

Grade 12 Physical Science

TOPIC 1: ACIDS + BASES  
DEFINITIONS

pH CALCULATIONS  
DILUTION AND NEUTRALISATIONS

ACID BASE REACTIONS

TOPIC: 2. RATES OF REACTION

CHEMICAL EQUILIBRIUM

- \* FACTORS AFFECTING EQUILIBRIUM
- \* EQUILIBRIUM CONSTANT
- \* APPLICATION OF EQUILIBRIUM PRINCIPLES

**SEATIDES COMBINED SCHOOL**  
**LIFE SCIENCES-GRADE 11 AND 12**

**GRADE 11**

1. Remedial exercise- March controlled test. (worksheet)
2. Complete term 1 topics in workbook.
3. Read over section on Photosynthesis (starts pg. 112 textbook)
4. Read over section on Respiration (starts pg 182 textbook).
5. Draw and label diagrams of chloroplast and mitochondrion in notebook. (revision gr. 10)
6. Make notes on adaptive features/structural suitability of chloroplast and mitochondria. (revision gr.10)
7. Do the following activities from textbook: (a) act. 2.1.8 pg 127  
(b) act. 2.1.9 pg 128  
(c) act 2.1.10 pg 129

**GRADE 12**

1. Remedial exercise –March controlled test (worksheet)
2. Revise concepts relating to genetics. (Use worksheet and textbook)
3. Do activity 5.1 pg. 69 of textbook.
4. Do activity 5.3 pg 74 of textbook.
5. Read section on human impact ( revision grade 11)
6. Do activities on topics already covered from May 2019 doc.

**SECTION A: COMPREHENSION****QUESTION 1: READING FOR MEANING AND UNDERSTANDING**

Read TEXTS A and B below and answer the questions set.

**TEXT A****THE ART OF CREATIVITY**

- 1 When the creative spirit stirs, it animates a style of being: a lifetime filled with the desire to innovate, to explore new ways of doing things, to bring dreams to reality.
- 2 Has this ever happened to you? You're out for a jog, completely relaxed, your mind a pleasant blank. Then all of a sudden the solution to a problem you've been mulling over<sup>1</sup> for weeks pops into your head. You can't help but wonder why you didn't think of it before. In such moments you've made contact with the creative spirit, that elusive muse of good – and sometimes great – ideas. Yet it is more than an occasional insight. 5
- 3 That flash of inspiration is the final moment of a process marked by distinctive stages – the basic steps in creative problem-solving. The first stage is preparation, when you search out any information that might be relevant. It's when you let your imagination roam freely. A major barrier to listening well is self-censorship, that inner voice of judgement that confines your creative spirit to what you deem acceptable. It's the voice that whispers to you, 'They'll think I'm foolish' or 'That will never work'. But you can learn to recognise this voice of judgement and have the courage to discount its destructive advice. 10 15
- 4 Once you have mulled over all the relevant pieces and pushed your rational mind to the limits, you can let the problem simmer. This is the incubation<sup>2</sup> stage, when you digest all you have gathered. It's a stage when much of what goes on occurs outside your focused awareness. The unconscious mind is far more suited to creative insight than the conscious mind. Furthermore, the unconscious speaks to us in ways that go beyond words, including the rich feelings and deep imagery of the senses. 20
- 5 That is why daydreams are so useful in the quest for creativity. Day-dreaming and relaxing are useful in the creative process. With luck, immersion and day-dreaming lead to illumination, when all of a sudden the answer comes to you as if from nowhere. Nolan Bushnell, creator of a well-known video game, was inspired while idly flicking sand on the beach. This is the popular stage – the one that usually gets all the glory and attention, the moment that people sweat and long for, the feeling 'This is it!' But the thought alone is still not a creative act. The final stage is translation, when you take your insight and transform it into action, making it useful for you and others. 25 30



Our lives can be filled with creative moments, whatever we do, as long as we're willing to push beyond routine. The everyday expression of creativity often takes the form of trying out a new approach to a familiar dilemma. Yet half the world still thinks of creativity as a mysterious quality that the other half has. A good deal of research suggests, however, that everyone is capable of tapping into his or her creative spirit.

Many of us do not see ourselves as being creative, because we don't have much of an audience for what we do. In fact, we focus too much on the glamorous achievements of geniuses – overlooking the ways each of us displays flair and imagination in our own lives. 'We've become narrow in the way we think about creativity,' observes Teresa Amabile, a psychologist at Brandeis University. 'We tend to think of it as rarefied: artists, musicians, poets. But the cook in her kitchen is showing creativity when she invents a variation on a recipe.'

In creative problem-solving, a mistake is an experiment to learn from, valuable information about what to try next. If you take no chances and make no mistakes, you fail to learn, let alone do anything unusual or innovative. Research suggests that creative people risk embarrassment and make more mistakes than their less imaginative peers.

While creativity takes hard work, the work goes more smoothly if you take it lightly. Humour greases the wheels of creativity. Having fun helps you disarm the inner censor that all too quickly condemns your ideas as ludicrous. This is why in brainstorming sessions the operative rule is that no one is allowed to dismiss an idea as too absurd. In one of those wild ideas, there is often the seed that can eventually grow into an innovative solution. Researchers report that teams that laugh more readily are more creative and productive than their more serious counterparts. Joking around makes good sense. Playfulness is itself a creative state.

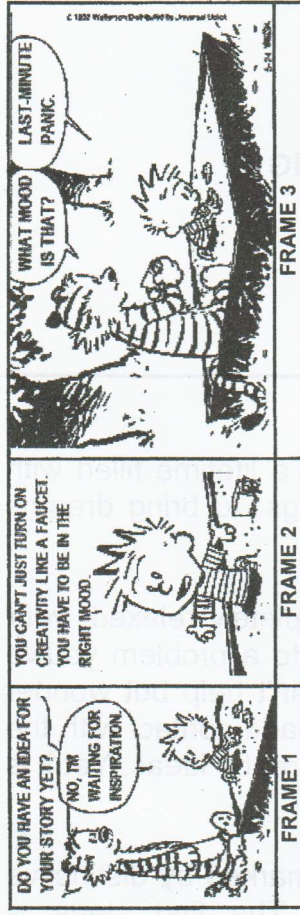
When creativity is in full fire, people can experience what athletes and performers call the 'white moment'. Everything clicks. Our skills are so perfectly suited to the challenge that we seem to blend with it. Everything feels harmonious, unified, and effortless. In a profound sense, all of our creative acts express who we are at that moment.

