

While the exemplars for a grade and a subject have been compiled into one comprehensive set, the teacher does not have to give the whole set to the learners to respond to in one sitting. The teacher should select exemplar questions that are relevant to the planned lesson at any given time. Carefully selected individual exemplar test questions, or a manageable group of questions, can be used at different stages of the teaching and learning process as follows:

- 4.1 At the beginning of a lesson as a diagnostic test to identify learner strengths and weaknesses. The **diagnosis** must lead to prompt **feedback** to learners and the development of **appropriate lessons** that address the identified weaknesses and consolidate the strengths. The diagnostic test could be given as homework to save time for instruction in class.
- 4.2 During the lesson as short formative tests to assess whether learners are developing the intended knowledge and skills as the lesson progresses and ensure that no learner is left behind.
- 4.3 At the completion of a lesson or series of lessons as a summative test to assess if the learners have gained adequate understanding and can apply the knowledge and skills acquired in the completed lesson(s). Feedback to learners must then be given promptly while the teacher decides on whether

there are areas of the lesson(s) that need to be revisited to consolidate particular knowledge and skills.

- 4.4 At all stages to expose learners to different techniques of assessing or questioning, e.g. how to answer multiple-choice (MC) questions, open-ended (OE) or free-response (FR) questions, short-answer questions, etc.

While diagnostic and formative tests may be shorter in terms of the number of questions included, the summative test will include relatively more questions up to a full test depending on the work that has been covered at a particular point in time. The important thing is to ensure that learners eventually get sufficient practice in responding to full tests of the type of the ANA model test.

#### **5. Memoranda or answering guidelines**

A typical example of the expected response (memorandum) has been given for each exemplar test question and for the ANA model test. Teachers must bear in mind that the memoranda can in no way be exhaustive. Memoranda can only provide broad principles of expected responses and teachers must interrogate and reward acceptable options and variations of the acceptable response(s) given by learners.

#### **6. Curriculum coverage**

It is extremely critical that the curriculum must be covered in full in every class. The exemplars for each grade and subject do not represent the entire curriculum. They merely **sample** important knowledge and skills and only for work that covers terms 1, 2 and 3 of the school year. The pacing of work to be covered according to the school terms is specified in the relevant CAPS documents.

#### **7. Conclusion**

The goal of the Department is to improve the levels and quality of learner performance in the critical foundational skills of literacy and numeracy. ANA is one instrument the Department uses to monitor whether learner performance is improving, staying the same or declining. Districts and schools are expected to support teachers and provide necessary resources to improve the effectiveness of teaching and learning in the schools. By using the ANA exemplars as part of their teaching resources, teachers will help learners become familiar with different styles and techniques of assessing. With proper use the exemplars should help learners acquire appropriate knowledge and develop relevant skills to learn effectively and perform better in subsequent ANA tests.

## NUMBERS, OPERATIONS AND RELATIONSHIPS

1. Fill in the missing numbers in each row.

a.	497					492							485
b.	210				250								330
c.	385							350					325
d.	398		402								418		
e.	399				387				375				363
f.	144	148										188	

2. Write down the missing numbers in each sequence.

a. 900; \_\_\_; \_\_\_; \_\_\_; 500; \_\_\_; \_\_\_; \_\_\_.

b. \_\_\_; 200; 250; \_\_\_; \_\_\_; \_\_\_; \_\_\_; 500.

3. Complete:

Count forwards in tens

—————→

Count backwards in fives

						160
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Count forwards in threes

—————→

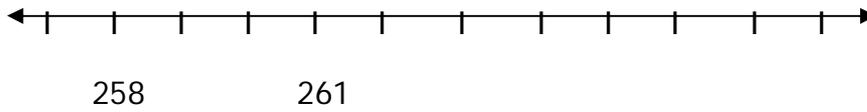
153						
-----	--	--	--	--	--	--

Count backwards in twos

—————→

110						
-----	--	--	--	--	--	--

4. Place 268 in the correct position on the number line.



5. Complete the number pattern and state the rule you used.

150 ; 250; 350; \_\_\_\_ ; \_\_\_\_ ; \_\_\_\_ ; \_\_\_\_ ; \_\_\_\_.

\_\_\_\_\_

6. Circle the letter of the correct answer.

Which row of numbers forms a number sequence?

