



# basic education

Department:  
Basic Education  
REPUBLIC OF SOUTH AFRICA



## ANNUAL NATIONAL ASSESSMENT 2015 GRADE 7 MATHEMATICS TEST

MARKS: 100

MARKS

TIME: 2 hours

PROVINCE \_\_\_\_\_

DISTRICT \_\_\_\_\_

CIRCUIT \_\_\_\_\_

SCHOOL \_\_\_\_\_

EMIS NUMBER (9 digits)

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CLASS (e.g. 7A) \_\_\_\_\_

SURNAME \_\_\_\_\_

NAME \_\_\_\_\_

GENDER (✓)

BOY	
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GIRL	
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DATE OF BIRTH

C	C	Y	Y	M	M	D	D
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This test consists of 14 pages, excluding the cover page.



**Instructions to the learner**

1. Read all the instructions carefully.
2. Question 1 consists of 10 multiple-choice questions. You must circle the letter of the correct answer.
3. Answer questions 2 to 8 in the spaces provided.
4. All working must be shown.
5. The diagrams are not drawn to scale.
6. The test is out of 100 marks.
7. The test duration is 2 hours.
8. The teacher will lead you through the practice question before you start the test.
9. You may use a calculator unless otherwise stated.

**Practice question.**

Circle the letter of the correct answer.

1. The next number in the number sequence 1 ; 3 ; 5 ; 7 ; ... is ...  
A      8  
B      12  
C      16  
D      9

Your answer is correct if you circled D.

**The test starts on the next page.**

## QUESTION 1

1.1 The lowest common multiple of 5 and 7, is ...

A 5

B 35

C 12

D 7

(1)

1.2 In  $6x + 2$ , the variable is ...

A  $6x$

B  $6x + 2$

C  $x$

D 6

(1)

1.3 32 written as a product of its prime factors is ...

A  $1 \times 32$

B  $2 \times 16$

C  $2 \times 2 \times 2 \times 2 \times 2$

D  $2 \times 4 \times 4$

(1)

1.4 What percentage is 1 200 of 5 000?

A 24%

B 50%

C 38%

D 12%

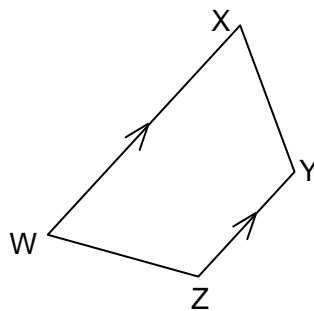
(1)

- 1.5 What is the value of  $3 - \frac{k}{2}$  if  $k = 4$ ?
- A 4
  - B 1
  - C 2
  - D -2
- (1)

- 1.6 A quadrilateral in which all 4 sides are equal, is called a ...
- A rectangle.
  - B parallelogram.
  - C rhombus.
  - D kite.
- (1)

- 1.7 A set of points with a definite starting-point and no definite end-point is called a ...
- A line segment.
  - B ray.
  - C straight line.
  - D perpendicular line.
- (1)

1.8



In the above figure, WX and ZY are...

- A perpendicular line segments.
  - B parallel line segments.
  - C intersecting line segments.
  - D vertical line segments.
- (1)

- 1.9 The perimeter of a regular pentagon with one side equal to 5 cm is ...
- A 25 cm
  - B 5 cm
  - C 35 cm
  - D 30 cm
- (1)

1.10

$x$	1	2	3	4
$y$	4	5	6	7

The relationship between  $x$  and  $y$  is ...

- A  $y = 5 \times x$
  - B  $y = 3 \times x$
  - C  $y = x + 4$
  - D  $y = x + 3$
- (1)

[10]

## QUESTION 2

- 2.1 Calculate without using a calculator. Show the calculation steps where needed.