[Adapted from [creativitypost.com](http://creativitypost.com)]

**NOTE:**  
When you are carefully considering a protective state of nurturing

AND

**TEXT B**



FRAME 1  
FRAME 2  
FRAME 3  
[Source: <https://www.pinterest.com>]

**QUESTIONS: TEXT A**

- 1.1 What does the writer mean by, 'When the creative spirit stirs' (line 1)? (2)
- 1.2 Account for the use of the question in line 4. (2)
- 1.3 Why has the writer referred to the 'creative spirit' as an 'elusive muse' (line 8)? (2)
- 1.4 Discuss the contrast presented in paragraph 3. (3)
- 1.5 Comment on the image, 'you can let the problem simmer' (line 19) in the context of the sentence as a whole. (3)
- 1.6 Discuss TWO stylistic techniques that the writer uses in paragraph 5. (3)
- 1.7 In your view, is the example of 'the cook in her kitchen' (line 46) effective in conveying the writer's viewpoint in paragraph 7? Motivate your response. (3)
- 1.8 With reference to the entire passage, critically discuss the effectiveness of the concluding paragraph. (3)

**QUESTIONS: TEXT B**

- 1.9 What does the boy imply about creativity in 'You can't just turn on creativity like a faucet' (frame 2)? (2)
- 1.10 Critically discuss how the setting of the cartoon contributes to its overall meaning. (3)

**QUESTION: TEXTS A AND B**

- 1.11 In your opinion, does TEXT B support the ideas expressed in paragraph 5 of TEXT A? Justify your response. (4)

**TOTAL SECTION A: 30**

**SECTION B: SUMMARY****QUESTION 2: SUMMARISING IN YOUR OWN WORDS**

TEXT C provides insight into differing views on taking a gap year. Summarise, in your own words, the benefits of deferring the pursuit of tertiary education.

- NOTE:**
1. Your summary should include SEVEN points and NOT exceed 90 words.
  2. You must write a fluent paragraph.
  3. You are NOT required to include a title for the summary.
  4. Indicate your word count at the end of your summary.

**TEXT C****TAKING A GAP YEAR**

Not every school-leaver who qualifies for university is ready to pursue further studies. For some, taking a 'gap year' – deferring admission for a year after high-school graduation – may prove invaluable. That's among the messages in Jeffrey J Selingo's newest book, *There Is Life After College*.

Many universities now endorse the gap year, which encourages admitted students to defer enrolment for one year to travel, pursue a special project or activity, work or spend time in another meaningful way. Students who take time off tend to do better academically and they are more likely to be satisfied with their choices after graduation. Students who take time off may be able to make better choices, and have a better understanding of what they want from university.

Parents often remain dubious about the gap year, worried that their children will never attend a tertiary institution at all. Selingo advocates that parents should let go of their fears. A gap year is one of the many options he describes for helping students form their own understanding of why they're going to university, and what they want once they get there.

The gap year itself should be meaningful. A gap year needs to provide either meaningful work experience, academic preparation for college, or travel that opens up the horizon to the rest of the world. It's also important that a student has a plan for closing the gap.

To increase their investment in the gap year experience, some students can find meaningful work experience, perhaps working as a nanny or as a language instructor overseas. Others might secure odd jobs with the goal of funding, or partially funding, a paid gap experience. Even if parents end up paying all or most of the bill, an investment in a gap year might be money saved later if students are more directed when they eventually go to university.

Above all, parents and students should think of a gap year not as a break in an education, but as a part of it. We need to remember that lifelong education is no longer rhetoric, but reality.

[Adapted from <https://well.blogs.nytimes.com/>]

**TOTAL SECTION B: 10**

**SECTION C: LANGUAGE STRUCTURES AND CONVENTIONS****QUESTION 3: ANALYSING ADVERTISING**

Study the advertisement (TEXT D) below and answer the set questions.

**TEXT D**

**Adopt-A-Pet**  
 I WAS EMBARRASSED.  
 ME, A CAT, LIVING WITH  
 A SINGLE GUY. BUT WHEN  
 I WATCH HIM PICK SOMETHING  
 UP WITH HIS HANDS AND EAT IT,  
 I CAN'T HELP BUT LOVE HIM.

– MARIU  
 adopted 01-10-10

Adopt-A-Pet  
 theshelterproject.org

The text in small font reads as follows:

'AT FIRST  
 I WAS EMBARRASSED.  
 ME, A CAT, LIVING WITH  
 A SINGLE GUY. BUT WHEN  
 I WATCH HIM PICK SOMETHING  
 UP WITH HIS HANDS AND EAT IT,  
 I CAN'T HELP BUT LOVE HIM.'

– MARIU  
 adopted 01-10-10



**QUESTION 4: UNDERSTANDING OTHER ASPECTS OF THE MEDIA**

Study TEXT E and answer the set questions.