- A 48; 51; 55; 59; 63;
- B 48; 52; 56; 60; 64;
- C 48; 53; 56; 59; 62;
- D 48; 50; 54; 58; 62;

7. Match each number name with the correct number symbol by drawing a line between them.

250	one hundred and seventeen
117	one hundred and thirty-nine
8	two hundred and forty-six
246	two hundred and fifty
139	eight

8. **Write the number symbol for:**

a. seven hundred and sixty-two \_\_\_\_\_.

b. nine hundred and eighty-four \_\_\_\_\_.

c. six hundred and nine \_\_\_\_\_.

9. **Write the number name for:**

a. 235 \_\_\_\_\_

b. 100 \_\_\_\_\_

c. 183 \_\_\_\_\_

10. **Write the number name and symbol for the whole number between:**

a. 138 and 140 \_\_\_\_\_

b. 189 and 191 \_\_\_\_\_

11. **Write the number name and symbol for the whole number that comes just before**

a. 245 \_\_\_\_\_

b. 139 \_\_\_\_\_

c. 89 \_\_\_\_\_

12. **Write the number name and symbol for the whole number that comes directly after**

a. 149 \_\_\_\_\_

b. 273 \_\_\_\_\_

c. 54 \_\_\_\_\_

13. **State whether the statement is true or false.**

a.  $10 + 6 < 6 + 10$  \_\_\_\_\_

b.  $50 - 49 = 60 - 59$  \_\_\_\_\_

c.  $38 > 19 + 18$  \_\_\_\_\_

14. **Fill in the symbol  $>$  or  $<$  or  $=$  to make each statement true.**

a.  $304$  \_\_\_\_  $340$

b.  $499$  \_\_\_\_  $500$

c.  $222$  \_\_\_\_  $221$

15. **Write the given numbers from the smallest to the largest.**

a.  $112; 211; 212; 122; 221$  \_\_\_\_\_

b.  $320; 230; 330; 220; 302$  \_\_\_\_\_

c.  $462; 246; 426; 424; 266$  \_\_\_\_\_

16. **Write the given numbers from the largest to the smallest.**

a.  $112; 211; 212; 122; 221$  \_\_\_\_\_

b.  $320; 230; 330; 220; 302$  \_\_\_\_\_

c.  $462; 246; 426; 424; 266$  \_\_\_\_\_

17. **Circle the letter of the correct answer.**

A  $216 > 340$

B  $38 + 2 = 20 \times 2$

C  $18 \times 0 = 18 + 0$

D  $221 < 212$

18. Write down the value of the underlined digit in each number.

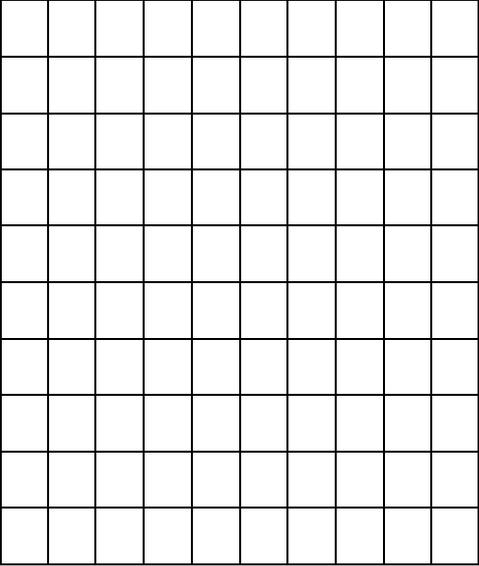
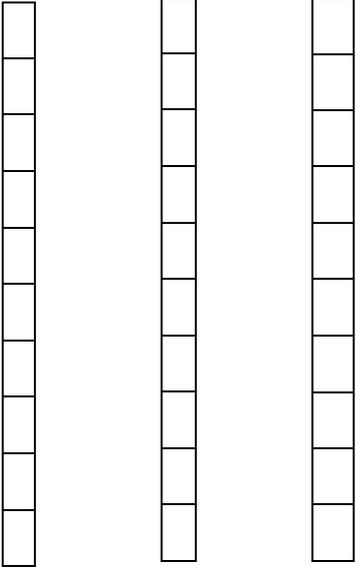
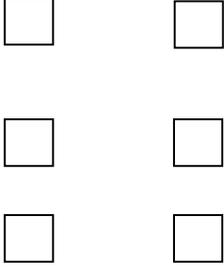
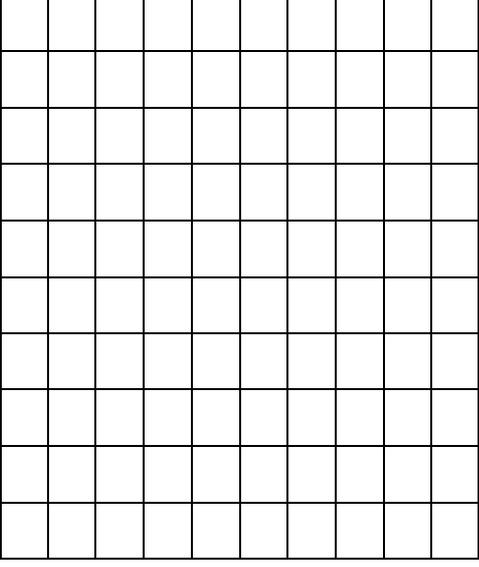
a. 483 \_\_\_\_\_

