

## MATHEMATICS N2 CLASS EXERCISE 1

### QUESTION 1

1.1 Solve the following equations:

1.1.1  $-x^2 + 3x - 2 = 0$  by factorisation (3)

1.1.2  $6(2 - m) - 5(4 - m) = 7$  (3)

1.2 Given: the formula  $p = \sqrt[3]{r^2 - q^2}$

1.2.1 Make '  $r$  ' the subject of the formula (3)

1.2.2 Calculate the value of '  $r$  ' if  $p = 4$  and  $q = 6$  (1)

1.3 Solve for '  $x$  ' and '  $y$  ' in the following simultaneous equations:

$5x = 6y + 3$  and  $3y - 4x + 1 = 0$  (4)

[14]

### QUESTION 2

2.1 A man deducted 3 from 5 times his age and got his grandmother's age.

If his grandmother is 97 years old, how old is the man? (2)

2.2 Given:  $4n^2 - 15n - 47 = 0$

Solve for '  $n$  ' the equation using the quadratic formula. (3)

2.3 Given:  $H = \frac{7,5U}{273 + V}$

2.3.1 Make '  $V$  ' the subject of the formula. (3)

2.3.2 Find the value of '  $V$  ' if  $U = 0,5$  and  $H = 0,005$  (1)

2.4 Given:  $8p - 1 = -2q$  and  $2p + 3q = 4$

Solve for '  $p$  ' and '  $q$  ' (4)

[13]

**TOTAL: 27 MARKS**

# N2 Mathematics Question Paper Memo

**ML Yell**

A decorative graphic element consisting of a light blue horizontal bar with a rounded right end, and a red circular glow behind it.

**N2 Mathematics Question Paper Memo:**

## Embracing the Beat of Appearance: An Psychological Symphony within **N2 Mathematics Question Paper Memo**

In a global consumed by displays and the ceaseless chatter of fast conversation, the melodic splendor and mental symphony produced by the published word often fade into the background, eclipsed by the persistent sound and disturbances that permeate our lives. However, set within the pages of **N2 Mathematics Question Paper Memo** an enchanting fictional treasure overflowing with natural feelings, lies an immersive symphony waiting to be embraced. Constructed by an outstanding composer of language, this captivating masterpiece conducts visitors on a mental journey, well unraveling the concealed songs and profound influence resonating within each cautiously constructed phrase. Within the depths with this touching analysis, we can explore the book is main harmonies, analyze their enthralling publishing model, and surrender ourselves to the profound resonance that echoes in the depths of readers souls.

[https://wwwnew.greenfirefarms.com/book/book-search/Documents/affordable\\_index\\_fund\\_investing\\_for\\_small\\_business\\_for\\_beginners.pdf](https://wwwnew.greenfirefarms.com/book/book-search/Documents/affordable_index_fund_investing_for_small_business_for_beginners.pdf)

### **Table of Contents N2 Mathematics Question Paper Memo**

1. Understanding the eBook N2 Mathematics Question Paper Memo
  - The Rise of Digital Reading N2 Mathematics Question Paper Memo
  - Advantages of eBooks Over Traditional Books
2. Identifying N2 Mathematics Question Paper Memo
  - Exploring Different Genres
  - Considering Fiction vs. Non-Fiction
  - Determining Your Reading Goals
3. Choosing the Right eBook Platform
  - Popular eBook Platforms
  - Features to Look for in an N2 Mathematics Question Paper Memo
  - User-Friendly Interface
4. Exploring eBook Recommendations from N2 Mathematics Question Paper Memo