**TEXT E: CARTOON**



[Source: www.gocomics.com]

- 4.1 Explain how a sense of urgency is created in frame 2. (2)
- 4.2 The two characters in frame 1 are husband and wife, Dagwood and Blondie. In the light of the cartoon as a whole, discuss how a stereotype is presented in frames 2 and 3. (2)
- 4.3 Comment on the change in Dagwood's body language in frames 3 and 6. (3)
- 4.4 Comment critically on how irony is used to create humour in the cartoon as a whole. (3) [10]

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**COMMON TESTING GUIDE/SCOPE - 2020**

<b>TEACHERS' GUIDE</b>	
<b>MARCH COMMON TEST</b>	
<b>GRADE</b>	12
<b>SUBJECT</b>	Mathematical Literacy
<b>PAPER</b>	One Paper
<b>DURATION OF THE PAPER</b>	2 hours
<b>TOTAL MARKS</b>	100 Marks
<b>EXPECTED WORK COVERAGE/TOPICS</b>	<b>DATE COMPLETED</b>
<b>NB: This scope must be used in conjunction with the 2019 ATP and Examination guidelines</b>	
<b>Topic: Measurement</b>	
<ul style="list-style-type: none"> <li>• Conversions</li> <li>• Time</li> </ul>	<b>21.01.2020</b>
<b>Topic: Finance</b>	
<ul style="list-style-type: none"> <li>• Financial Documents</li> </ul>	<b>31.01. 2020</b>
<ul style="list-style-type: none"> <li>• Taxation</li> </ul>	<b>07.02. 2020</b>
<ul style="list-style-type: none"> <li>• Tariff systems</li> </ul>	<b>18.02. 2020</b>
<ul style="list-style-type: none"> <li>• Income, expenditure, profit/loss, income-and-expenditure statements and budgets</li> </ul>	<b>18.02. 2020</b>
<ul style="list-style-type: none"> <li>• Cost and selling price</li> <li>• Break-even analysis</li> </ul>	<b>18.02. 2020</b>
<b>Topic: Data Handling</b>	
<ul style="list-style-type: none"> <li>• Developing questions</li> <li>• Collecting data</li> <li>• Classifying and organising data</li> <li>• Summarising data</li> <li>• Representing data</li> <li>• Interpreting and analyse data</li> </ul>	<b>06.03. 2020</b>
<b>JUNE EXAMINATION</b>	
<b>GRADE</b>	12
<b>SUBJECT</b>	Mathematical Literacy
<b>PAPER</b>	Two Papers
<b>DURATION OF THE PAPER</b>	Paper 1 (2 hours) Paper 2 (2 hours)
<b>TOTAL MARKS</b>	Paper 1 (100 marks) Paper 2 (100 marks)
<b>NUMBER OF QUESTIONS</b>	Paper 1 (5 Questions) and Paper 2 (4 or 5 Questions)
<b>TYPES OF QUESTIONS</b>	Paper 1: " skills" paper working with familiar contexts. Paper 2: An "application" paper using both familiar and

	unfamiliar context. <i>The two papers assess the same content but are differentiated according to intention, cognitive demand and the nature of the contexts</i>
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**EXPECTED WORK COVERAGE/TOPICS**

*All topics and sections assessed in term 1 (March test) are examinable*

Topic: Finance	DATE COMPLETED
• Interest	06.04. 2020
• Financial Documents	
• Banking, Loans and Investments (Loans and investments)	
• Exchange rates	
• Inflation	22.04. 2020
<b>Topic: Maps, plans and other representations of the physical world</b>	
• Scale	
• Maps	29.04. 2020
• Plans	06.05. 2020
<b>Topic: Measurement</b>	
• Measuring length and distance	
• Measuring mass (weight)	
• Measuring volume	
• Measuring temperature.	25.05. 2020
• Calculating Perimeter, Area and Volume	
<b>TOPIC: Probability</b>	01.06.2020

**SEPTEMBER PREPARATORY EXAMINATION**

<b>GRADE</b>	12
<b>SUBJECT</b>	Mathematical Literacy
<b>PAPER</b>	Two Papers
<b>DURATION OF THE PAPER</b>	Paper 1 (3 hours)
	Paper 2 (3 hours)
<b>TOTAL MARKS</b>	Paper 1 (150 marks)
	Paper 2 (150 marks)
<b>NUMBER OF QUESTIONS</b>	Paper 1 (5 Questions) and Paper 2 (4 or 5 Questions)
<b>TYPES OF QUESTIONS</b>	Paper 1: "skills" paper working with familiar contexts.
	Paper 2: An "application" paper using both familiar and unfamiliar context.
	<i>The two papers assess the same content but are differentiated according to intention, cognitive demand and the nature of the contexts</i>

**EXPECTED WORK COVERAGE/TOPICS**

*All topics (basic and application) are examinable*

**QUESTION 1**

Fifteen learners from schools around the Phungashe area participated in a Mathematics Olympiad. The results, as a percentage, for each learner is shown below:

27	28	30	32	34	38	41	42	43	43	44	46	53	56	62
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- 1.1 Determine the median of the given data. (1)
- 1.2 Determine the interquartile range for the data. (3)
- 1.3 Draw a box and whisker diagram to represent the data. (3)
- 1.4 Comment, using the box and whisker diagram, on the performance of the learners in this Olympiad. (2)

[9]

**QUESTION 2**

The height, in centimeters, of 60 North High School soccer players are recorded in the table below.

Height in cm.	Number of days	Cumulative Frequency
$150 \leq x < 155$	7	
$155 \leq x < 160$	10	
$160 \leq x < 165$	15	
$165 \leq x < 170$	12	
$170 \leq x < 175$	9	
$175 \leq x < 180$	5	
$180 \leq x < 185$	2	

- 2.1 Complete the table on DIAGRAM SHEET 1. (2)
- 2.2 Draw an ogive (cumulative frequency curve) on DIAGRAM SHEET 1 to represent the data. (4)
- 2.3 Use the ogive to estimate:
  - 2.3.1 The median value. (1)
  - 2.3.2 The interquartile range. (2)
  - 2.3.3 The percentage of players who are taller than 173cm. (2)

[11]