b. 251 \_\_\_\_\_

c. 306 \_\_\_\_\_

d. 128 \_\_\_\_\_

19. Look at the frame below and answer the following questions.

Hundreds	Tens	Units
		
		

- a. The number containing 2 hundreds, 3 tens and 6 units is \_\_\_\_\_.
- b. How many units should at most be placed in the units' column? \_\_\_\_\_
- c. In the number 236 there are \_\_\_\_ hundreds, \_\_\_\_ tens and \_\_\_\_ units.
- d. How many ten strips should at most be placed in the tens column? \_\_\_\_\_
- e. How many units are in a hundreds block? \_\_\_\_\_
- f. How many ten strips are in a hundreds block? \_\_\_\_\_

20. **Write down the number consisting of:**

- a. 4 units, 3 hundreds and 0 tens \_\_\_\_\_.
- b. 6 tens, 0 hundreds and 3 units \_\_\_\_\_.
- c. 2 hundreds and 22 units \_\_\_\_\_.
- d. 416 units \_\_\_\_\_.

21. **Write**  $300 + 10 + 5$  in the simplest form \_\_\_\_\_.

22. **Break** down 485 in two different ways \_\_\_\_\_.

23. **Complete.**

- a. In 63 there are \_\_\_\_ hundreds or \_\_\_\_ tens or \_\_\_\_ units.
- b. In 258 there are \_\_\_\_ hundreds or \_\_\_\_ tens or \_\_\_\_ units.
- c. In 306 there are \_\_\_\_ hundreds or \_\_\_\_ units.
- d. In 440 there are \_\_\_\_ hundreds or \_\_\_\_ tens or \_\_\_\_ units.

24. **Match the numbers in the two columns by drawing a line between them.**

$50 + 20 + 5$	360
$200 + 120 + 20 + 7$	75
$300 + 60 + 0$	444
$400 + 40 + 4$	347

**OPERATIONS WITH WHOLE NUMBERS: ADDITION, SUBTRACTION, MULTIPLICATION AND DIVISION.**

1. Complete each table.

a.

Number doubled	Number	Number halved
	31	
	162	
	406	

b.

Number	Number rounded off to the nearest 10
152	
75	

2. Are the following statements true or false?

- a. Double 100 = 200 \_\_\_\_\_.
- b. 55 halved = 22 and one half \_\_\_\_\_.
- c. 64 rounded off to the nearest 10 is 70 \_\_\_\_\_.
- d.  $400 + 0 + 6 = 460$  \_\_\_\_\_.