- Personalized Recommendations
  - N2 Mathematics Question Paper Memo User Reviews and Ratings
  - N2 Mathematics Question Paper Memo and Bestseller Lists
5. Accessing N2 Mathematics Question Paper Memo Free and Paid eBooks
    - N2 Mathematics Question Paper Memo Public Domain eBooks
    - N2 Mathematics Question Paper Memo eBook Subscription Services
    - N2 Mathematics Question Paper Memo Budget-Friendly Options
  6. Navigating N2 Mathematics Question Paper Memo eBook Formats
    - ePub, PDF, MOBI, and More
    - N2 Mathematics Question Paper Memo Compatibility with Devices
    - N2 Mathematics Question Paper Memo Enhanced eBook Features
  7. Enhancing Your Reading Experience
    - Adjustable Fonts and Text Sizes of N2 Mathematics Question Paper Memo
    - Highlighting and Note-Taking N2 Mathematics Question Paper Memo
    - Interactive Elements N2 Mathematics Question Paper Memo
  8. Staying Engaged with N2 Mathematics Question Paper Memo
    - Joining Online Reading Communities
    - Participating in Virtual Book Clubs
    - Following Authors and Publishers N2 Mathematics Question Paper Memo
  9. Balancing eBooks and Physical Books N2 Mathematics Question Paper Memo
    - Benefits of a Digital Library
    - Creating a Diverse Reading Collection N2 Mathematics Question Paper Memo
  10. Overcoming Reading Challenges
    - Dealing with Digital Eye Strain
    - Minimizing Distractions
    - Managing Screen Time
  11. Cultivating a Reading Routine N2 Mathematics Question Paper Memo
    - Setting Reading Goals N2 Mathematics Question Paper Memo
    - Carving Out Dedicated Reading Time
  12. Sourcing Reliable Information of N2 Mathematics Question Paper Memo

- Fact-Checking eBook Content of N2 Mathematics Question Paper Memo
  - Distinguishing Credible Sources
13. Promoting Lifelong Learning
- Utilizing eBooks for Skill Development
  - Exploring Educational eBooks
14. Embracing eBook Trends
- Integration of Multimedia Elements
  - Interactive and Gamified eBooks

## **N2 Mathematics Question Paper Memo Introduction**

Free PDF Books and Manuals for Download: Unlocking Knowledge at Your Fingertips In today's fast-paced digital age, obtaining valuable knowledge has become easier than ever. Thanks to the internet, a vast array of books and manuals are now available for free download in PDF format. Whether you are a student, professional, or simply an avid reader, this treasure trove of downloadable resources offers a wealth of information, conveniently accessible anytime, anywhere. The advent of online libraries and platforms dedicated to sharing knowledge has revolutionized the way we consume information. No longer confined to physical libraries or bookstores, readers can now access an extensive collection of digital books and manuals with just a few clicks. These resources, available in PDF, Microsoft Word, and PowerPoint formats, cater to a wide range of interests, including literature, technology, science, history, and much more. One notable platform where you can explore and download free N2 Mathematics Question Paper Memo PDF books and manuals is the internet's largest free library. Hosted online, this catalog compiles a vast assortment of documents, making it a veritable goldmine of knowledge. With its easy-to-use website interface and customizable PDF generator, this platform offers a user-friendly experience, allowing individuals to effortlessly navigate and access the information they seek. The availability of free PDF books and manuals on this platform demonstrates its commitment to democratizing education and empowering individuals with the tools needed to succeed in their chosen fields. It allows anyone, regardless of their background or financial limitations, to expand their horizons and gain insights from experts in various disciplines. One of the most significant advantages of downloading PDF books and manuals lies in their portability. Unlike physical copies, digital books can be stored and carried on a single device, such as a tablet or smartphone, saving valuable space and weight. This convenience makes it possible for readers to have their entire library at their fingertips, whether they are commuting, traveling, or simply enjoying a lazy afternoon at home. Additionally, digital files are easily searchable, enabling readers to locate specific information within seconds. With a few keystrokes, users can search for keywords, topics, or phrases, making research and finding relevant

information a breeze. This efficiency saves time and effort, streamlining the learning process and allowing individuals to focus on extracting the information they need. Furthermore, the availability of free PDF books and manuals fosters a culture of continuous learning. By removing financial barriers, more people can access educational resources and pursue lifelong learning, contributing to personal growth and professional development. This democratization of knowledge promotes intellectual curiosity and empowers individuals to become lifelong learners, promoting progress and innovation in various fields. It is worth noting that while accessing free N2 Mathematics Question Paper Memo PDF books and manuals is convenient and cost-effective, it is vital to respect copyright laws and intellectual property rights. Platforms offering free downloads often operate within legal boundaries, ensuring that the materials they provide are either in the public domain or authorized for distribution. By adhering to copyright laws, users can enjoy the benefits of free access to knowledge while supporting the authors and publishers who make these resources available. In conclusion, the availability of N2 Mathematics Question Paper Memo free PDF books and manuals for download has revolutionized the way we access and consume knowledge. With just a few clicks, individuals can explore a vast collection of resources across different disciplines, all free of charge. This accessibility empowers individuals to become lifelong learners, contributing to personal growth, professional development, and the advancement of society as a whole. So why not unlock a world of knowledge today? Start exploring the vast sea of free PDF books and manuals waiting to be discovered right at your fingertips.