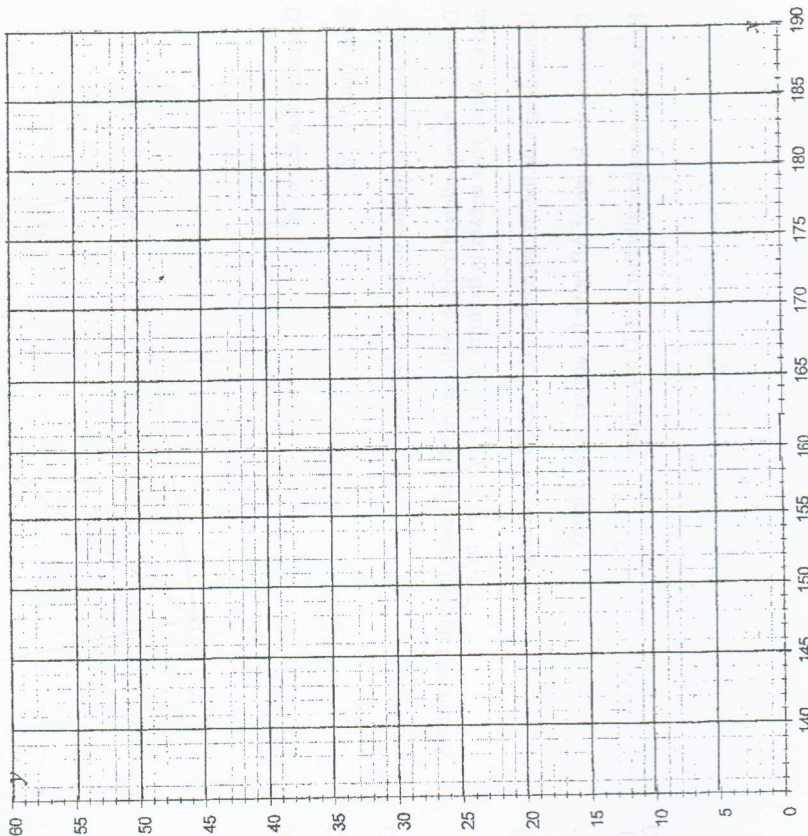
TEAR-OFF PAGE

**DIAGRAM SHEET 1**

**QUESTION 2.1**

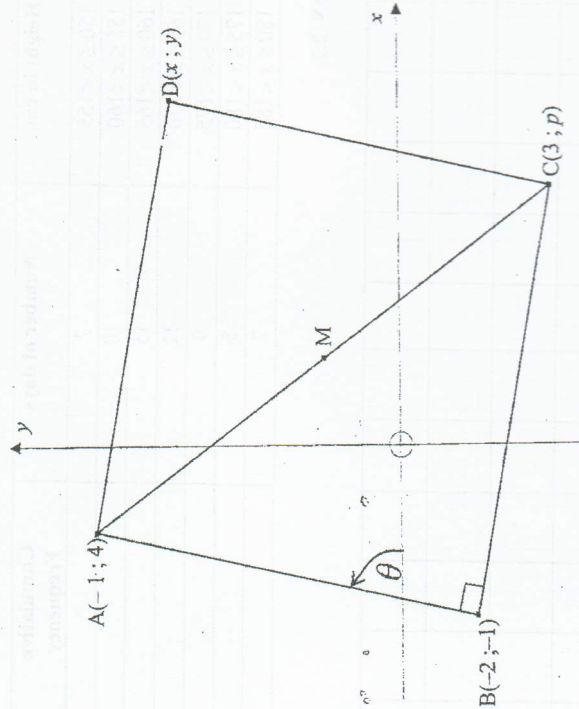
Height in cm.	Number of days	Cumulative Frequency
$150 \leq x < 155$	7	
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$165 \leq x < 170$	12	
$170 \leq x < 175$	9	
$175 \leq x < 180$	5	
$180 \leq x < 185$	2	

**QUESTION 2.2**



**QUESTION 3**

In the diagram below,  $A(-1; 4)$ ,  $B(-2; -1)$ ,  $C(3; p)$  and  $D(x; y)$  are four points in a Cartesian plane.  $M$  is the midpoint of  $AC$ .  $\hat{B} = 90^\circ$  and the inclination of line  $AB$  is  $\theta$ .

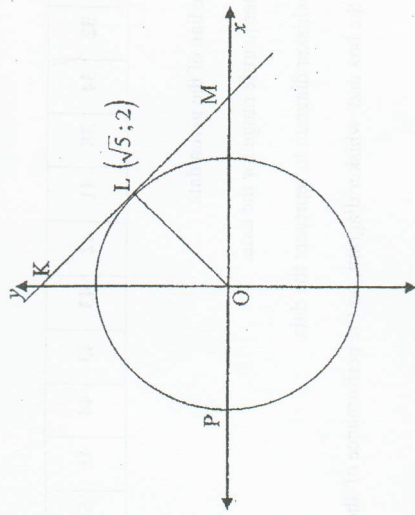


- 3.1 Determine the size of  $\theta$ . (3)
- 3.2 Show that  $p = -2$ . (3)
- 3.3 Calculate the coordinates of  $M$ , the midpoint of  $AC$ . (3)
- 3.4 Determine the equation of a circle, with centre  $M$ , and passes through the points  $A$  and  $C$ . Write your answer in the form  $y = (x - a)^2 + (y - b)^2 = r^2$ . (3)
- 3.5 Hence, determine the co-ordinates of  $D$  if  $ABCD$  is a rectangle. (3)
- 3.6 Determine the length of  $AB$  (give the answer in surd form). (2)
- 3.7 Hence, prove analytically that  $ABCD$  is a square. (3)

[20]

**QUESTION 4**

In the diagram below, a circle with centre  $O$  at the origin, cuts the  $x$ -axis at  $P$  and passes through  $L(\sqrt{5}; 2)$ . The tangent to the circle at  $L$  intersects the  $y$ -axis at  $K$  and the  $x$ -axis at  $M$ .