3. Calculate by breaking down both numbers.

- a.  $219 + 137 =$  \_\_\_\_\_
- b.  $259 + 45 =$  \_\_\_\_\_
- c.  $236 + 114 =$  \_\_\_\_\_

4. Calculate by adding on.

- a.  $207 + 95 =$  \_\_\_\_\_
- b.  $199 + 129 =$  \_\_\_\_\_
- c.  $83 + 138 =$  \_\_\_\_\_

5. Calculate by building up to get the next 10.

a.  $333 + 67 =$  \_\_\_\_\_

b.  $107 + 183 =$  \_\_\_\_\_

6. Break down the smaller number and subtract each part.

a.  $175 - 59 =$  \_\_\_\_\_

b.  $194 - 137 =$  \_\_\_\_\_

7. Subtract by breaking down both the numbers.

a.  $377 - 134 =$  \_\_\_\_\_

b.  $294 - 152 =$  \_\_\_\_\_

8. Use the "*breaking down*" method to calculate.

a.  $13 \times 5 =$  \_\_\_\_\_

b.  $17 \times 4 =$  \_\_\_\_\_

9. Calculate by using "*repeated addition*".

a. 6 twelves = \_\_\_\_\_

b. 5 fourteens = \_\_\_\_\_

10. Calculate by using "*repeated subtraction*".

a.  $54 \div 6 =$  \_\_\_\_\_

b.  $72 \div 9 =$  \_\_\_\_\_

11. Use the "*breaking down*" method to calculate.

a.  $70 \div 10 =$  \_\_\_\_\_

b.  $48 \div 8 =$  \_\_\_\_\_

**PROBLEM SOLVING (WORD SUMS).**

1. a. Calculate the difference between 499 and 163.  
b. Calculate the sum of 216 and 93.
2. Busi has 125 marbles. She has 82 more marbles than Vusi. How many marbles does Vusi have?
3. Ida bought 2 packets of sweets with 120 sweets in each packet. She gave her friend 96 sweets. How many sweets did she have left?
4. The grade 3 learners collected bread tags for a fund raiser. They collected the following number of tags: Gr. 3A – 86 tags, gr. 3B –123 tags and gr. 3C – 219 tags. How many tags did they collect altogether?
5. Six boys went on a mountain bike trip. Each boy took one spare wheel with him. When they arrived at the camp, they counted all the wheels. How many wheels did they count altogether?
6. Peter has 5 horses and 40 carrots to share equally amongst the horses. How many carrots can he give each horse?
7. a. Mother shares 41 sweets equally between 2 girls. How many sweets does each girl get?  
b. Farmer Brown has 4 hens and 49 eggs. How many eggs will he give each hen to hatch if he wants to give each hen the same number of eggs?

- c. Mary and 2 of her friends share 22 chocolates equally. How many chocolates will each girl get? How many chocolates were left?

**CALCULATIONS INVOLVING MONEY.**

1. Thabo and his mother went shopping for his birthday party. They bought 20 sweets for 25c each, 14 cup cakes for R2,50 each, 20 cones for R1,5 each and 12 cold drinks for R5,00 each. How much did they spend altogether?
2. Annie's Florist is having a flower sale. This is the advertisement.

<b>Roses .....</b>	<b>R10,00 each</b>
<b>Tulips .....</b>	<b>R5,00 each</b>
<b>Lillies .....</b>	<b>R3,50 each</b>
<b>Poppies .....</b>	<b>R1,50 each</b>
<b>Violets .....</b>	<b>R2,20 each</b>



- a. How much does 1 rose and 2 lilies cost?
  - b. If I buy 3 tulips, how much change will I receive from R20,00?
3. Lebo sells beaded necklaces, which he makes over week-ends. He charges R4, 00 each. Help him calculate his prices.