2.1.1  $1\ 643\ 884 + 262\ 206$

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(2)

2.1.2  $6\,517 \div 31$

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(4)

2.1.3  $315 \times 236$

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(4)

2.1.4  $2^3 \times 1^4$

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(3)

2.1.5  $\sqrt{144} + 6^2$

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(3)

2.1.6  $\frac{3}{5} \times \frac{7}{6}$

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(3)

2.1.7  $0,012 \div 4$

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(1)

2.1.8  $100 - 12 \div (8 + 4)$

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(3)

2.2 Write 1,6 as an improper fraction in the simplest form.

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(2)

2.3 A group of 25 Grade 7 learners watched a soccer match. The ratio of the number of boys to the number of girls was 2 : 3. How many boys were there?

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(3)



2.4 Calculate 10% of R15,00.

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(3)

2.5 John travelled by car at an average speed of 80 kilometres per hour for  $4\frac{1}{2}$  hours. Calculate how far he travelled.

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(3)

[34]

### QUESTION 3

3.1 3.1.1 Fill in the missing numbers in the following number sequence:

1 ; 4 ; 9 ; \_\_\_\_\_ ; 25 ; \_\_\_\_\_.

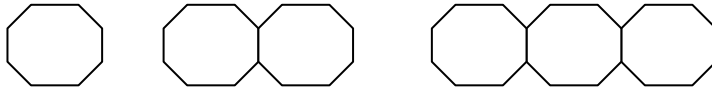
(2)

3.1.2 Are the numbers in the above number sequence prime numbers, square numbers or cubic numbers?

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(1)

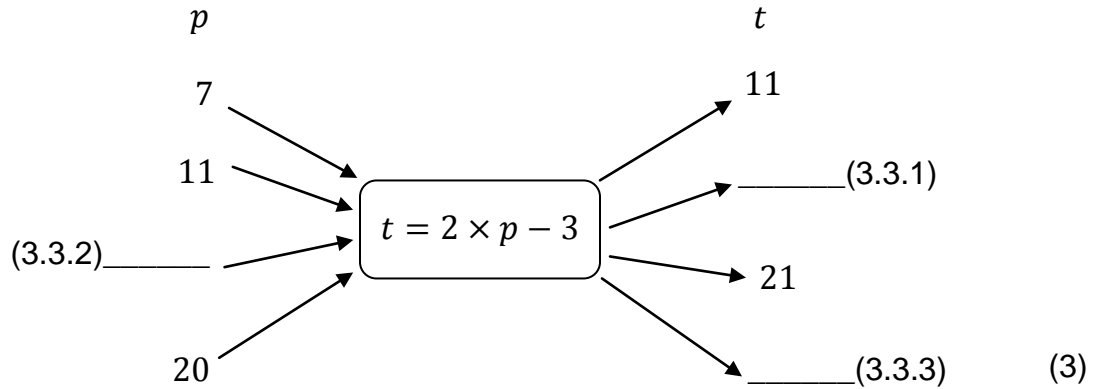
3.2 Study the following diagram pattern of regular octagons and then complete the table.



Number of polygons	1	2	3	4	$n$
Number of sides	8	15	22		

(3)

3.3 Use the given rule to fill in the missing values in the flow diagram below.



(3)

3.4 Calculate the value of  $c^3 + 12$  if  $c = 3$ .

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(3)

3.5 Solve the following equations by inspection:

3.5.1  $\frac{k}{3} = 9$

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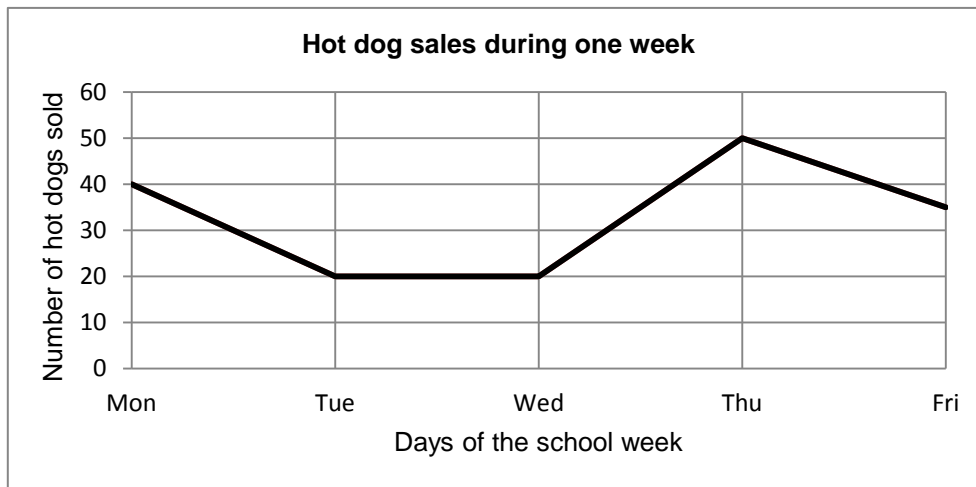
(1)