- 4.1.1 Determine the equation of the circle. (2)
- 4.1.2 Write down the co-ordinates of  $P$ . (2)
- 4.1.3 Calculate the gradient of  $OL$ . (1)
- 4.1.4 Determine the equation of tangent  $KLM$ . (3)
- 4.2 Given circle  $x^2 - 2x + y^2 - 16y + 39 = 0$  with centre  $W$  and  $y$ -intercepts  $B(0; r)$  and  $C(0; t)$  where  $r < t$ .
  - 4.2.1 Calculate the values of  $r$  and  $t$ . (4)
  - 4.2.2 Show that the point  $E(2; 13)$  lies on the circumference of the circle. (2)
  - 4.2.3 Prove that points  $B$ ,  $W$  and  $E$  are collinear. (5)

[19]

**QUESTION 5**

5.1 If  $\cos 21^\circ = m$ , determine, without the use of a calculator, the value of the following in terms of  $m$ :

5.1.1  $\tan 21^\circ$  (3)

5.1.2  $\sin 66^\circ$  (4)

5.2 Simplify WITHOUT using a calculator:

5.2.1  $\frac{\cos(A - 360^\circ) \sin(-A)}{\tan A \cdot \cos 180^\circ}$  (4)

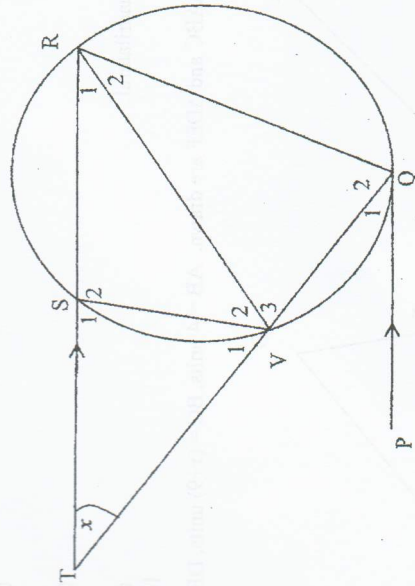
5.2.1  $\frac{\sin 10^\circ \cdot \cos 120^\circ}{\cos 80^\circ \cdot \sin 150^\circ}$  (4)

5.3 Prove the following identity:  $\frac{\sin 2x}{\sin x} - \frac{\cos 2x}{\cos x} = \frac{1}{\cos x}$  (4)

5.4 Determine the general solution of:  $\cos 2x - 4 \sin x + 5 = 0$ . (7)

[26]

9.1 In the diagram below, PQ is a tangent to the circle at Q. TSR is a line which cuts the circle at S such that  $\frac{TR}{PQ} = \frac{PQ}{QV}$ . Prove that  $\angle TSV = \angle RQV$ .



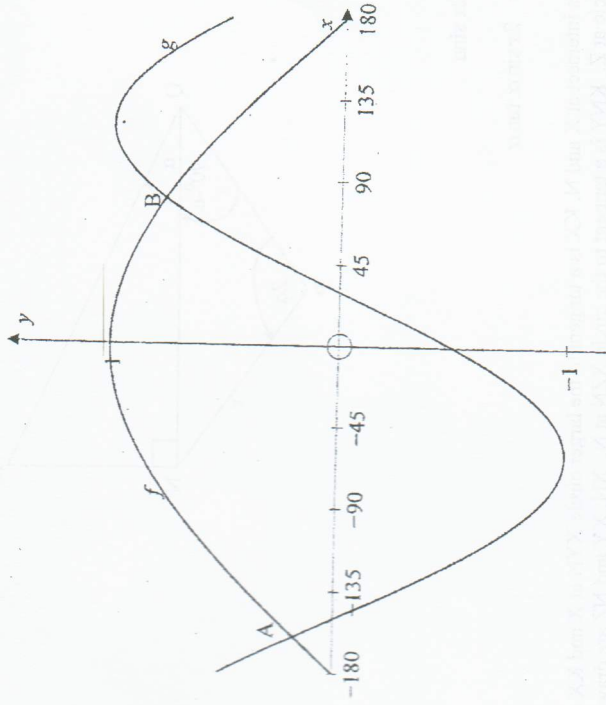
9.1.1 Write, down with reasons, TWO other angles each equal to  $x$ . (4)

9.1.2 Prove that  $\triangle TSV \sim \triangle RQV$ . (4)

9.1.3 Prove that  $TS \cdot TR = TV \cdot TO$ . (5)

$f(x) = \cos \frac{x}{2}$  and  $g(x) = \sin(x - 30^\circ)$  for  $x \in [-180^\circ; 180^\circ]$ .

The curves intersect at points A and B.



Determine:

6.1.1  $f(180^\circ) - g(180^\circ)$  (1)

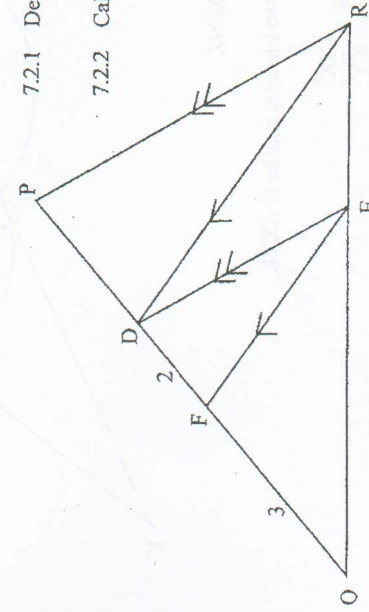
6.1.2 The co-ordinates of the points A and B. (7)