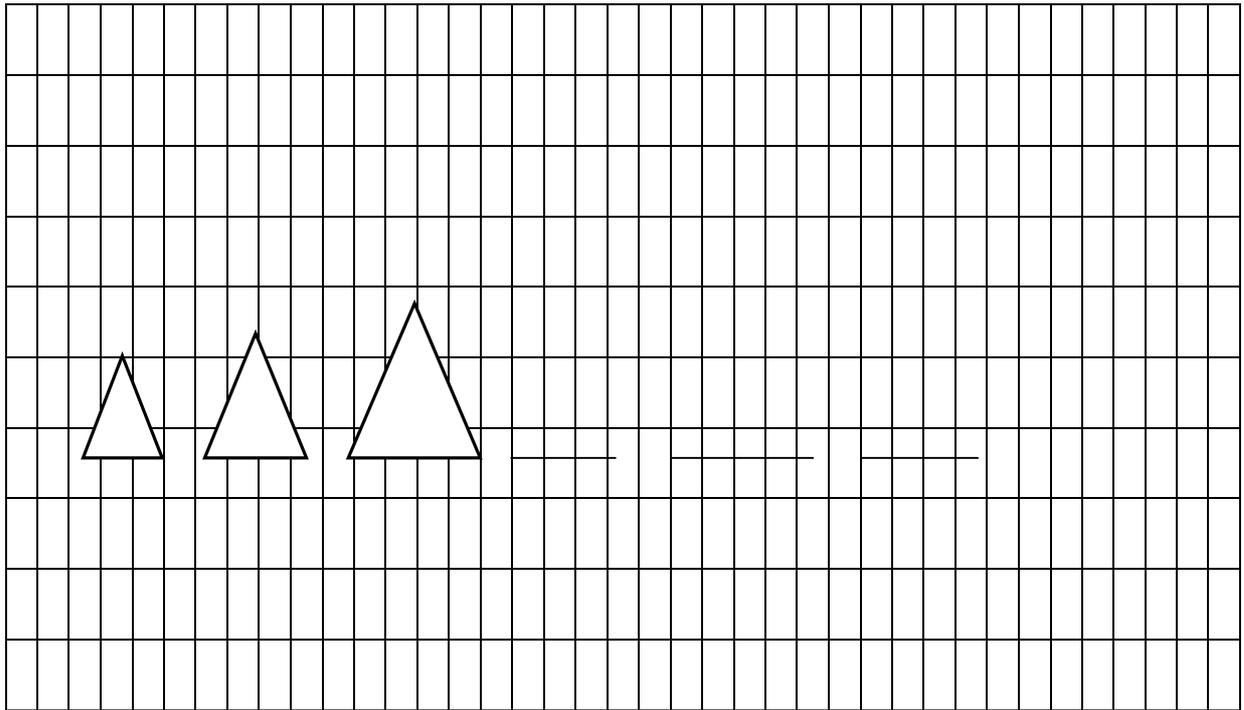
<b>Number of necklaces</b>	1	2	3	4	5	10	20
<b>Cost in rand</b>	4	8					

## PATTERNS AND FUNCTIONS

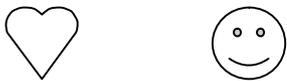
1. Draw the next 3 diagrams in the "repeating diagram" pattern.



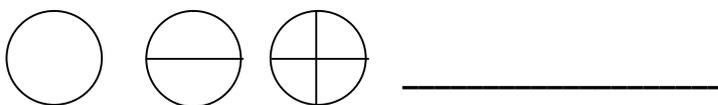
2. Draw the next 2 diagrams in the diagram pattern.



3. Use the following shapes to make up your own pattern.



4. Draw the next diagram to continue the pattern by dividing the inside of the circle.



5. Write down the next two numbers in each sequence. Also write the rule you used to get the numbers.

a. 360; 363; 366; \_\_\_\_; \_\_\_\_.

b. 440; 444; 448; \_\_\_\_; \_\_\_\_.

6. Circle the letter of the correct answer.

500; 550; 600; \_\_\_\_; 700; 750; 800

A 610

B 650

C 620

D 690

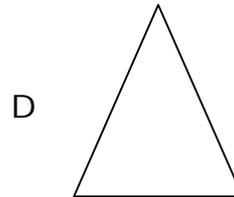
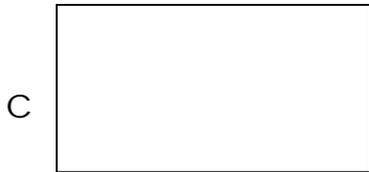
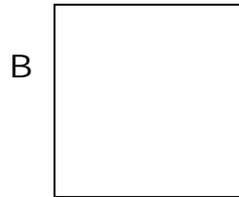
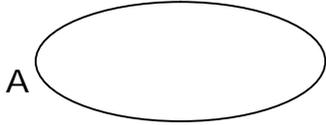
7. Sassy makes necklaces using beads. She uses 10 beads to make one necklace. Look at the table and fill in the missing numbers.

