HOME-BASED LEARNING APPROACH AND STUDENTS' PERFORMANCE IN GRADE 7 MATHEMATICS

Refugio, Adrian G.; Maligro, Rowena N.; Zamoras, Manuel P.

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Home-Based Learning Approach and Students' Performance in Grade 7 Mathematics

Refugio, Adrian G.[1]; Maligro, Rowena N. [2]; Zamoras, Manuel P.[3]
[1]PSDS, [2]Master Teacher I, and [3]Teacher III, Division of Dipolog City
email: [1]adrian.refugio002 @deped.gov.ph; [2]rowena.maligro@deped.gov.ph, and
[3]manuel.zamoras001@deped.gov.ph
09631351305

Abstract

This study aimed to determine the students' performance in Grade 7 mathematics using a home-based learning approach. Galas National High School has developed a novel program for distance learning in which teachers will support students academically at home by explaining mathematical ideas and offering learning activities to ensure effective learning. A one-group pretest-posttest pre-experimental design was used, in which a home-based learning program in teaching mathematics was provided to the thirty (30) Grade VII students after the pretest. The study's findings revealed that the student's performance had a very low level of mastery before implementing the home-based learning approach in teaching mathematics. However, the performance of students after the implementation of the program is significantly improved, and it helps the students to enhance their interest in learning mathematics. There is a significant difference in students' performance before and after the implementation of the home-based learning approach in teaching mathematics. Hence, the home-based learning approach in teaching mathematics has positively influenced the learners' performance in mathematics. Thus, the researchers recommend using a home-based learning approach in teaching mathematics and consider adopting the proposed Mathematics Learning Program on distance learning.

Keywords: home-based learning approach; mathematics learning program; mathematics performance

Acknowledgment

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To the Research Panel for their valuable input and technical support provided during the development of the study.

To all of the Galas National High School mathematics teachers, thank you for your willingness, constant cooperation, and extended efforts in conducting a home-based learning approach to teaching mathematics.

To our stakeholders, thank you for your generosity in donating school supplies and other materials for the students to use during the implementation of a home-based learning approach in teaching mathematics.

To the selected Grade 7 students were thanked by our respondents for their cooperation and willingness to participate in the home-based learning and teaching program.

To the parents, for their boundless support of the school's innovation and for allowing their children to be a part of the home-based learning and teaching in mathematics. Their hospitality and positive response to the teachers who conducted the home-based learning and teaching program are greatly appreciated.

Above all, we are grateful to our Almighty Father for His favors, which have allowed us to conduct our research excellently.

Context and Rationale

The COVID–19 pandemic has afflicted the entire world, particularly the education sector. It cannot impede the continuity of learning among Filipino learners. The Department of Education (DepEd) sets a guideline based on the BE-LCP in this time of uncertainty to ensure continuity of learning without compromising the health, safety, and welfare of all teachers and students. This order ensures learning continuity amid the health constraints brought by the pandemic by adopting distance learning (DepEd Order No.18, s. 2020).

Sali (2020, 33) pointed out that distance education is the most viable and common educational approach adopted by schools and teachers worldwide during a health crisis. Educators have been trained and provided learning resources to help them understand the pedagogical approach, online learning delivery, digital learning, and possible educational technologies to support teaching and learning. Moreover, the Department of Education is adopting alternative learning measures to bridge the gap for learners through distance learning. The changes in the learning process at a secondary school during the pandemic are being felt by students and teachers, including parents who help their children respond to self-learning modules. Adapting to distance learning was a major challenge in the new normal as it was entirely new for most teachers and students. However, the school administration implemented strategies and interventions in the implementation of distance learning, which has helped students adapt better. Erfurth and Ridge (2020) claim that distance learning has become a solution to this unprecedented global pandemic, despite the challenges educators and learners face.

The study's results on distance learning indicate that there are issues that students, parents, teachers, and administrators must deal with when putting remote learning into practice. According to Fauzi and Khusuma (2020), teachers encounter difficulties with distance learning due to a lack of opportunities, limited internet connection, challenges with organizing, implementing, and evaluating lessons, and problems with parent collaboration. Furthermore, Rasmitadila et al. (2020) state that teachers face challenges in distance education, such as technical barriers, student conditioning, student participation in education, and online education experience. Consequently, schools and other educational institutions are adopting various learning interventions on distance learning to fill the learning gaps of learners due to the absence of face-to-face instruction, and one of these is the home-based learning approach.