6.1.3 For which values of  $x$  is  $f(x) > g(x)$ ? (2)

7.2 In the diagram below,  $DE \parallel PR$ ,  $FE \parallel DR$ ,  $QF = 3$  cm,  $FD = 2$  cm.

7.2.1 Determine the value of  $\frac{OE}{QR}$ . (2)

7.2.2 Calculate the length of DP. (3)

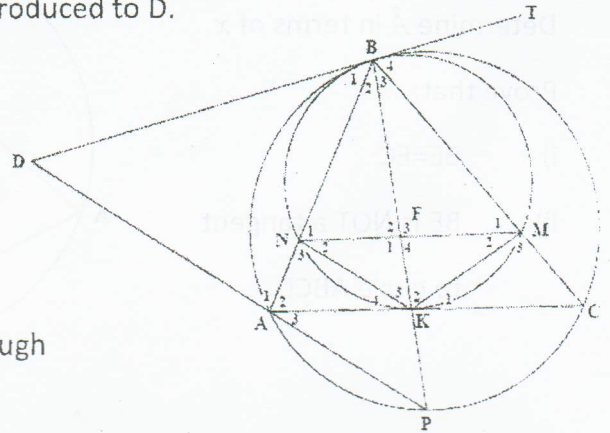




## MIXED EXERCISES

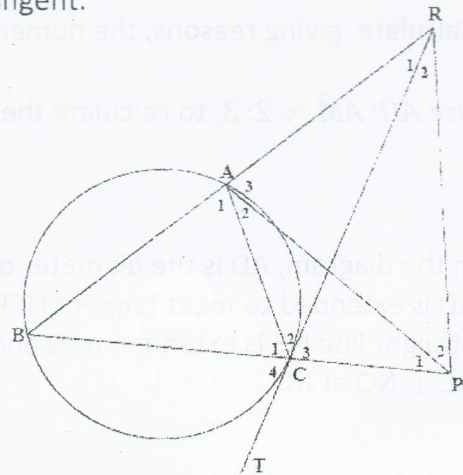
1. In the diagram, TBD is a tangent to circles BAPC and BNKM at B.  
 AKC is a chord of the larger circle and is also a tangent to the smaller circle at K.  
 Chords MN and BK intersect at F. PA is produced to D.  
 BMC, BNA and BFKP are straight lines.  
 Prove that:

- $MN \parallel CA$
- $\triangle KMN$  is isosceles
- $\frac{BK}{KP} = \frac{BM}{MC}$
- DA is a tangent to the circle passing through points A, B and K.



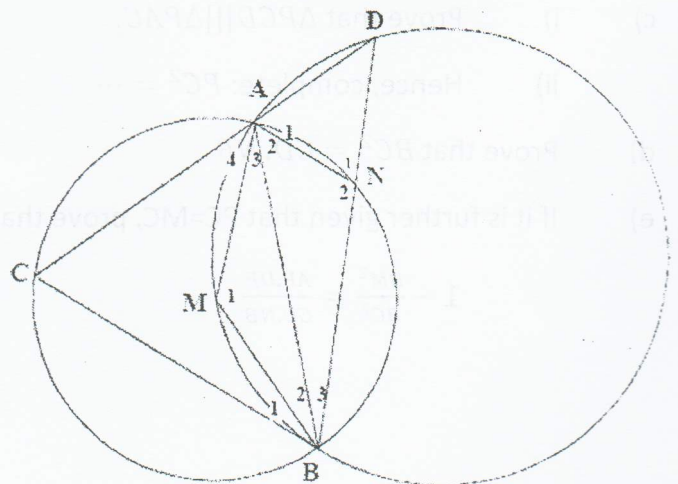
2. In the diagram below, chord BA and tangent TC of circle ABC are produced to meet at R.  
 BC is produced to P with  $RC=RP$ . AP is not a tangent.  
 Prove that:

- ACPR is a cyclic quadrilateral.
- $\triangle CBA \sim \triangle RPA$
- $RC = \frac{CB \cdot RA}{AC}$
- $RB \cdot AC = RC \cdot CB$
- Hence prove that  $RC^2 = RA \cdot RB$



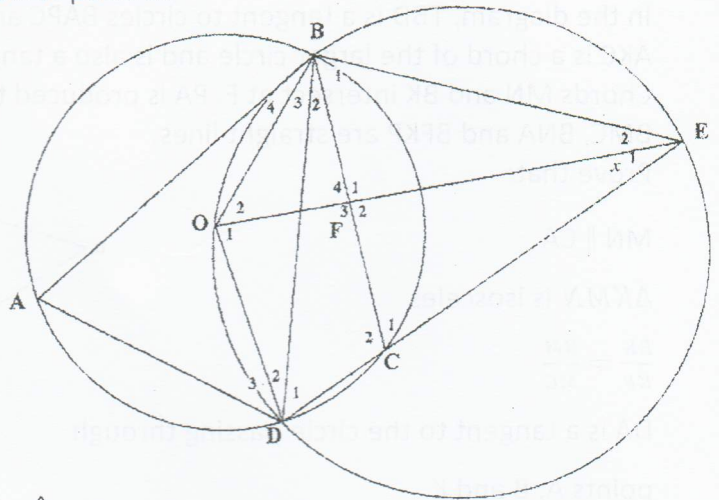
3. In the diagram alongside, circles ACBN and AMBD intersect at A and B.  
 CB is a tangent to the larger circle at B.  
 M is the centre of the smaller circle.  
 CAD and BND are straight lines.  
 Let  $\hat{A}_3 = x$

- Determine the size of  $\hat{D}$  in terms of  $x$ .
- Prove that:
  - $CB \parallel AN$
  - AB is a tangent to circle ADN.



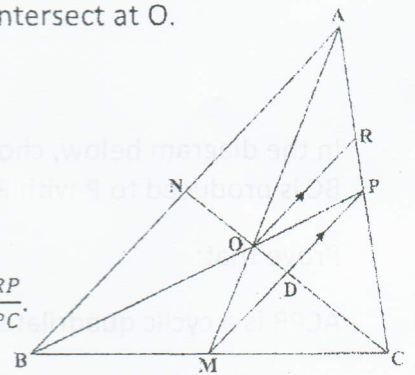
4. In the diagram below, O is the centre of circle ABCD.  
DC is extended to meet circle BODE at point E.  
OE cuts BC at F. Let  $\hat{E}_1 = x$ .

- a) Determine  $\hat{A}$  in terms of  $x$ .  
b) Prove that:  
i)  $BE=EC$   
ii) BE is NOT a tangent to circle ABCD.



5. In the diagram alongside, medians AM and CN of  $\triangle ABC$  intersect at O.  
BO is produced to meet AC at P.  
MP and CN intersect in D.  
 $OR \parallel MP$  with R on AC.