Number of necklaces	1	2	3	14	
Number of beads	10	20	30		500

## SPACE AND SHAPE

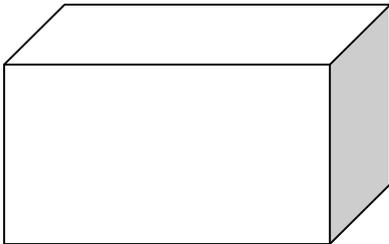
1. Circle the letter of the correct answer.

Which of the following shapes is a **sphere**?



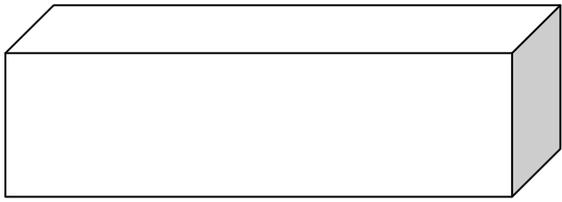
2. Circle the letter of the correct answer.

What is the name of the shaded face of the following prism?



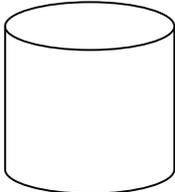
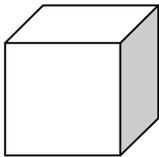
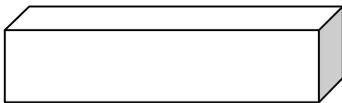
- A Cube
- B Square
- C Triangular prism
- D Cylinder

3. How many faces does the following prism have?

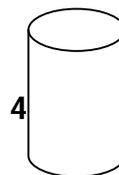
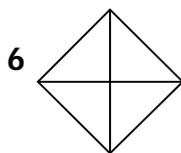
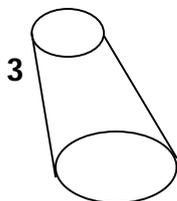
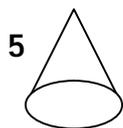


\_\_\_\_\_

4. Draw a line to match each 3-D object with its name.

	<p><b>Sphere</b></p>
	<p><b>Rectangular block</b></p>
	<p><b>Cube</b></p>
	<p><b>Cylinder</b></p>

5. Which of the following shapes are cylinders? Write down the number of the object.



\_\_\_\_\_ ; \_\_\_\_\_ ; \_\_\_\_\_ ; \_\_\_\_\_

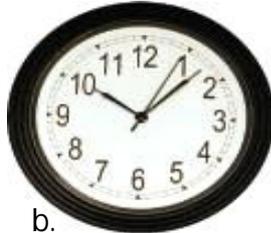
## MEASUREMENT

1. Write down the time shown on each of the clock faces.



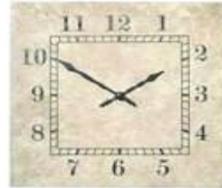
a.

\_\_\_\_\_



b.

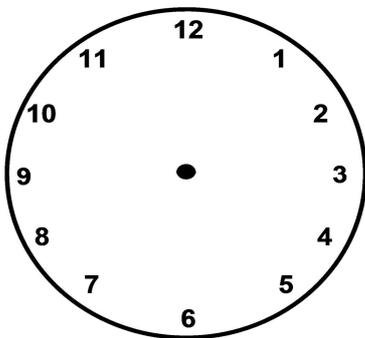
\_\_\_\_\_



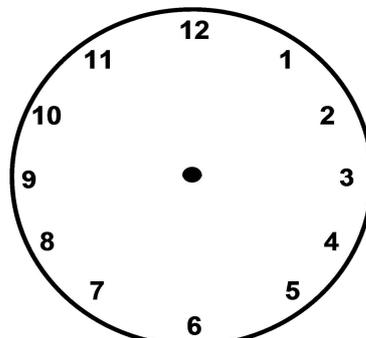
c.

\_\_\_\_\_

2. Draw the hands on each of the following clock faces to show the required time.



15 minutes to 7



25 to 5

2. Complete: On a 12-hour digital clock, 25 minutes before 3 is written as

\_\_\_\_\_

4. Lunch starts at 12:00 and finishes at 12:45. How long is the lunch in minutes?

\_\_\_\_\_

5.