A home-based learning approach means having a discussion of the lessons and learning materials at home. This context implies that the teacher implements the learning tasks and coaches and motivates the learner at home. This would help improve the learners' performance and reassure learning attainment in home settings. Barbarin et al. (2010) stated that academic and social/emotional skills are developed through home-based learning practices. According to research findings, one of the primary benefits of home-based learning is that it promotes independent, self-directed learning by allowing students to learn and review materials at their own pace (Martin-Chang and Levesque 2021, 121). The implementation of home-based learning and teaching has been perceived as an unstoppable change that teachers must adapt to, and it has further transformed the landscape of teaching and learning, particularly in mathematics, in the new normal.

The absence of face-to-face instructions for more than a year has a great impact on students' learning in mathematics. The usual discussions on mathematics, where the teacher explains the process of solving the mathematical problem, will no longer

occur in the new normal. According to the mathematics teacher, most of the students have experienced difficulty in answering the modules in distance learning modality because there are activities in the modules that do not have an answer. Based on the summary of summative assessments last School Year in Galas National High School, mathematics recorded the lowest performance of all subjects, with a mean percentage score of 62.13. With evidence from data and testimonies, the school implements a home-based learning approach to teaching mathematics as an innovation program in distance learning.

Thus, the study recommends a home-based learning approach in teaching mathematics to cater to learners who need assistance in acquiring numeracy skills, which are needed not only in the four walls of the classroom but also in the context of the real world, where students need to think and solve real-life problems to consequentially advance their performance in mathematics.

Innovation, Intervention, and Strategy

As an innovation for effective learning in this distance education during this pandemic, this research determined the students' performance using a home-based learning approach in teaching mathematics, most specifically in Grade VII. The home-based learning approach is a type of educational process that was used many years ago, but it is no longer a general practice as it once was. Due to the pandemic, the mathematics teacher taught the learners at home rather than having them physically in a classroom setting. This innovation is effective in the new normal in which students obtain learning from the teachers during the home-based learning and teaching method. As supported by Dsouza (2016), several families who set forth with a traditional homeschooling arrangement quickly transition to less formal and frequently more successful methods of education delivery.

The Galas National High School Mathematics Teachers will conduct and implement the home-based learning approach in teaching mathematics for the chosen Grade 7 students. In the selection of the learner respondents in this study, the exact addresses of the Grade 7 students were identified through the class advisers. With the proper observance of the health protocols, a pretest was administered to the Grade 7 learners after the approval of the barangay chairman. The thirty learners with very low scores were identified as the subject and respondents of the study. Orientation of the parents of the thirty students was conducted to ensure an improved comprehension of the study's objectives. In this approach, the teachers will personally visit the students in their homes to conduct home classes involving the operations of integers once a week in five sessions, and the students will be given worksheets containing exercises after each session. With a home-based learning approach, the students feel and experience a natural classroom setting with their teacher conducting an actual class. This intervention is highly beneficial, specifically to slow learners in improving their mathematics performance, even if it is done through distance learning.

This innovation requires the significance of teachers and parents in supporting and assisting the students to obtain the best possible learning. A home-based approach to teaching mathematics can be practical if parents support the program and are willing to support their students. Some quantitative studies have discovered that parental participation in education at home positively impacts students' achievement and that parents are involved in most of their students' educational needs and outcomes (Alameda-Lawson and Lawson 2018, 118; Wilder 2014, 377). Furthermore, other researchers have discovered persistent, favorable links between parents' domestic

involvement and kids' academic achievements (Alameda-Lawson and Lawson 2018, 118).

Action Research Questions

This study aimed to determine the students' performance in Grade 7 using the home-based learning approach in teaching mathematics.

Specifically, it sought answers to the following questions:

1. What is the performance of the students before the home-based learning approach in teaching mathematics?
2. What is the performance of the students after the home–based learning approach in teaching mathematics?
3. Is there a significant difference between the performance of the students before and after the home-based learning approach in teaching mathematics?
4. What Mathematics Learning Program on Distance Learning can be designed based on the findings of the study?

Action Research Methods

Research Design

This study used a one-group pretest-posttest pre-experimental design that applied an intervention to only one group. A one-group pretest-posttest design was implemented as an intervention or treatment for the subjects only in one group without a control group. The design involves administering a pretest to gauge the outcome variables or dependent variables, followed by the treatment, and then a posttest to gauge the result variables once more (Hatten and Ruhland 1995; Tuckman and Harper 2012).

