MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE

O. M. BEKETOV NATIONAL UNIVERSITY
of URBAN ECONOMY in KHARKIV

Collection of tasks for control and independent works in mathematics

Part 1

Supplement to the textbook ‘Mathematics’

(for foreign students of the preparatory department of all specialities)

Kharkiv
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INTRODUCTION

Mathematics is a fundamental natural science discipline. The main purpose of teaching the discipline “Mathematics” at the Preparatory Department for Foreign Students is to prepare students for studying in higher education institutions of Ukraine.

The collection of independent and control works in Mathematics is an appendix to the textbook “Mathematics: Study Guide: For Foreign Students of the Preparatory Department” and contains tasks for independent and control works on the first section of the textbook – “Arithmetic”.

The collection contains 9 independent works for each of the lessons of the chapter and one final test for the chapter “Arithmetic” of the textbook “Mathematics: A Study Guide for Foreign Students of the Preparatory Department”. Each independent work and test consists of ten equivalent options.

INTRODUCTORY COURSE. ARITHMETICS

Independent work for the LESSON 1

on the topic “Numbers and figures”

The independent work is designed to test knowledge and skills of writing natural numbers in Ukrainian, determining to which numerical set a particular number belongs. The activity is designed to take 15-20 minutes.

Option 1

1. Write the numbers in numerals: twenty-two; one thousand three hundred and eight; six hundred and seventy-five; five million eleven; thirty thousand ninety-four.
2. Write out the odd numbers 132; 2 775; 3; 6 888 004; 755 111 from the given numbers.
3. Is seven thousand a single digit or a multi-digit number?
4. Is the number -300 an integer or a positive integer?
5. Write two-digit numbers from the numbers 3 478; 2; 85; 490; 38 576; 82; 90; 66 529; 11; 304; 2 985 476; 3; 22; 90; 9 473; 41; 777; 68.
6. Write the numbers in Ukrainian: 703; 2 000; 17; 13 009; 5 984.

Option 2

1. Write the numbers in numerals: twenty-one; one thousand three hundred and nine; six hundred and seventy-six; five million twelve; thirty thousand ninety-three.
2. Write out the even numbers 138; 2 765; 7; 6 898 005; 745 124.
3. Is eight thousand a single digit or a multi-digit number?
4. Is the number –400 an integer or a positive integer?
5. Write four-digit numbers from the numbers 3 479; 1; 87; 480; 39 576; 81; 99; 61 529; 15; 314; 2 995 471; 2; 82; 93; 9 463; 40; 778; 65.
6. Write the numbers in Ukrainian: 704; 5 000; 19; 12 005; 5 880.

Option 3

1. Write the numbers in numbers: thirty-four; one thousand eight hundred and ten; seven hundred and twenty-six; three million twenty; thirteen thousand forty-three.
2. From the numbers 138; 2 760; 7; 6 808 005; 145 104, write out the odd numbers.

3. Is eight a single digit or a multi-digit number?
4. Is the number –100 an integer or a positive integer?
5. Write three-digit numbers from the numbers 5 479; 8; 81; 280; 30 570; 811; 97; 21 529; 12; 312; 2 925 421; 2; 825; 9; 1 463; 41; 728; 62.
6. Write the numbers in Ukrainian: 702; 2 000; 29; 18 005; 2 880.

Option 4

1. Write the numbers in numerals: fifty-four; three thousand eight hundred; five hundred twenty-one; five million twenty-three; thirteen thousand three.
2. Write the even numbers 148; 2 460; 4; 6 408 007; 144 108.
3. Is seven a single digit or a multi-digit number?
4. Is the number zero an integer or a positive integer?
5. Write the single digits from the numbers 547; 5; 85; 250; 30 500; 511; 47; 20 529; 12; 310; 2 920 421; 999; 1 825; 10; 1 563; 51; 758; 33.
6. Write the numbers in Ukrainian: 752; 2 055; 69; 17 003; 4 890.