3.5.2  $y - 17 = 13$   
\_\_\_\_\_ (1)

3.6 3.6.1 Write an algebraic expression for the following:  
 $x$  increased by five  
\_\_\_\_\_ (1)

3.6.2 Write a number sentence for the following:  
Two times a certain number  $p$  decreased by eight is equal to twelve.  
\_\_\_\_\_ (3)

3.7 The given graph illustrates the number of hot dogs sold on different school days during one week.



3.7.1 How many hot dogs were sold on Thursday?  
\_\_\_\_\_ (1)

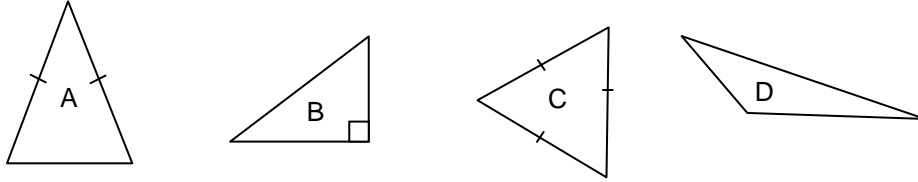
3.7.2 On which days did the sales remain constant?  
\_\_\_\_\_ (1)

3.7.3 Calculate the difference between the number of hot dogs sold on Monday and on Thursday.  
\_\_\_\_\_ (2)

[22]

QUESTION 4

4.1 Study the triangles marked A, B, C and D.

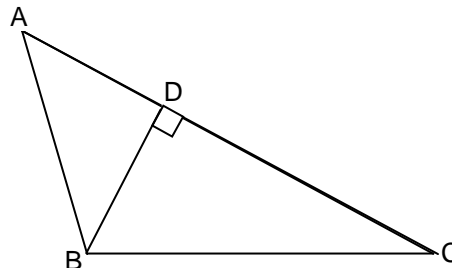


Complete the table below by filling in A, B, C or D.

Equilateral triangle	Right-angled triangle	Obtuse-angled triangle

(3)

4.2 Study the diagram below and answer the questions that follow.



4.2.1 What kind of angle is  $\hat{C}$ ?

\_\_\_\_\_ (1)

4.2.2 What kind of angle is  $\hat{A}BC$ ?

\_\_\_\_\_ (1)

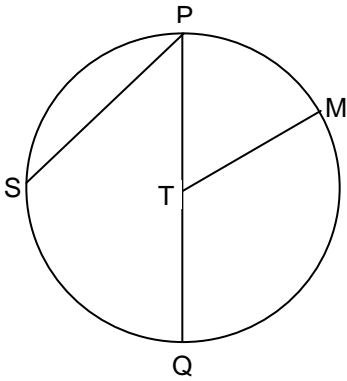
4.2.3 What kind of angle is  $\hat{B}DC$ ?

\_\_\_\_\_ (1)

4.2.4 Name a pair of perpendicular line segments.

\_\_\_\_\_ (1)

4.3 T is the centre of the circle. Name the parts of the circle that are listed.



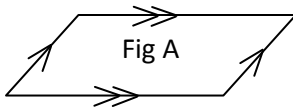
4.3.1 PQ is called \_\_\_\_\_.

4.3.2 TM is called \_\_\_\_\_.

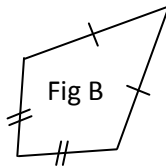
4.3.3 PS is called \_\_\_\_\_.