Participants and/or other Sources of Data and Information

The subjects of this study are thirty (30) Grade 7 students of Galas National High School enrolled in SY 2021–2022 and residing in Barangay Galas, Dipolog City. With consideration of each student's profile and mathematical achievement, purposive sampling was employed in choosing the participants from among the students. With the approval of the barangay chairman and with strict observance of the health protocols, the researchers conducted the pretest on the students and selected the 30 students who got the lowest score in the test as the subject and respondents of the study.

Research Instruments

The researcher used a teacher-made multiple choice type of test in both the pretest and posttest concerning the concepts of operations on integers. It is a 15-item test that the content experts validated based on the competencies and Table of Specification.

Data Gathering Procedure

The researchers asked permission from the Office of the School Principal for consent to allow the researchers to conduct the study in the research environment. The researchers explained the nature and purpose of the study to the participants and sought consent from their parents and guardians.

The researchers sought the approval of the barangay chairman and ensured strict observance of the health protocols during the conduct of the pretest of the students. From the pretest scores, 30 learners who got the lowest score on the test were selected as the research participants.

With the full support of the mathematics teachers of Galas National High School as the implementers of the home-based learning approach in teaching mathematics, they conducted the test administration and a series of home class discussions. After administering the pretest to the respondents, a series of home-based learning activities were provided. After completing the four operations on integers, the posttest was given to the students. The results of the test were utilized to determine the performance of Grade 7 students before and after implementing home-based learning.

Data Analysis

This quantitative study employed statistical data analysis. Descriptive statistics such as mean, frequency, Mean Percentage Score (MPS), and standard deviation were utilized to describe the students' performance before and after implementing the home-based approach. Moreover, inferential statistics such as paired samples t-test was utilized in comparing and testing the difference between the learners' performance before and after the home-based approach was implemented in teaching Mathematics.

In determining the level of students' performance, the Mean Percentage Score (MPS) based on DepEd Memorandum No. 160, s. 2012 was utilized: 96 – 100% = Mastered; 86 – 95% = Closely Approximating Mastery; 66 – 85% = Moving Towards Mastery; 35 – 65% = Average; 15 – 34% = Low; 5-14% = Very Low; 0-4% =Absolutely No Mastery.

Results and Discussion

Level of Performance Before Home-Based Approach. Table 1 shows the performance of students before the home-based learning approach in teaching mathematics. The table revealed that the majority of the students obtained a score of 4 to 6, which is 15 out of 30 students. Eleven (11) students got a score of 0 to 3, four (4) students got a score of 7 to 9, and none of the respondents obtained a score from the range of 10 to 12 or 13 to 15, respectively, with a computed mean of 1.77 and an equivalent MPS of 12%. This MPS is descriptively interpreted as a Very Low level of mastery, which means that students' performance has little knowledge or lack prior knowledge on the topics in mathematics about operations of integers.

Table 1: Level of Students' Performance Before the Home-based Learning Approach in Teaching Mathematics

Pretest	Frequency					Mean	SD	MPS	Description
	0-3	4-6	7-9	10-12	13-15				
Before Home-Based Learning	11	15	4	-	-	1.77	0.68	12%	Very Low

Mean Percentage Score (DM 160, s. 2012): 96 – 100% = Mastered; 86 – 95% = Closely Approximating Mastery; 66 – 85% = Moving Towards Mastery; 35 – 65% = Average; 15 – 34% = Low; 5-14% = Very Low; 0-4% =Absolutely No Mastery

The present finding is supported by the study of Khashi'ie et al. 2017, which showed that a Lack of knowledge of fundamental mathematical concepts and principles could make it difficult to tackle many problems that require mathematics and significantly contribute to the poor performance of students. Students' prior knowledge of math concepts is a potential tool in early classroom assessment of students. According to Kurlaender and Howell (2012), learners with more extensive cademic readiness typically have more tremendous academic success and outcomes in higher education.

According to the National Research Council (2002), students can only learn mathematics effectively when they create their mathematical understanding, which necessitates that they study, represent, transform, solve, apply, prove, and communicate in order to do so.