Option 5

1. Write the numbers in numbers: one hundred and four; two thousand eight hundred and forty; five hundred and twenty-one million; nine million three; eleven thousand seven.
2. From the numbers 343; 3,410; 7; 9,400,047; 124,708, write out the odd numbers.
3. Is 100 a single digit or a multi-digit number?
4. Is the number –51 an integer or a positive integer?
5. Write five-digit numbers from the numbers 597; 3; 83; 290; 30 900; 811; 57; 20 509; 13; 311; 8 910 420; 999; 9 826; 19; 1 573; 59; 558; 106.
6. Write the numbers in Ukrainian: 852; 3 050; 79; 27 004; 6 090.

Option 6

1. Write the numbers in digits: one hundred and ten; seven thousand eight hundred; nine hundred and thirty-two million; nine thousand; one hundred and eleven thousand eight.
2. From the given numbers 143; 1 410; 7; 9 409 047; 224 508 write out the even numbers.
3. Is 20 a single digit or a multi-digit number?
4. Is –1 an integer or a positive integer?
5. Write six-digit numbers from the numbers 597 000; 3; 83; 290; 350 900; 811; 57; 20 509; 13; 311; 6 910 422; 909; 9 826; 197; 1 570; 50; 5.
6. Write the numbers in Ukrainian: 352; 9 058; 71; 28 003; 7 095.

Option 7

1. Write the numbers in digits: two hundred and six; eight thousand one hundred; nine hundred and twenty-one million; ten thousand; one hundred and fifty thousand three.
2. From the numbers 144; 1 411; 22; 9 409 040; 224 509 write out the odd numbers.
3. Is 30 a single digit or a multi-digit number?
4. Is the number –11 an integer or a positive integer?
5. Write three-digit numbers from the numbers 59 000; 5; 80; 294; 350 977; 810; 58; 20 505; 14; 316; 6 910 429; 90; 9 827; 497; 8 570; 59.
6. Write the numbers in Ukrainian: 852; 7 050; 76; 38 001; 4 095.

Option 8

1. Write the numbers in numbers: twenty-six; one hundred eight thousand one hundred; nine hundred twenty; ten thousand six; one hundred seven million three.
2. From the given numbers 554; 1 411; 23; 9 409 040; 24 506 write out even numbers.
3. Is 800 a single digit or a multi-digit number?
4. Is the number –31 an integer or a positive integer?
5. Write two-digit numbers from the numbers 59 080; 58; 10; 290; 350 974; 310; 38; 20 500; 17; 306; 6 917 429; 97; 9 820; 492; 8 370; 19.
6. Write the numbers in Ukrainian: 752; 9 550; 26; 18 001; 8 093.

Option 9

1. Write the numbers in digits: twenty; one hundred and eight three thousand one hundred and one; nine hundred and seventeen; six thousand twelve; one hundred million four.
2. From the numbers 354; 1 001; 27; 9 000 040; 4 508 write out the odd numbers.
3. Is 90 a single digit or a multi-digit number?
4. Is the number –4 an integer or a positive integer?
5. Write four-digit numbers from the numbers 59 082; 53; 190; 2 550; 350 900; 3 133; 38; 20 509; 18; 306; 6 919 420; 99; 9 821; 491; 1 370; 15.
6. Write the numbers in Ukrainian: 762; 9 780; 36; 28 005; 9 013.

Option 10

1. Write the numbers in numbers: eleven; four hundred and one thousand one hundred and one; five hundred and two; seven thousand twenty; one hundred and three million one.
2. From the given numbers 754; 6 001; 67; 6 000 060; 8 501 write out even numbers.
3. Is 220 a single digit or a multi-digit number?
4. Is the number –4 076 an integer or a positive integer?
5. Write out the single digits of 9 082; 63; 198; 6 550; 850 900; 44 133; 3; 23 509; 1; 300; 1 919 420; 9; 9 820; 791; 8 370; 35.
6. Write the numbers in Ukrainian: 860; 10 784; 37; 20 006; 2 012.

Independent work for the LESSON 2

on the topic "Mathematical signs"

The independent work is designed to test knowledge and skills in writing mathematical signs and expressions in Ukrainian. The work is designed to take 15-20 minutes.

Option 1

1. Write the following mathematical expressions in Ukrainian:

a) $3+2=5$; b) $7>2$; c) $11-4=7$; d) $1<5$; e) $3\cdot5=15$.