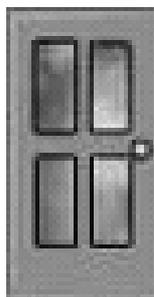
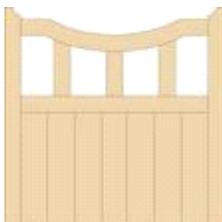
May						
M	T	W	T	F	S	S
	1	2	3	4	5	6
7	<b>8</b>	9	10	11	12	13
14	15	16	17	18	19	20
21	<b>22</b>	23	24	25	26	27
28	29	30	31			

Piet was born on the 8<sup>th</sup> of May 2000 and Nomusa was born on the 22<sup>nd</sup> of the same month in the same year. How much older is Piet than Nomusa? \_\_\_\_\_

6. Use your centimetre ruler to measure the gate and the door.

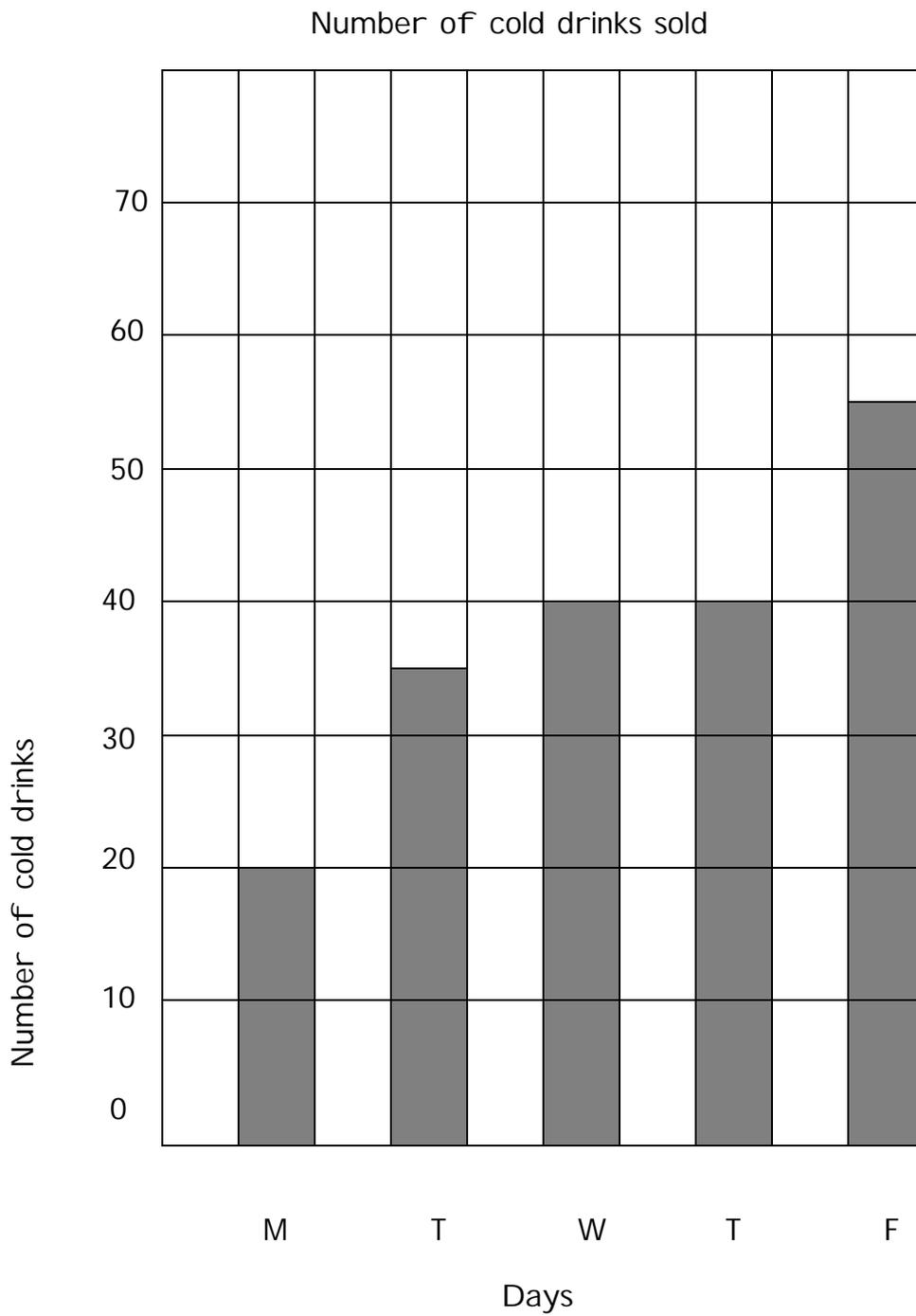
a. What is the height of the gate? \_\_\_\_\_