Level of Performance After Home-Based Approach. Table 2 shows the students' performance on the posttest after the home-based learning approach in teaching mathematics. Out of 30 students, two (2) students got a score of 4 to 6, three (3) students obtained a score of 7 to 9, ten (10) students obtained a score of 10 to 12, and fifteen (15) students got a score of 13 to 15. After attending the home-based learning, the students obtained an average score of 4.27 with an equivalent Mean Percentage Score (MPS) of 28% in the posttest, which is interpreted as a Low Mastery Level. Thus, students' performance from the pretest to the posttest is substantially improved, as revealed by a net increase of 16% in MPS. Hence, home-based learning helped the students perform better during the posttest in mathematics concerning the operations of integers, and this led to an increase in the mean score compared to the pretest.

Table 2: Level of Students' Performance After the Home-based Learning Approach in Teaching Mathematics

Posttest	Frequency					Mean	SD	MPS	Description
	0-3	4-6	7-9	10-12	13-15				
After Home-Based Learning	-	2	3	10	15	4.27	0.91	28%	Low

Mean Percentage Score (DM 160, s. 2012): 96 – 100% = Mastered; 86 – 95% = Closely Approximating Mastery; 66 – 85% = Moving Towards Mastery; 35 – 65% = Average; 15 – 34% = Low; 5-14% = Very Low; 0-4% =Absolutely No Mastery

This outcome suggests that there is an improvement in students' performance after a series of interventions using a home-based learning approach in teaching mathematics. It further implies that home-based learning positively contributes to students' performance, and it has been shown to be effective for students in answering the posttest since they demonstrated their retention of learning in the subject matter.

This outcome is consistent and corroborated with the results of the study by Yu and Singh (2018, 81), which found that the assistance and guidance of the teacher influenced student mathematics performance and significantly impacted students' interest in learning mathematics. This finding is also supported and upheld by the study

of Reinheimer and McKenzie (2011, 22), which showed that tutoring had a substantial and continuing impact on students' retention and ability to perform positively in any form of evaluation.

Testing the Difference of Students' Performance Before and After Home-Based Approach. Table 3 presents the comparison and teating the difference between the students' performance before and after the home-based learning approach in teaching mathematics. The table demonstrates that there is a significant difference in the result of a student's score before and after the home-based learning. It is supported by the computed t value of 8.98 and the p value of 0.00. This means that there was a statiscal and significant difference in the students' performance before and after the implementation of the home-based learning approach in teaching mathematics. The null hypothesis was rejected. Based on the data presented, it is safe to conclude that the home-based learning approach in teaching mathematics is an effective innovation in distance education based on the data presented and has positively influenced the learning of mathematical concepts in distance learning.

Table 3: Testing the Difference of Students' Performance Before and After the Home-based Learning Approach in Teaching Mathematics

Variable	Mean		t value	p-value	Interpretation	Decision on the H_o
	Pretest	Posttest				
Home-Based Learning	1.77	4.27	8.98	0.00	With Significant Difference	Reject

Note: Significant at 0.05

The present finding was corroborated by Galindo and Sonnenschein (2015). The study reveals that home learning environments have a statistically significant influence how well public secondary school children perform in arithmetic, with better home learning environments being linked to better math performance among public secondary school students and vice versa. Moreover, the study of Mansor et al. (2021) revealed that the success of home-based teaching and learning depends on teachers' high level of readiness to identify and plan interventions to help students execute them. Thus, there should be regular monitoring and evaluation of the program to ensure the efficacy of the home-based learning approach in teaching mathematics.

Mathematics Learning Program on Distance Learning. Based on the findings of the study, the following Mathematics Learning Program on Distance Learning was designed. This learning program can be used as a model by other mathematics teachers of different schools so that the students' learning can be maximized in the implemetation of distance learning.