2. Write the phrases using numbers and mathematical signs:

a) thirty-one plus two is thirty-three;

b) twenty-eight minus eight equals twenty;

c) open the parenthesis, divide ten plus eight by two, close the parenthesis, multiply by four, and you have fifty-six;

d) one hundred and sixteen is more than one hundred and eleven.

Option 2

1. Write the mathematical expressions in Ukrainian:

a) $13+12=25$; b) $8>3$; c) $14-4=10$; d) $0<56$; e) $13\cdot5=65$.

2. Write the phrases using numbers and mathematical signs:

a) thirty-two plus three is thirty-five;

b) twenty-seven minus eight equals nineteen;

c) open the parenthesis, divide eleven plus seven by seven, close the parenthesis, multiply by two, and you have twenty-four;

d) one hundred and twelve is more than one hundred and ten.

Option 3

1. Write the mathematical expressions in Ukrainian:

a) $7+2=9$; b) $9>2$; c) $14-7=7$; d) $1<90$; e) $3\cdot 6=18$.

2. Write the phrases using numbers and mathematical signs:

a) thirty-four plus seven is forty-one;

b) forty-eight minus six equals forty-two;

c) open the parenthesis, divide ten minus twelve by two, close the parenthesis, multiply by three, and you have forty-eight;

d) two hundred and sixteen is more than thirty-one.

Option 4

1. Write the mathematical expressions in Ukrainian:

a) $30:3=10$; b) $17>9$; c) $65-9=56$; d) $4<19$; e) $14\cdot 9=126$.

2. Write the phrases using numbers and mathematical signs:

a) eighty-two plus three is eighty-five;

b) seventy-eight minus two is seventy-six;

c) open the parenthesis, divide thirteen plus six by two, close the parenthesis, multiply by two, and you have thirty-two;

d) three hundred and three is more than two hundred and eleven.

Option 5

1. Write the mathematical expressions in Ukrainian:

a) $51:3=17$; b) $163>160$; c) $99-90=9$; d) $87<88$; e) $13\cdot 3=39$.

2. Write the phrases using numbers and mathematical signs:

a) twelve plus three is fifteen;

b) fifty-one minus two equals forty-nine;

c) open the parenthesis, divide two hundred plus ten by ten, close the parenthesis, multiply by two, and you have four hundred and two;

d) one hundred and three is more than one hundred and one.

Option 6

1. Write the mathematical expressions in Ukrainian:

a) $40:4=10$; b) $100>99$; c) $75-14=61$; d) $9<27$; e) $44\cdot 2=88$.

2. Write the phrases using numbers and mathematical signs:

a) ninety plus seven is ninety-seven;

b) thirty-five minus eight is twenty-seven;

c) open the parenthesis, divide eleven plus four by two, close the parenthesis, multiply by three, and you have thirty-nine;

d) seven hundred and eight is more than four hundred and eleven.

Option 7

1. Write the mathematical expressions in Ukrainian:

a) $50:5=10$; b) $73>1$; c) $34+9=43$; d) $72<333$; e) $11\cdot 6=66$.

2. Write the phrases using numbers and mathematical signs:

a) one hundred and ten plus four is one hundred and fourteen;

b) seven hundred and two minus three is six hundred and ninety-nine;

c) open the parenthesis, divide eight plus forty by ten, close the parenthesis, multiply by zero, and you have zero;

d) four hundred is more than three hundred.

Option 8

1. Write the mathematical expressions in Ukrainian:

a) $60+4=64$; b) $73>1$; c) $92-7=85$; d) $3<20$; e) $18\cdot 4=72$.

2. Write the phrases using numbers and mathematical signs:

a) thirty-seven plus two is thirty-nine;

b) ninety-six minus zero equals ninety-six;

c) open the parenthesis, divide twelve plus fourteen by seven, close the parenthesis, multiply by four, and you have fifty-six;

d) five hundred and ten is more than five hundred and nine.

Option 9

1. Write the mathematical expressions in Ukrainian:

a) $90:9=10$; b) $43>40$; c) $81-7=74$; d) $5<19$; e) $12\cdot 5=60$.