### **FAQs About N2 Mathematics Question Paper Memo Books**

How do I know which eBook platform is the best for me? Finding the best eBook platform depends on your reading preferences and device compatibility. Research different platforms, read user reviews, and explore their features before making a choice. Are free eBooks of good quality? Yes, many reputable platforms offer high-quality free eBooks, including classics and public domain works. However, make sure to verify the source to ensure the eBook credibility. Can I read eBooks without an eReader? Absolutely! Most eBook platforms offer web-based readers or mobile apps that allow you to read eBooks on your computer, tablet, or smartphone. How do I avoid digital eye strain while reading eBooks? To prevent digital eye strain, take regular breaks, adjust the font size and background color, and ensure proper lighting while reading eBooks. What the advantage of interactive eBooks? Interactive eBooks incorporate multimedia elements, quizzes, and activities, enhancing the reader engagement and providing a more immersive learning experience. N2 Mathematics Question Paper Memo is one of the best book in our library for free trial. We provide copy of N2 Mathematics Question Paper Memo in digital format, so the resources that you find are reliable. There are also many Ebooks of related with N2 Mathematics Question Paper Memo. Where to download N2 Mathematics Question Paper Memo online for free? Are you looking for N2

Mathematics Question Paper Memo PDF? This is definitely going to save you time and cash in something you should think about.

### **Find N2 Mathematics Question Paper Memo :**

**affordable index fund investing for small business for beginners**

what is minimalist lifestyle for students for students

**quick gut health foods for small business for workers**

*best way to capsule wardrobe explained for beginners*

top method for matcha health benefits step plan for creators

*how to start blog post ideas for students for students*

~~ultimate content marketing strategy for small business for creators~~

*ultimate anti inflammatory diet for moms for students*

simple content marketing strategy full tutorial for beginners

how to pilates for beginners step plan for creators

*easy capsule wardrobe for small business for beginners*

how to start sleep hygiene tips step plan

beginner friendly anti inflammatory diet for creators for experts

how to use gut health foods 2025 for workers

**quick gut health foods for moms for beginners**

### **N2 Mathematics Question Paper Memo :**

pearson science 8 teacher companion amazon com au - Feb 27 2023

web pearson science 8 teacher companion manners rochelle clarke warrick devlin jacinta instead greg parsons malcolm

spenceley maggie on amazon com au free shipping on eligible orders pearson science 8 teacher companion

**pearson science 8 activity book second edition - Jul 03 2023**

web science which has been adopted throughout the nation this edition also captures the coverage of science curricula in

states such as victoria which have tailored the australian curriculum slightly for their students the pearson science 2nd

edition features a more explicit coverage of the curriculum the activities enable flexibility

**pearson science 8 activity book 2nd edition booktopia - May 01 2023**

web nov 11 2016 booktopia has pearson science 8 activity book 2nd edition australian curriculum by greg rickard buy a discounted paperback of pearson science 8 online from australia s leading online bookstore

**pearsonplus pearson us** - May 21 2022

web pearson offers students instant access to their etextbooks videos and study tools all in one place with easy access through a subscription or their mylab or mastering course its intuitive interface enhanced search audiobook highlights and notes allow them to choose how they learn best

*table of contents teacher superstore* - Mar 31 2023

web pearson science 2nd edition teacher companion the teacher companion makes lesson preparation easy by combining full colour student book pages with teaching strategies ideas for class activities and fully worked solutions all of the activity book pages are also included and are complete with model answers pearson science lightbook starter

*year8pearsonscience* - Dec 28 2022

web book pearson science oct 27 2022 pearson science covers the three strands of science inquiry skills science as a human endeavour and science understanding with both interactive multimedia and books to engage students and teachers pearson science jun 03 2023 the pearson science teacher companion for year 10 makes lesson

**interactive science grade 8 vol 2 teacher edition goodreads** - Apr 19 2022

web jan 1 2015 pearson texas 0 00 0 ratings0 reviews in this series i have the two teacher editions study guide and lab manual cover has west texas plume agate on front hardcover published january 1 2015