Table 4: Mathematics Learning Program on Distance Learning

Objectives	Activities	Strategies	Outcome	Responsible Persons	Budget/ Timeline
To determine the mathematics performance of students before the start of the 1st quarter.	• Prepare the pretest materials • Conduct pretest • Analyze the test results	• Create a School Evaluation and Assessment Committee to conduct and gather the pretest results • Involve the parents and other stakeholders during the preparation phase and the conduct of the pretest	• Test Materials • MPS	• Math Teachers • E&A Committee • Parents and Other Stakeholders	₱ 20,000.00 Source of Fund: MOOE and PTA Timeline: All Year Round
To identify the learners' respondents of the home-based learning approach in teaching mathematics.	• Determine the location of the learners' respondents of home-based learning program • Conduct an orientation of home-based learning and teaching program to the parent respondents and community stakeholders.	• Invite DepEd officials and LGU officials for the conduct of orientation and launching of the program • Engage the support of parents and other stakeholders of the homebased learning and teaching program in mathematics	• Learner's profile of the recipients of home-based learning approach in teaching mathematics • Attendance and MOU/ MOA	• DepEd Officials, LGU, School Principal, Department Head, Teachers, Parents and Other Stakeholders	₱ 5,000.00 Source of Fund: MOOE and PTA Timeline: Every Quarter
To conduct weekly home-based learning approach in teaching mathematics for the identified learners at their homes.	• Prepare the Learner's Activity Sheets • Conduct a home-based learning program in mathematics in the respective homes of the respondents	• Ensure the health and safety measures of teachers, learners, and parents by providing the health kits and adhering the IATF guidelines • Engage the support of the community and purok officials during the implementation of the home-based learning • Involve the parents/ guardians as learning partners in the implementation of home-based learning	• Learning Activity Sheets • Schedule of Home-Based Learning • MOA/MOU of community officials and learning partners	• Math Teachers • E&A Committee • Parents and Other Stakeholders	₱ 30,000.00 Source of Fund: MOOE and PTA Timeline: All Year Round
To conduct monitoring and evaluation of the home-based learning approach in teaching mathematics.	• Prepare the pretest materials • Conduct pretest • Analyze the test results	• Design a Monitoring and Evaluation, and Assessment tool for the home-based learning program in mathematics implementation	• M&E Evaluation Tools • Action Plan for the home-based learning	• Math Teachers • E&A Committee • Parents and Other Stakeholders	₱ 20,000.00 Source of Fund: MOOE and PTA Timeline: Every Quarter

		• Analyze the gathered data of improvement of the program	program in mathematics		
To determine the mathematics performance of students after the home-based learning approach in teaching mathematics.	• Prepare the pretest materials • Conduct posttest • Analyze the test results	• Ensure the health and safety measures of teachers, learners, and parents during the conduct of the posttest • Analyze the gathered data for improvement of the program • Design and plan interventions for the improvement of home-based learning program in mathematics	• Test Materials • MPS •	• Math Teachers • E&A Committee • Parents and Other Stakeholders	₱ 25,000.00 Source of Fund: MOOE and PTA Timeline: End of the 4th Quarter
To recognize the academic performance of the teachers, learners, parents and other stakeholders in the implementation of home-based learning program.	• Conduct awards and recognition to teachers, learners, parents, and other stakeholders in the implementation of home-based learning program	• Give rewards and incentives to the students, teachers, learning partners, and other stakeholders	• Programs, Plaque, and Certificates	• Math Teachers • E&A Committee • Parents and Other Stakeholders	₱ 20,000.00 Source of Fund: MOOE and PTA Timeline: End of the School Year

Conclusion and Recommendations

This study concludes that the home-based learning approach in teaching mathematics is a practical innovation in distance education, considering the students' higher scores after implementing the home-based learning that positively influenced the students' learning in mathematics. Based on the findings and conclusions, the researchers made the following suggested recommendations: (1) Home-based learning approach in teaching mathematics could be used as an innovative strategy in mathematics, especially in distance learning, because it will help improve the student's performance; (2) Teachers could be committed to and encourage their students to engage in home-based learning in order to facilitate a better knowledge and understanding of mathematical concepts and improve their mathematical skills; (3) The home-based learning approach in teaching mathematics could be improved and continued. It could also be done at other grade levels and in other subjects besides mathematics; (4) It is strongly recommended that all public secondary schools consider adopting the proposed Mathematics Learning Program on distance learning.

Action Plan

Strategies / Activities	Person(s) Responsible	Time Frame	Expected Output	Success Indicators
Planning and preparation	Mathematics Teachers and Target Respondents	August to October 2021	Test materials and learning activity sheets	100% of test materials and learning activity sheets are validated and subjected to quality assurance
Implementation of Intervention and Recommendation of the Study	Mathematics Teachers, Parents, and Students	All Year Round	Increased the performance of the students in mathematics using the home-based-learning program	90%- 100% of the targeted performance of the students was achieved
Monitor and evaluate the said intervention and recommendation	Math Department Head, School Head, EPS in Mathematics, and PSDS	All Year Round	Performance of Teachers in the Implementation of Home-based Learning Program	Enhanced strategies in teaching mathematics and learning process on distance learning

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Financial Report

MATERIALS / MOBILIZATION	ESTIMATED COST	
Purchased of Universal Ink in 4colors for printing	P 285 x 4 bottles	1,140.00
Bond paper for Printing of Pre-test and Post-test	P 190 x 2 reams	380.00
Bond paper for Printing of Math Graphic Organizer		
Printing of Action Research Manuscript (4 copies)		
Binding Materials		100.00
Transportation Expenses		2000.00
Other Miscellaneous Expenses		500.00
Total		**P 4,120.00**

Appendix A

Informed Assent Form

Title of the Study:
Home-Based Learning Approach and Students' Performance in Grade 7 Mathematics

Principal Investigators:
Refugio, Adrian G.; Maligro, Rowena N. ; and Zamoras, Manuel P.