2. Write the phrases using numbers and mathematical signs:

a) twenty-seven plus one is twenty-eight;

b) thirty-nine minus de'five equals thirty;

c) open the parenthesis, divide fifty plus eighteen by two, close the parenthesis, multiply by one, and you have fifty-nine;

d) seven hundred and six is more than eleven.

Option 10

1. Write the mathematical expressions in Ukrainian:

a) $30:3=10$; b) $17>9$; c) $65-9=56$; d) $4<19$; e) $14\cdot 9=126$.

2. Write the phrases using numbers and mathematical signs:

a) eight hundred and seventeen is more than seven hundred;

b) seven hundred and eight minus six equals seven hundred and two;

c) open the parenthesis, divide seventeen plus eight by eight, close the parenthesis, multiply by four, and you have seventy-two;

d) four hundred and three is less than four hundred and eleven.

Independent work for the LESSON 3

on the topic “Arithmetic operations”

The independent work is designed to test the knowledge and skills of determining the name of a mathematical operation, its elements, and the order of operations. The activity is designed to take 15-20 minutes.

Option 1

1. $4 + 15 = 19$. What is the name of this action? What are the elements of this action?
2. $4 \cdot 15 = 60$. What is the name of this action? What are the elements of this action?
3. $40 – 15 = 25$. What is the name of this action? What are the elements of this action?
4. $45 : 15 = 3$. What is the name of this action? What are the names of the elements of this action?
5. What is a sum? What are the names of the elements of addition?
6. $612228+(53007 – 52275 : 615)$. Determine the order of operations and calculate.

Option 2

1. $12 + 8 = 20$. What is the name of this action? What are the elements of this action?
2. $7 \cdot 9 = 637$. What is the name of this action? What are the elements of this action?
3. $30 – 14 =16$. What is the name of this action? What are the names of the elements of this action?
4. $56 : 8 = 7$. What is the name of this action? What are the names of the elements of this action?
5. What is a product? What are the elements of multiplication?
6. $540 – (180 + 12 \cdot 5)$. Determine the order of operations and calculate.

Option 3

1. $25 + 17 =42$. What is the name of this action? What are the elements of this action?
2. $6 \cdot 11 = 66$. What is the name of this action?
3. $81 – 39 =42$. What is the name of this action? What are the elements of this action?

4. 144 : 12=12. What is the name of this action? What are the elements of this action?
5. What is a difference? What are the elements of subtraction?
6. 300 + 15 · (40 – 32). Determine the order of operations and calculate.

Option 4

1. 18 + 24 =42. What is the name of this action? What are the names of the elements of this action?
2. 9 · 7 = 63. What is the name of this action? What are the names of the elements of this action?
3. 50 – 23 =27. What is the name of this action? What are the elements of this action?
4. 81 : 9 = 9. What is the name of this action? What are the elements of this action?
5. What is a quotient? What are the elements of division?
6. 720 : (24 + 36) · 5. Determine the order of operations and calculate.

Option 5

1. 34 + 19 =53. What is the name of this action? What are the elements of this action?
2. 8 · 12 = 96. What is the name of this action? What are the names of the elements of this action?
3. 60 – 41 =19. What is the name of this action? What are the elements of this action?
4. 96 : 16 = 6. What is the name of this action? What are the elements of this action?
5. What is a sum? What are the elements of addition?
6. (800 – 32) · (10 : 5). Determine the order of operations and calculate.

Option 6

1. 50 + 25 =75. What is the name of this action? What are the names of the elements of this action?
2. 11 · 3 = 33. What is the name of this action? What are the elements of this action?
3. 100 – 42=58. What is the name of this action? What are the elements of this action?
4. 72 : 9 = 8. What is the name of this action? What are the elements of this action?
5. What is a product? What are the elements of multiplication?
6. 250 – [20 · (30 – 25)]. Determine the order of operations and calculate.

Option 7

1. 63 +37=100. What is the name of this action? What are the names of the elements of this action?
2. 5 · 14 = 70. What is the name of this action? What are the elements of this action?
3. 84 – 52 =32. What is the name of this action? What are the elements of this action?
4. 108 : 12 = 9. What is the name of this action? What are the elements of this action?
5. What is a difference? What are the elements of subtraction?
6. 144 + (36 · 2 – 12). Determine the order of operations and calculate.