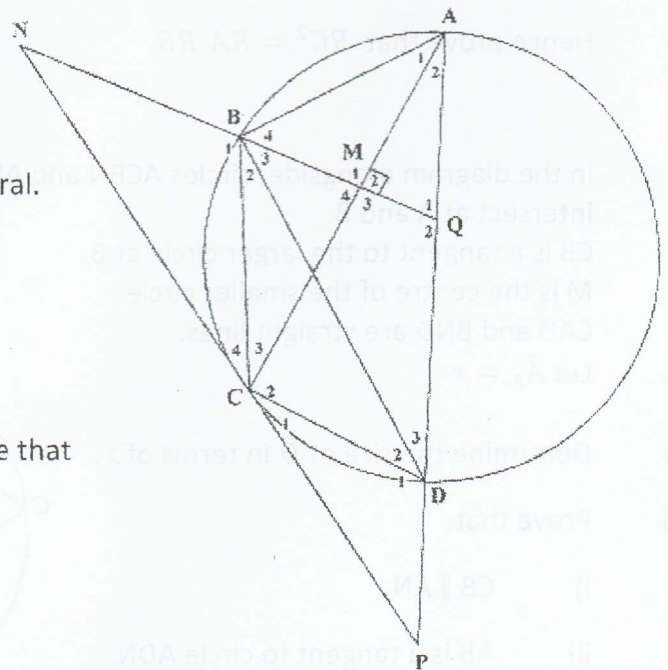
- a) Calculate, giving reasons, the numerical value of  $\frac{ND}{NC}$ .  
b) Use  $AO:AM = 2:3$ , to calculate the numerical value of  $\frac{RP}{PC}$ .



6. In the diagram, AD is the diameter of circle ABCD.  
AD is extended to meet tangent NCP in P.  
Straight line NB is extended to Q and intersect AC in M with Q on straight line ADP.  
 $AC \perp NQ$  at M.

- a) Prove that  $NQ \parallel CD$ .  
b) Prove that ANCQ is a cyclic quadrilateral.  
c) i) Prove that  $\triangle PCD \parallel \triangle PAC$ .  
ii) Hence, complete:  $PC^2 = \dots$   
d) Prove that  $BC^2 = CD \cdot NB$   
e) If it is further given that  $PC=MC$ , prove that

$$1 - \frac{BM^2}{BC^2} = \frac{AP \cdot DP}{CD \cdot NB}$$



**DURBAN GIRLS' HIGH**  
**GRADE 12**  
**TRIGONOMETRY TEST**  
**2 MAY 2013**

**MARKS: 50**

**EXAMINER: Ms S.BENIMADHO**

**TIME: 1 HOUR**

**MODERATOR: MRS PIENAAR**

**INSTRUCTIONS:**

1. All answers rounded to two decimal places, where necessary, unless stated otherwise.
2. Show ALL necessary working.

**QUESTION 1:**

Determine the value of  $\sin(\alpha - \beta)$ , **without** the use of a **calculator** and with the aid of a **diagram**, if  $13 \sin \beta + 12 = 0$ ;  $\beta \in [90^\circ; 270^\circ]$  and  $\cos \alpha = \frac{6}{7}$ ;  $\sin \alpha < 0$ .

[7]

**QUESTION 2:**

Simplify:

2.1 
$$\frac{\sin(90^\circ + \theta) \tan(180^\circ + \theta) \cos(\theta - 90^\circ)}{\tan 765^\circ \sin(-\theta)}$$

(7)

2.2 
$$\frac{\sin 6\theta}{\sin 2\theta} - \frac{\cos 6\theta}{\cos 2\theta}$$

(4)

[11]

**QUESTION 3:**

3.1 Prove:

$$\frac{1 - \cos 2\theta + \sin 2\theta}{1 + \cos 2\theta + \sin 2\theta} = \tan \theta$$

(5)

3.2 For which values of  $\theta$  is the identity below undefined?

$$\frac{1 - \cos 2\theta}{\sin 2\theta} = \tan \theta$$

(3)

[8]

**QUESTION 4:**

4.1 Determine the general solution of:  $\sin(3\theta + 30^\circ) = \cos 2\theta$

(5)

4.2 Solve for  $\theta$ :

(7)