I agree to participate in this study; I understand that the focus of the study is to document and analyze the effect of SSS as an aide in modular distance learning for students from families with low educational attainment.

1. **Confidentiality:** I understand that the information provided by this study may be used for research purposes, including publications in a research journal. All personal information, however, will be coded, and at no time will my personal identity be revealed.
2. **Voluntary participation:** The nature and purpose of the study has been explained to me. I understand that participation in this study is voluntary, and refusal to participate will involve no penalty or victimization. I may terminate my participation at any time I choose, without penalty. I understand that I may withdraw from participation at any time I choose without penalty. I understand that I may withdraw from participation at any point in the study with no penalty whatsoever.
3. **Termination of Participation:** My participation in this research may be terminated without my consent if the investigator believes that any part of the study may put me at undue risk. My participation may also be terminated if I do not adhere to the study protocol.
4. **Persons to contact with questions:** I understand that the principal investigator in this study is: _____**.** I also take note of the contact persons as indicated in the information leaflet that accompanied this letter which I will file for safekeeping and later reference.
5. **Consent to participation:** I certify that I have read all of the above and received satisfactory answers to any questions that I may have had. I, therefore, willingly give my consent to participate in the study. (I will be provided with a copy of this signed informed consent)

_____ _____
Parent's Signature Date

_____ _____
Participant's Signature Date

Zamboanga Peninsula

Appendix B

Research Instrument

Republic of the Philippines
Department of Education
REGION IX, ZAMBOANGA PENINSULA
SCHOOLS DIVISION OF DIPOLOG CITY
GALAS NATIONAL HIGH SCHOOL

Name: _____ Score: _____

Direction: Choice the best answer. Write the letter of your answer in the space provided before each item.

____ 1. What is the sum of – 35 and 27?
A. – 8 B. 7 C. – 62 D. 65

____ 2. If −17 is added to −23, what is the result?
A. 40 B. – 40 C. 6 D. – 6

____ 3. Which of the given pair of integers give a sum of – 7?
A. 1, –6 B. –1 , 6 C. –4 , –3 D. 7, 0

____ 4. What integers or number should be added to –7 to get 3?
A. 4 B. –4 C. –10 D. 10

____ 5. What is 6 – (–3) equal to?
A. 3 B. –9 C. –3 D. 9

____ 6. Which of the integers is the answer of **29 – 32**?
A. 61 B. –61 C. –3 D. 3

____ 7. What appropriate number to be placed in the blank in the given equation: **–7– (__) = 4**
A. 11 B. –11 C. 3 D. –3

____ 8. In multiplying –2, –7 and –10 will give us an answer of what integer?
A. –140 B. –34 C. 19 D. 90

____ 9. Which integer when multiplied to –1 will give a product of –42?
A. –41 B. –42 C. 41 D. 42

____ 10. What is the product of –19 (–1) equal to?
A. –19 B. –18 C. 19 D. 20

____ 11. If 16 divided by –3, what is the correct quotient?
A. –13 B. –6 C. 6 D. 13

____ 12. On dividing a negative integer by other negative integer, what would be the quotient?
A. Always positive C. Always negative
B. Either positive or negative D. Always equal to 1

____ 13. In the equation: **(–60) ÷ ____ = –1** , what is the correct number to be Placed in the blank?
A. –60 B. 6 C. 59 D. 60

____ 14. A soccer team is having a car wash. The team spent ₱ 75 on supplies. They earned ₱ 270, including tips. The team's profit is the amount the team made after paying for supplies. Write a sum of integers that represents the team's profit.

A. -75 + 270 = -195
C. -75 + (-270) = -345
B. 75 + 270 = 345
D. -75 + 270 = 195

____ 15. At 2pm, the temperature was 12 degrees. By midnight, the temperature dropped by 28 degrees. What is the temperature at midnight?

A. 40 degrees B. -40 degrees C. 16 degrees D. -16 degrees