Option 8

1. 77 +23=100. What is the name of this action? What are the names of the elements of this action?
2. 10 · 8 = 80. What is the name of this action? What are the names of the elements of this action?
3. 90 – 63 =27. What is the name of this action? What are the elements of this action?
4. 144 : 24 = 6. What is the name of this action? What are the elements of this action?
5. What is a quotient? What are the elements of division?
6. (500 + 100) : (50 – 45). Determine the order of operations and calculate.

Option 9

1. 88 +12=100. What is the name of this action? What are the names of the elements of this action?
2. 6 · 15 = 90. What is the name of this action? What are the names of the elements of this action?
3. 120 –75=45. What is the name of this action? What are the names of the elements of this action?
4. 72 : 6 = 12. What is the name of this action? What are the elements of this action?
5. What is a product? What are the elements of multiplication?
6. 180 – 15 · (30 : 6). Determine the order of operations and calculate.

Option 10

1. 21 + 14 =35. What is the name of this action? What are the names of the elements of this action?

2. $4 \cdot 18 = 72$. What is the name of this action? What are the names of the elements of this action?
3. $50 - 28 = 22$. What is the name of this action? What are the elements of this action?
4. $90 : 15 = 6$. What is the name of this action? What are the elements of this action?
5. What is a difference? What are the elements of subtraction?
6. $1000 - (150 + 25 \cdot 4)$. Determine the order of operations and calculate.

Independent work for the LESSON 4

on the topic "Divisibility of numbers"

The independent work is designed to test the knowledge of the basic concepts on the topic 'Divisibility of numbers' and the ability to determine the divisors or multiples of a given number. The activity is designed to take 10-15 minutes.

Option 1

1. Write all the divisors of 21.
2. Write all two-digit numbers that are divisible by 13.
3. Write any three four-digit numbers that are divisible by 2.
4. Write some three-digit numbers that are divisible by 12.
5. Which numbers are divisible by 2?

Option 2

1. Write all the divisors of 30.
2. Write all two-digit numbers that are divisible by 9.
3. Write any three four-digit numbers that are divisible by 5.
4. Write some three-digit numbers that are divisible by 15.
5. Which numbers are divisible by 5?

Option 3

1. Write all the divisors of 18.
2. Write all two-digit numbers that are divisible by 7.
3. Write three of any four digit number that is divisible by 3.
4. Write some three-digit numbers that are divisible by 8.
5. Which numbers are divisible by 3?

Option 4

1. Write all the divisors of 24.
2. Write all two-digit numbers that are divisible by 11.
3. Write any three four-digit numbers that are divisible by 4.
4. Write some three-digit numbers that are divisible by 9.
5. Which numbers are divisible by 4?

Option 5

1. Write all the divisors of 36.
2. Write all two-digit numbers that are divisible by 6.
3. Write any three four-digit numbers that are divisible by 9.
4. Write some three-digit numbers that are divisible by 10.
5. Which numbers are divisible by 9?

Option 6

1. Write all the divisors of 40.
2. Write all two-digit numbers that are divisible by 8.
3. Write any three four-digit numbers that are divisible by 6.
4. Write some three-digit numbers that are divisible by 14.
5. Which numbers are divisible by 6?

Option 7

1. Write all the divisors of 50.
2. Write all two-digit numbers that are divisible by 12.
3. Write any three four-digit numbers that are divisible by 7.
4. Write some three-digit numbers that are divisible by 5.
5. Which numbers are divisible by 7?

Option 8

1. Write all the divisors of 16.
2. Write all two-digit numbers that are divisible by 5.
3. Write any three four-digit numbers that are divisible by 8.
4. Write some three-digit numbers that are divisible by 11.
5. Which numbers are divisible by 8?

Option 9

1. Write all the divisors of 27.
2. Write all two-digit numbers that are divisible by 4.
3. Write any three four-digit numbers that are divisible by 12.
4. Write some three-digit numbers that are divisible by 16.
5. Which numbers are divisible by 9?

Option 10

1. Write all the divisors of 42.
2. Write all two-digit numbers that are divisible by 14.
3. Write any three four-digit numbers that are divisible by 11.
4. Write some three-digit numbers that are divisible by 20.
5. Which numbers are divisible by 11?