b. What is the width of the door? \_\_\_\_\_



**DATA HANDLING**

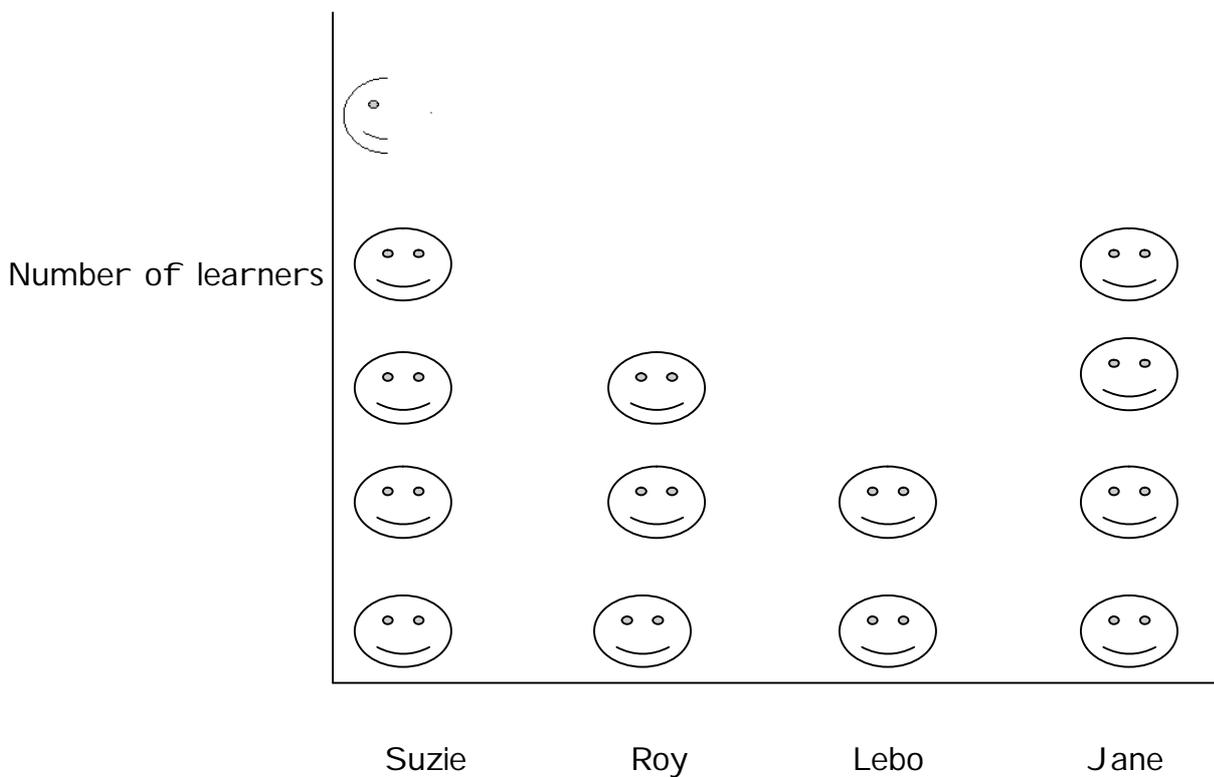
1. The following bar graph shows the number of cold drinks sold in Sipho's shop during a week.



- a. The number of cold drinks sold on Monday is \_\_\_\_\_.
  - b. The day when most cold drinks were sold is \_\_\_\_\_.
  - c. The number of cold drinks sold on Friday is \_\_\_\_\_.
  - d. How many more cold drinks were sold on Friday than on Thursday?
2. The pictograph shows the number of grade 3 learners who voted for their class leaders for 2012.

Key:  represents 2 learners

Number of votes for class leader.



- a. How many learners voted for Lebo? \_\_\_\_\_
- b. Who had the most number of votes? \_\_\_\_\_
- c. Who had the least number of votes? \_\_\_\_\_
- d. What is the total number of learners who voted for both Suzie and Lebo? \_\_\_\_\_