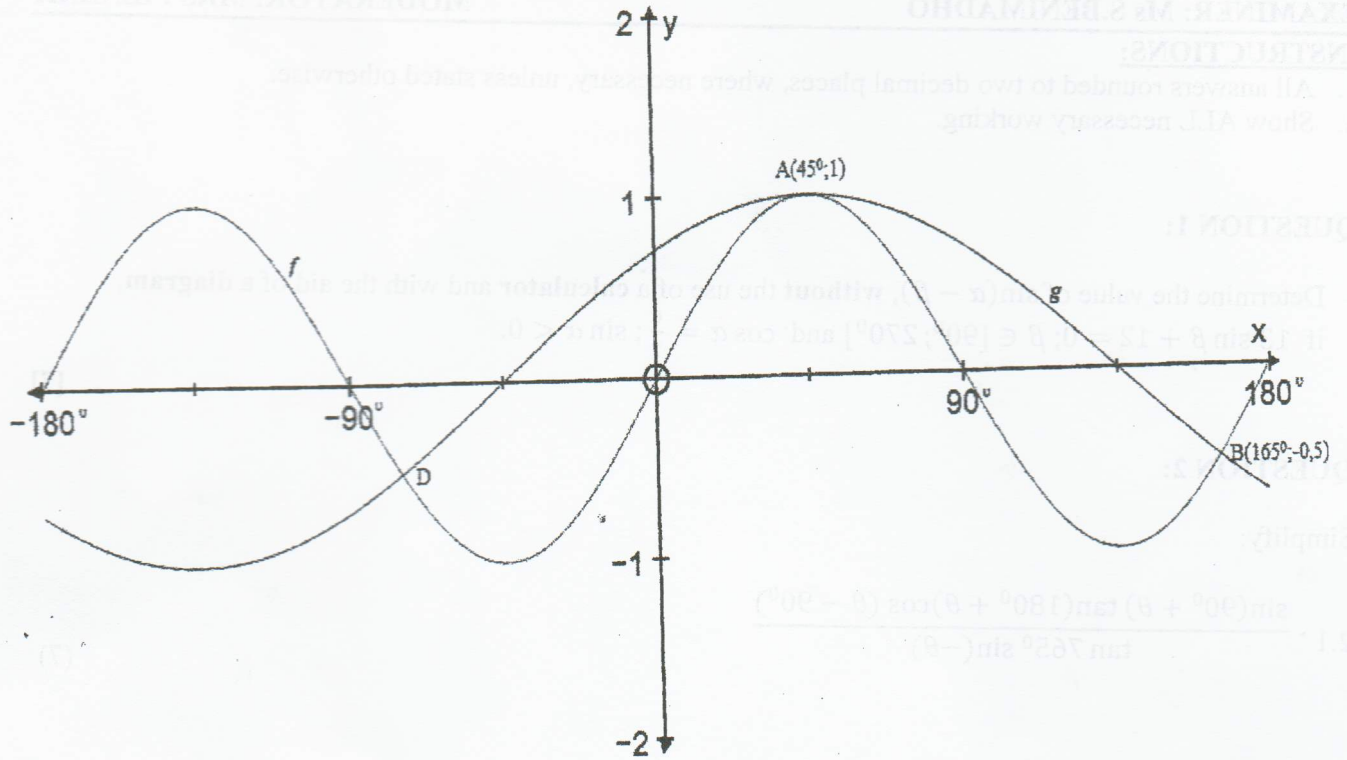
$$4 \cos^2 \theta - 2 \sin \theta \cos \theta - 1 = 0; \theta \in [-180^\circ; 180^\circ]$$

[12]

**QUESTION 5:**

The sketch below represents  $f(x) = \sin ax$  and  $g(x) = \cos(x + b)$ ;  $x \in [-180^\circ; 180^\circ]$

with  $A(45^\circ; 1)$  and  $B(165^\circ; -\frac{1}{2})$ .



5.1 Write down the values of  $a$  and  $b$ .

5.2 Determine the  $x$  co-ordinate of  $D$ .

5.3 For which value(s) of  $x$  is :  
 $f(x) \cdot g(x) > 0$

**QUESTION 6:**

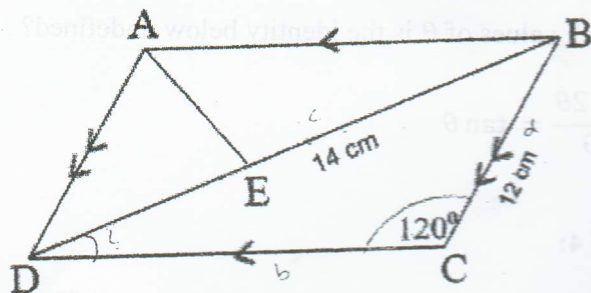
ABCD is a parallelogram with

$\widehat{BCD} = 120^\circ$ ,  $DB = 14$  cm,  $BC = 12$  cm

Calculate :

6.1  $\widehat{BDC}$

6.2 The area of  $\triangle BCD$



**TOTAL : 50**

## SEATIDES COMBINED SCHOOL

Y. BRIJLALL

### CONTENT TO WORK THROUGH DURING THE MARCH/APRIL HOLIDAYS

Learners are advised that they need to be engaged in constructive work during the extended, unplanned holiday due to the health crisis being faced internationally. As a result of the extended closure of schools, curriculum coverage may be impeded and it is advised that you work through the stipulated activities that follow and engage in research in preparation of Term 2 so as to ensure we are on track and use our time productively. The activities to be engaged with are compulsory and must be attempted before the new term commences in order to ensure a successful term.

#### GRADE 12 – INFORMATION TECHNOLOGY

##### **THEORY**

**Read the following sections and do all the activities where indicated (these will be checked in the new term):**

Systems Technology: Software – Cloud Computing **(Must do the activity)**

Systems Technology: Computer Management **(Must do the activity)**

Social Implications **(Must do all the activities in all modules)**

**All glossary terms and definitions in each section must be written in your notebooks.**

##### **EXAM PAPERS**

Work on the past papers for June, especially theory papers. Practical papers should be practised, you can leave out questions that require 2D arrays since we need to cover that in the new term, all other questions you should be able to work with.

##### **PAT**

Use your time to work on completing your PAT Phase 2. It is expected that your PAT is functioning by the time school begins. We will be working on fine-tuning and perfecting it during the term. Basic log in functionality, validation that is meaningful, and basic CRUD processes should be completed before school begins.

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**S.Gujraj**

**Grade 10/11- Geography Worksheet**

**Grade 12- Excel in Geography**

**Revision Activity- Activity 2.3 to Activity 2.11(Page 70-Page 77)**

## Accounting

### Work for the holidays

**1.) Grade 7(EMS)** –Read through Term 2 Unit 1 from Head start EMS (Textbook).

**Do the following activities:**

Act.1 Pg.59

Act.2 Pg.60

Act.4 Pg.63

**2.) Grade 9(EMS)** –New Era Accounting Textbook

Task 1.6

Task 1.7

Task 3.8(Only CPJ/CRJ)

**3.) Grade 10(Accounting)** –New Era Accounting Study Guide

Question 8 -15

**4.) Grade 11(Accounting)** –New Era Accounting Study Guide

Question 17/19

New Era Accounting Textbook

Question 13 -13.1/13.2/13.5/13.6/13.11/13.12

**5.) Grade 12 (Accounting)** NSC – Matric Support /Intervention book

Task C3 Pg.58

D2 Pg.66

F1 Pg.82

F2 Pg.85

F3 Pg.88

H2 Pg.94

H3 Pg.96

Work with past papers syllabus covered in Term 1(Companies)