Independent work for the LESSON 5

on the topic "The greatest common divisor (GCD) and the least common multiple (LCM)"

The independent work is designed to test the knowledge and skills of finding the greatest common divisor (GCD) and the least common multiple (LCM) of given numbers. The activity is designed to take 15-20 minutes.

Option 1

1. Write the one-digit prime numbers from 1 to 10.
2. Find all the common divisors of 14, 16 and 54.
3. Find the GCD (15, 20, 32).
4. Find the LCM (13, 12, 16).
5. What is a composite number?

Option 2

1. Write all the primes from 1 to 20.
2. Find all the common divisors of 18, 24 and 36.
3. Find the GCD (25, 30, 45).
4. Find the LCM (14, 21, 28).
5. What is a prime number?

Option 3

1. Write all odd primes up to 30.
2. Find all the common divisors of 20, 25 and 30.
3. Find the GCD (10, 15, 25).
4. Find the LCM (22, 33, 44).
5. What numbers are called even?

Option 4

1. Write all the primes less than 50.
2. Find all the common divisors of 12, 16 and 20.
3. Find the GCD (18, 27, 36).
4. Find the LCM (30, 40, 50).
5. What numbers are called natural numbers?

Option 5

1. Write any three composite numbers.
2. Find all the common divisors of 28, 42 and 56.
3. Find the GCD (35, 50, 70.
4. Find the LCM (15, 20, 25).
5. What are natural numbers?

Option 6

1. Write all the primes between 40 and 60.
2. Find all the common divisors of 36, 48 and 72.
3. Find the GCD (16, 24, 32).
4. Find the LCM (18, 24, 36).
5. What numbers are called divisors?

Option 7

1. Write all the primes between 50 and 100.
2. Find all the common divisors of 45, 60 and 75.
3. Find the GCD (42, 56, 84).
4. Find the LCM (10, 15, 20).
5. What is the greatest common divisor?

Option 8

1. Write any two consecutive primes.
2. Find all the common divisors of 24, 36 and 48.
3. Find the GCD (21, 28, 35).
4. Find the LCM (9, 12, 18).
5. What is the least common multiple?

Option 9

1. Write all two-digit primes.
2. Find all the common divisors of 50, 75 and 100.
3. Find the GCD (40, 60, 80).
4. Find the LCM (8, 10, 12).
5. What numbers are called multiples?

Option 10

1. Write all the primes less than 20.
2. Find all the common divisors of 22, 33 and 44.
3. Find the GCD (12, 18, 30).
4. Find the LCM (7, 14, 21).
5. What are mutually prime numbers?

Independent work for the LESSON 6

on the topic “Common fractions”

The independent work is designed to test the knowledge of the basic definitions on the topic “Common fractions” and the ability to convert improper fractions into mixed numbers and vice versa. The activity is designed to take 15-20 minutes.

Option 1

1. Write the fractions in Ukrainian: $\frac{1}{3}$; $\frac{2}{5}$; $\frac{111}{309}$; $\frac{101}{9}$; $3\frac{5}{12}$.
2. Turn the wrong fractions into mixed numbers: $\frac{17}{3}$; $\frac{26}{15}$; $\frac{208}{71}$.
3. Reverse the mixed numbers to become improper fractions: $3\frac{5}{12}$; $7\frac{51}{52}$; $149\frac{1}{4}$.
4. What is a proper fraction? Give an example.
5. What does it mean to reduce a fraction? Give an example.

Option 2

1. Write the fractions in Ukrainian: $\frac{2}{7}; \frac{5}{8}; \frac{203}{409}; \frac{87}{11}; 4\frac{9}{10}$.
2. Turn the wrong fractions into mixed numbers: $\frac{19}{4}; \frac{33}{7}; \frac{215}{36}$.
3. Turn the mixed numbers into improper fractions: $2\frac{3}{5}; 9\frac{17}{20}; 50\frac{2}{9}$.
4. What is an improper fraction? Give an example.
5. What does it mean to find the common denominator of fractions? Give an example.