(3)

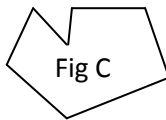
4.4 . Identify each of the figures below:



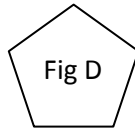
4.4.1 Figure A is a \_\_\_\_\_



4.4.2 Figure B is a \_\_\_\_\_



4.4.3 Figure C is a \_\_\_\_\_



4.4.4 Figure D is a \_\_\_\_\_

(4)

[14]

### QUESTION 5

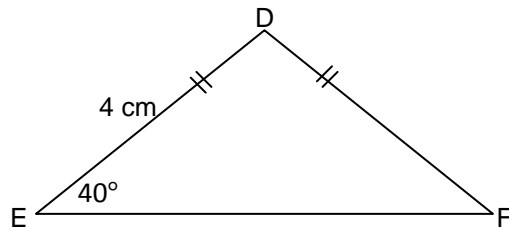
5.1 In an equilateral triangle PQR,  $PQ = 23 \text{ mm}$

Complete:

5.1.1  $QR = PR = \underline{\hspace{2cm}} \text{ mm}$  (1)

5.1.2  $\hat{P} = \hat{Q} = \hat{R} = \underline{\hspace{2cm}}^\circ$  (1)

5.2 Study the diagram below and then, answer the questions that follow.



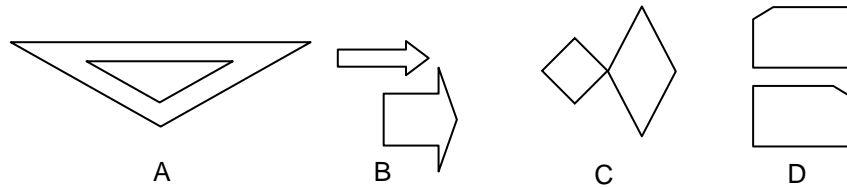
5.2.1 What is the length of DF?  
 \_\_\_\_\_ (1)

5.2.2 If  $\hat{E} = 40^\circ$ , what is the size of  $\hat{F}$ ?  
 \_\_\_\_\_ (1)

[4]

QUESTION 6

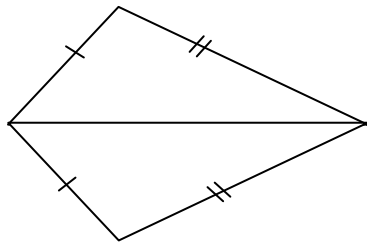
6.1 Study the pairs of diagrams below and complete the statements by filling in A or B or C or D in the spaces provided.



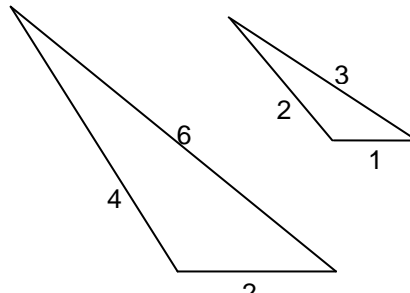
6.1.1 The 2 shapes in \_\_\_\_\_ are congruent. (1)

6.1.2 The 2 shapes in \_\_\_\_\_ are similar. (1)

6.2 Write down whether each pair of triangles given below is congruent, similar or neither.



Pair 1



Pair 2

6.2.1 Triangles in pair 1 are \_\_\_\_\_ . (1)

6.2.2 Triangles in pair 2 are \_\_\_\_\_ . (1)

[4]

QUESTION 7

7.1 Calculate the perimeter of the rectangle if the length is 11 cm and the breadth is 5 cm.

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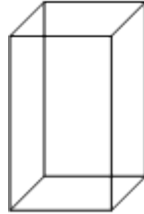
(3)

7.2 Write down the formula for the surface area of a cube.

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(1)

- 7.3 In the rectangular prism below, the length = 5 cm, the breadth = 3 cm and the height = 10cm.



Calculate the volume of the rectangular prism.

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(3)

[7]

### QUESTION 8

- 8.1 A mother is twice as old as her daughter. How old is the daughter if the mother is 64 years old?

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(2)

- 8.2 The product of two prime numbers is 10. What is the difference between the two prime numbers?

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(3)

[5]

**TOTAL: 100**