**amazon com au pearson science 8** - Oct 26 2022

web hardcover 3159 42 99 free delivery by amazon only 5 left in stock more on the way ages 9 12 years from publishers other format audible audiobook

pearson science 8 teacher companion second edition - Sep 05 2023

web pearson science 8 teacher companion second edition makes lesson preparation and implementation easy by combining full student book pages with a wealth of teacher support availability available usually dispatched in 7 10 business days isbn 9781488615146 brand publisher pearson categories australian curriculum science

pearson science 8 teacher companion booktopia - Sep 24 2022

web booktopia has pearson science 8 teacher companion 2nd edition by rochelle manners buy a discounted paperback of pearson science 8 teacher companion online from australia s leading online bookstore

**pearson science 8 teacher companion dymocks** - Nov 26 2022

web mar 2 2017 the pearson science teacher companion make lesson preparation and implementation easy by combining full student book pages with a wealth of teacher support edition 2 publisher pearson education australia isbn

9781488615146 format paperback category ecommerce education

pearson science 8 activity book second edition teacher - Jun 02 2023

web pearson science 8 activity book second edition pearson the pearson science second edition activity book is a write in resource designed to develop and consolidate students knowledge and understanding of science

pearson science 8 second edition teacher superstore - Aug 04 2023

web pearson science 8 second edition pearson science second edition retains all the much loved features of the market leading first edition with improved updated content and a brand new digital offering to make assessment and tracking of individual and class progress simple

**int esws at y8 ap sb answers ttp pearson** - Feb 15 2022

web 8 a it dissolves in lipids fats b avocado because it contains the most fat lipid 9 students own responses possibly using adjectives to add weight using powerful verbs and not using all of the evidence in the table for example not mentioning that rice contains much less fibre than avocados 8ab 8 the work of food scientists

pearson science 8 booktopia - Jun 21 2022

web pearson science 8 this product contains 1 copy of pearson science 8 student book and access to the ebook retaining the market leading inquiry approach to science learning with new and updated content informed by feedback from users of

**pearson science 8 student book with ebook booktopia** - Aug 24 2022

web nov 22 2016 father s day delivery this product contains 1 copy of pearson science 8 student book and access to the ebook retaining the market leading inquiry approach to science learning with new and updated content informed by feedback from users of the first edition reader is the home of your ebooks

year 8 student book with ebook print digital teacher superstore - Mar 19 2022

web part of the series pearson science year 8 view all products in this series this pack contains 1 copy of the pearson science 8 student book and access to the ebook retaining the market leading inquiry approach to science learning with new and updated content informed by feedback from users of the first edition updated with explicit differentiation

*pearson science 8 ebook 2nd edition digital sequelbooks* - Jul 23 2022

web pearson science 8 ebook 2nd edition digital clarke devlin linstead parsons spenceley

**table of contents pearson** - Jan 29 2023

web vi pears science 7 2d editi teacher compai pearson science 2nd edition teacher companion the teacher companion makes lesson preparation easy by combining full colour student book pages with teaching strategies ideas for class activities and fully worked solutions all of the activity book pages are also included and are

*pearson science 7 10 2nd edition* - Oct 06 2023

web overview pearson science 7 10 2nd edition aligns with the national and victorian science curriculum this latest edition has had a thorough literacy review focusing on accessibility for learners and has been designed to encourage students to see a relationship between science and their everyday lives year levels 7 10

**terex crane ac160 ac200 operating manual** - Aug 20 2022

terex crane ac160 ac200 operating manual size 4 74 mb format pdf language english deutsch brand terex type of document operating manual model terex

*terex crane ac160 2 operation manual servicepartmanuals com* - May 29 2023

terex crane ac160 2 operation manual size 478 mb format pdf language english deutsch russian brand terex type of document technical training operation manual model terex demag ac160 2 all terrain crane contents ac160 2 operation lubrication manual deutsch 83156de ac160 2 operation lubrication manual en 83156en

terex demag ac 160 1 specifications cranemarket - Mar 27 2023

terex demag ac 160 1 cranes hoists material handlers all terrain cranes no longer in production the terex demag ac 160 1 is 5 axle all terrain crane tadano acquired the demag line from terex an updated version of ths model crane the ac 160 5 in no available for sale from authorized dealers such as renegar driggers

terex crane ac160 ac200 operating manual auto repair manual - May 17 2022

jun 17 2020 terex crane ac160 ac200 operating manual size 4 74 mb format pdf language english deutsch brand terex type of document operating manual model terex

terex user manuals download manualslib - Oct 02 2023

manualslib has more than 1502 terex manuals operator s manual supplement operator s manual maintenance manual service and repair manual maintenance manual maintenance manual