Option 3

1. Write the fractions in Ukrainian: $\frac{3}{8}; \frac{7}{9}; \frac{120}{503}; \frac{99}{12}; 2\frac{11}{15}$.
2. Turn the improper fractions into mixed numbers: $\frac{23}{5}; \frac{40}{13}; \frac{317}{29}$.
3. Turn the mixed numbers into improper fractions: $5\frac{2}{7}; 11\frac{1}{6}; 101\frac{9}{25}$.
4. What is the main property of fractions? Write the formula.
5. How do you compare fractions with different denominators? Give an example.

Option 4

1. Write the fractions in Ukrainian: $\frac{5}{11}; \frac{9}{14}; \frac{315}{601}; \frac{66}{8}; 6\frac{4}{9}$.
2. Turn the wrong fractions into mixed numbers: $\frac{35}{6}; \frac{41}{9}; \frac{289}{40}$.
3. Turn the mixed numbers into improper fractions: $8\frac{5}{16}; 10\frac{3}{4}; 150\frac{7}{8}$.
4. What are reciprocal fractions? Give an example.
5. How do you reduce a fraction to an irreducible form? Give an example.

Option 5

1. Write the fractions in Ukrainian: $\frac{6}{13}; \frac{4}{17}; \frac{187}{294}; \frac{77}{14}; 1\frac{7}{18}$.
2. Turn the improper fractions into mixed numbers: $\frac{50}{7}; \frac{98}{21}; \frac{333}{55}$.
3. Reverse the mixed numbers to the wrong fractions: $12\frac{9}{20}; 3\frac{7}{9}; 75\frac{2}{5}$.
4. What is an irreducible fraction? Give an example.
5. How do you turn an improper fraction into a mixed number? Give an example.

Option 6

1. Write the fractions in Ukrainian: $\frac{7}{15}; \frac{1}{19}; \frac{407}{908}; \frac{99}{25}; 5\frac{3}{11}$.
2. Turn the improper fractions into mixed numbers: $\frac{27}{4}; \frac{99}{18}; \frac{405}{31}$.
3. Turn the mixed numbers into improper fractions: $9\frac{1}{3}; 14\frac{5}{6}; 203\frac{7}{9}$.
4. What is a mixed number? Give an example.
5. What types of common fractions do you know? Give an example.

Option 7

1. Write the fractions in Ukrainian: $\frac{8}{21}; \frac{3}{16}; \frac{500}{813}; \frac{145}{37}; 7\frac{11}{20}$.
2. Turn the improper fractions into mixed numbers: $\frac{60}{11}; \frac{75}{14}; \frac{234}{33}$.
3. Turn the mixed numbers into improper fractions: $6\frac{4}{7}; 13\frac{1}{5}; 99\frac{2}{11}$.
4. Which fraction is called a proper fraction? Give an example.
5. How do you turn a mixed number into an improper fraction? Give an example.

Option 8

1. Write the fractions in Ukrainian: $\frac{9}{23}; \frac{2}{27}; \frac{612}{907}; \frac{122}{39}; 4\frac{8}{13}$.
2. Turn the wrong fractions into mixed numbers: $\frac{32}{5}; \frac{81}{17}; \frac{275}{48}$.
3. Reverse the mixed numbers into improper fractions: $15\frac{7}{12}; 9\frac{3}{8}; 220\frac{1}{2}$.
4. What is an improper fraction? Give an example.
5. How do you reduce a fraction to an irreducible form? Give an example.

Option 9

1. Write the fractions in Ukrainian: $\frac{10}{25}; \frac{6}{29}; \frac{720}{1231}; \frac{188}{45}; 2\frac{2}{9}$.
2. Turn the improper fractions into mixed numbers: $\frac{99}{13}; \frac{84}{19}; \frac{550}{44}$.
3. Reverse the mixed numbers to the improper fractions: $20\frac{5}{18}; 11\frac{2}{7}; 144\frac{3}{10}$.
4. What does it mean to reduce a fraction? Give an example.
5. What types of common fractions do you know? Give an example.

Option 10

1. Write the fractions in Ukrainian: $\frac{11}{31}; \frac{8}{35}; \frac{900}{1543}; \frac{255}{51}; 3\frac{6}{17}$.

2. Turn the wrong fractions into mixed numbers: $\frac{120}{16}; \frac{101}{21}; \frac{660}{55}$.
3. Turn the mixed numbers into improper fractions: $17\frac{9}{22}; 14\frac{1}{9}; 311\frac{5}{6}$.
4. What is the main property of fractions? Write the formula.
5. How do you turn a mixed number into an improper fraction? Give an example.

