# LIMPOPO

**PROVINCIAL GOVERNMENT**
REPUBLIC OF SOUTH AFRICA

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## TERM 4 TEST

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## GRADE 09

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### MATHEMATICS
### 17 NOV 2021

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**MARKS: 100**

**TIME: 2 HOUR**

**INSTRUCTIONS TO THE CANDIDATES**

1. This question paper consists of 8 questions
2. Answer ALL questions.
3. Clearly show all the calculations
4. Write neatly and legibly.
5. The use of scientific calculator is allowed
6. This question paper consist of 4 pages

## Question 1

**a.** From the set of numbers given, identify the following:
  **i.** natural numbers
  **ii.** integers
  **iii.** irrational numbers

(Pentagon containing: $0$, $\sqrt{2}$, $-3$, $\frac{22}{5}$, $15$)

(3)
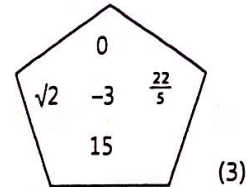
**b.** Convert these decimals to fractions.
  **i.** 0,25    **ii.** 0,3    **iii.** 1,65    (3)

**c.** Evaluate the following:
  **i.** $\sqrt{64} - \sqrt{81}$    **ii.** $60 \div \frac{1}{3}$    **iii.** $\sqrt{6,25} + 7\frac{1}{2}$    (3)

**d.** Round off 245 837,218 to the nearest
  **i.** Hundred    **ii.** Hundredth (2 decimal places)    (2)

**e.** Solve the following word problems
  **i.** A woman travels 740 km in 6 hours 24 min. What was her average speed for the journey?    (3)
  **ii.** A man saves R3 200 in the bank for 5 years. If the bank offers him 5,5% interest per year, how much will he have altogether after 5 years. Calculate the interest using the compound interest formula $A = P(1 + i)^n$.    (3)
  **iii.** If the current exchange rate is $1 = R9,45, convert $28 to Rand.    (2)
  **iv.** If the manager of a shop offers a 20% discount to staff, how much would a staff member have to pay for an item marked R685,95?    (3) [22]

## Question 2
Simplify the following:

**a.** $\dfrac{16x^3y^2}{24x^5y^{-3}}$    (2)

**b.** $3x(2x^2 - 4x + 2)$    (2)

**c.** $(2x + 3)(2x - 3)$    (2)

**d.** $(5x - 1)^2$    (3)

**e.** $\dfrac{4x}{3} - \dfrac{2x}{5}$    (3)

[12]

**Question 3**

Factorise the following if possible:

a.   $2xy^2 - 12y$    (2)        b.   $3x(a - 2b) + 4y(2b - a)$   (3)

c.   $4a^2 - 25b^2$    (2)        d.   $x^8 - 16$    (4)

[11]

**Question 4**

Solve the following equations:

a.   $2 - 5x = 3x - 14$   (2)       b.   $5(x + 3) + 9 = 3(x - 2) + 6$   (2)

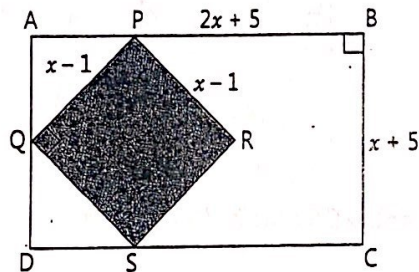c.   $\frac{x+1}{2} - 4 = \frac{x-1}{4}$   (3)      d.   $(x - 4)(x + 7) = 0$   (2)

e.   $4x^2 - 8x = 0$   (2)       f.   $x^3 = -\frac{1}{27}$   (2)
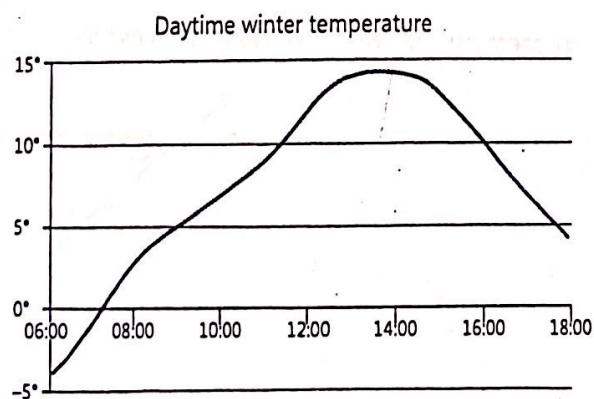
g.   $2^{2x+1} = 8$   (3)

[16]

**Question 5**

1. Consider the diagram below when answering the questions that follow:



a.   Find the area of rectangle ABCD.   (2)

b.   Find the area of square PQRS.   (2)

c.   Find the area of the unshaded region.   (3)

2. Look at this graph and answer the questions.



Daytime winter temperature

a.   Describe the type of day that this temperature graph shows us.   (1)

b.   What is the maximum temperature for the day?   (1)

c.   What is the minimum temperature as indicated on the graph?   (1)

d.   When is the temperature 10°C? (Careful there are two answers)   (2)

3. Consider the equations $y = 3x - 1$
   a. Write down the $y$-intercept. (1)
   b. Write down the $x$-intercept. (2)
   c. Sketch the graph. (3)
   d. On the same set of axes sketch the graph of $y = 2$. (2)
   e. Write down the co-ordinates of the point of intersection of the graphs. (1)

4. Write the equation for a straight line with gradient $= -3$ and $y$-intercept $(0;2)$ (1)

[22]

## Question 6
a. In the following number pattern 2; 5; 8; 11... write the next 3 terms and give the rule for the number pattern. (2)
b. Given $p = 2q + 7$, find values for $p$ if:   i.  $q = -3$  (2)   ii.  $q = \frac{7}{2}$  (2)
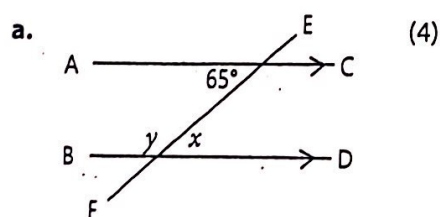c. Calculate the area of each of the following shapes.

   i. 7 cm   2 cm (2)
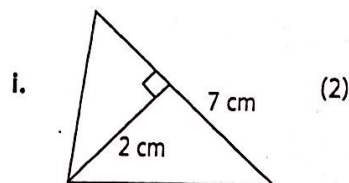
d. Calculate the length of side PQ of the right angled triangle PQR. (3)

   R
   12 cm   11 cm
   P   Q

[9]
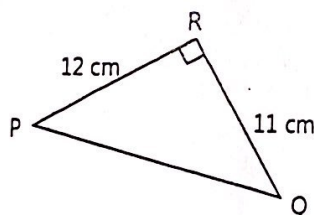
## Question 7
Find the unknown in each of the following with reasons:

a.   E   (4)
   A ———— 65° ———→ C
   B ——— y / x ———→ D
   F

[4]

## Question 8

Write down the co-ordinates for the image after the following translations:

a. P(–3 ; –6)    $(x; y) \rightarrow (x ; -y)$

b. Q(0 ; 5)    $(x; y) \rightarrow (y; x)$

c. R(–4 ; 3)    $(x; y) \rightarrow (-x; y)$

d. V(3 ; –5)    if it is reflected about the x-axis    [4]

**TOTAL [ 100]**