**terex ac160 2 crane original service instructions manual** - Apr 15 2022

aug 19 2020 terex ac160 2 crane original service instructions manual size 18 3 mb language spanish type pdf password extract autorepairmanuals ws pages 884

**telescopic mobile crane terex cranes pdf catalogs** - Jul 31 2023

ratings are in compliance with iso4305 and din 15019 2 test load 1 25 x suspended load 0 1 x dead weight of boom head weight of hook blocks and slings is part of the load and is to be deducted from the capacity ratings consult operation manual for further details

terex crane ac160 2 operation service maintenance manual - Sep 20 2022

terex crane ac160 2 operation manual size 478 mb format pdf language english deutsch russian brand terex type of document technical training operation manual model terex demag ac160 2 all terrain crane contents ac160 2 operation

lubrication manual deutsch 83156de ac160 2 operation lubrication manual en 83156en

[terex demag mobile crane ac160 1 180 ton technical manual operator](#) - Nov 22 2022

terex demag mobile crane ac160 1 180 ton technical manual operator manual and schematic size 169mb format pdf language english brand terex type of machine mobile crane type of document technical manual operator manual hydraulic electric pneumatics schematic drawings model ac160 1 180 ton

**ac 160 1 crane network** - Jan 25 2023

ac 160 1 2 ac 160 1 terex cranes com 4 0 t counterweight carried on the crane giving just 12 t axle load 64 m main boom and optional 9 m to 33 m boom extension state of the art engine and transmission ensure high travel comfort speed dependent rear axle steering for increased manoeuvrability and driving stability innovative demag ic 1

[freecranespecs com terex demag ac 160 2 crane specifications](#) - Dec 24 2022

liebherr works together lrt 1100 2 1 crane helps assemble liebherr t 264 mining truck all adds 11 new liebherr ats crane specification search result for manufacturer terex demag and model ac 160 2

[terex crane ac160 1 operation manual servicepartmanuals com](#) - Jul 19 2022

terex crane ac160 1 operation manual size 119 mb format pdf language english deutsch russian brand terex type of document operation training model terex

**terex demag mobile crawler crane part manual and service manual** - Jun 17 2022

type part manual operator maintenance manual service manual language english ru de os all windows android ios format pdf brand terex demag amount of disks pdf file instant download after payment no waiting high speed download link models

**terex ac 160 crane operator manual download only** - Oct 22 2022

crane terex ac 160 crane operator manual h2opalermo itread online terex ac 160 crane operator manual file type terex ac 160 crane operator manual file type however the baby book in soft file will be as a consequence simple to open every time you can take it into the gadget or computer unit so you can

[terex ac 160 2 specifications cranemarket](#) - Feb 23 2023

no longer in production the terex ac 160 2 all terrain crane is a very compact 5 axle crane with a carrier length of just 12 3 m includes a 64 m main boom and optional 9 m to 33 m boom extension state of the art engines and transmission ensure high travel comfort

*terex demag mobile crane ac160 2 180 ton technical manual operator manual* - Apr 27 2023

terex demag mobile crane ac160 2 180 ton technical manual operator manual size 103mb format pdf language english brand terex type of machine mobile crane type of document technical manual operator manual hydraulic electric pneumatics schematic drawings model ac160 2 180 ton

[terex tl160 operating manual pdf download manualslib](#) - Feb 11 2022

view and download terex tl160 operating manual online wheel loader tl160 compact loader pdf manual download also for tl160s

**terex crane ac160 1 operation manual auto repair manual** - Mar 15 2022

jun 17 2020 terex crane ac160 1 operation manual size 119 mb format pdf language english deutsch russian brand terex type of document operation training model

**terex crane manuals operator manual service repair** - Jun 29 2023

click below to select your model terex crane view factory original operator service repair electrical wiring diagram and parts catalog manuals for the terex crane if you re looking for factory manuals diy repair manuals is your online superstore click or call now

**terex demag ac 160 2 specifications cranemarket** - Sep 01 2023

terex demag ac 160 2 cranes hoists material handlers all terrain cranes the terex demag ac 160 2 all terrain crane has higher duties compared to its predecessor the ac 160 1 due to the optimized boom system this is a very compact 5

*the routledge handbook of instructed second language* - Dec 06 2022

web mar 25 2021 abstract this commentary discusses the issue of small samples in instructed second language acquisition research we discuss the current state of

*instructed second language acquisition and english language* - May 31 2022

web nov 11 2011 instructed second language acquisition shawn loewen shawn loewen loewens msu edu michigan state university usa search for more papers by

**pdf instructed second language acquisition introduction** - Jan 27 2022

web second language acquisition research is an academic discipline which includes studies related with the acquisition learning process of any language after first language

[interaction and instructed second language acquisition](#) - Jul 01 2022

web instructed second language acquisition literature review ellis principles professor rod ellis proposes ten principles of effective pedagogy for second language

**instructed second language acquisition loewen major** - Oct 24 2021

[introduction to instructed second language acquisition](#) - Feb 25 2022

web second language acquisition in a study abroad context a comparative investigation of the effects of study abroad and foreign language instruction on the l2 learner s grammatical

*instructed second language acquisition wiley online library* - Feb 08 2023

web dec 22 2019 abstract instructed second language acquisition isla is a subfield of second language acquisition sla that investigates any type of second language

**introduction to instructed second language acquisition** - Jan 07 2023

web the routledge handbook of instructed second language acquisition is the first collection of state of the art papers pertaining to instructed second language

**instructed second language acquisition a** - Aug 14 2023

web instructed second language acquisition 1 introduction the purpose of this literature review is to examine theory and research that has addressed what constitutes effective pedagogy for the acquisition of a second language l2 in a classroom  
pedagogy and research welcome to the learning languages - Apr 29 2022

web now in its second edition introduction to instructed second language acquisition continues to present a cohesive view of the different theoretical and pedagogical

**instructed second language acquisition a literature** - May 11 2023

web instructed second language acquisition a literature review publications publication details the purpose of this literature review is to examine theory and research that has

**instructed second language acquisition springer** - Mar 09 2023

web research on instructed second language acquisition isla is critical in helping provide answers to theoretical and pedagogical questions about second language l2

instructed second language acquisition equinox publishing - Apr 10 2023

web mar 4 2022 vol 7 no 1 2023 published 2023 05 30 editorial editorial alessandro benati elena nuzzo 1 2 pdf articles issues of narrowness and staticity in isla

**small samples in instructed second language acquisition** - Nov 05 2022

web this article examines the relationships between second language acquisition sla instructed second language acquisition isla and language teaching by examining

psycholinguistic approaches to instructed second language - Aug 02 2022

web nov 28 2018 abstract the relationship between instructed second language acquisition isla research on the one hand and english language teaching

**instructed second language acquisition wiley online library** - Sep 22 2021

*instructed second language acquisition isla an* - Oct 04 2022

web apr 5 2023 about this book this book applies a psycholinguistic perspective to instructed second language acquisition bridging the gap between research and

**[instructed second language acquisition springerlink](#)** - Jun 12 2023

web abstract the primary concern in instructed second language acquisition is how best to facilitate the development of a second or additional language however

**[instructed second language acquisition a literature](#)** - Jul 13 2023

web jan 1 2005 download citation on jan 1 2005 r ellis published instructed second language acquisition a literature review find read and cite all the research you

**[on second language acquisition research and](#)** - Nov 24 2021

web dec 22 2019 instructed second language acquisition is a subfield of second language acquisition that investigates any type of second language

**[investigating instructed second language acquisition de gruyter](#)** - Dec 26 2021

web nov 5 2012 instructed second language acquisition refers to the subfield of second language acquisition that investigates any type of second language

**[instructed second language acquisition research methods in](#)** - Mar 29 2022

web jan 1 2005 pdf on jan 1 2005 a housen and others published instructed second language acquisition introduction find read and cite all the research you need on

**[the relation of second language acquisition instructed second](#)** - Sep 03 2022

web jun 7 2018 interaction is an indispensable component in second language acquisition this review surveys the instructed research both classroom and laboratory