Independent work for the LESSON 7

on the topic "Operations with common fractions"

The independent work is designed to test the knowledge of the basic rules on the topic "Operations with Common Fractions" and the ability to add, subtract, multiply and divide common fractions. The activity is designed to take 20-25 minutes.

Option 1

1. Perform addition of common fractions:
   a) $\frac{7}{13} + \frac{5}{26}$; b) $2\frac{8}{15} + 15\frac{2}{45}$; c) $4 + 3\frac{1}{3}$.
2. Perform the subtraction of common fractions:
   a) $\frac{11}{12} - \frac{5}{24}$; b) $21\frac{8}{15} - 15\frac{7}{30}$; c) $6 - 5\frac{1}{2}$; d) $47\frac{1}{12} - 1\frac{5}{6}$.
3. Multiply the common fractions:
   a) $\frac{14}{33} \cdot \frac{121}{140}$; b) $1\frac{7}{15} \cdot 12\frac{1}{2}$; c) $27 \cdot 1\frac{2}{81}$.
4. Perform the division of common fractions:
   a) $\frac{9}{14} \div \frac{81}{280}$; b) $2\frac{5}{18} \div 1\frac{5}{36}$; c) $84 \div 1\frac{3}{81}$; d) $7\frac{3}{10} \div 1\frac{19}{200}$.
5. How do you add (subtract) mixed numbers?

Option 2

1. Perform the addition of common fractions:
   a) $\frac{5}{14} + \frac{3}{28}$; b) $1\frac{7}{12} + 4\frac{5}{18}$; c) $8 + 2\frac{3}{4}$.
2. Perform the subtraction of common fractions:
   a) $\frac{9}{10} - \frac{2}{25}$; b) $17\frac{5}{9} - 6\frac{8}{27}$; c) $10 - 7\frac{3}{5}$; d) $32\frac{1}{8} - 5\frac{5}{16}$.
3. Multiply the common fractions:
   a) $\frac{11}{22} \cdot \frac{13}{44}$; b) $2\frac{3}{7} \cdot 5\frac{9}{14}$; c) $19 \cdot 1\frac{3}{57}$.
4. Do the division of the common fractions:
   a) $\frac{5}{12} \div \frac{25}{48}$; b) $3\frac{4}{9} \div 2\frac{2}{15}$; c) $64 \div 2\frac{7}{32}$; d) $9\frac{1}{5} \div 2\frac{13}{45}$.

5. What does it mean to find the common denominator of two fractions?

Option 3

1. Perform the addition of common fractions:
a) $\frac{6}{14}+\frac{4}{28}$; b) $3\frac{7}{18}+4\frac{2}{9}$; c) $5+2\frac{1}{4}$.
2. Perform the subtraction of common fractions:
a) $\frac{9}{10}-\frac{2}{25}$; b) $18\frac{5}{12}-7\frac{1}{8}$; c) $9-6\frac{5}{6}$; d) $53\frac{3}{5}-4\frac{7}{10}$.
3. Multiply the common fractions:
a) $\frac{16}{27}\cdot\frac{9}{40}$; b) $2\frac{3}{8}\cdot 5\frac{4}{9}$; c) $32\cdot 1\frac{5}{64}$.
4. Perform division of common fractions:
a) $\frac{11}{15}\div\frac{22}{35}$; b) $4\frac{2}{11}\div 2\frac{3}{22}$; c) $63\div 2\frac{1}{9}$; d) $9\frac{7}{13}\div 3\frac{2}{39}$.
5. How do you add (subtract) mixed numbers?

Option 4

1. Perform the addition of common fractions:
a) $\frac{8}{17}+\frac{5}{34}$; b) $6\frac{2}{9}+3\frac{4}{27}$; c) $7+5\frac{3}{5}$.
2. Perform the subtraction of common fractions:
a) $\frac{13}{16}-\frac{5}{32}$; b) $22\frac{7}{14}-10\frac{3}{7}$; c) $8-7\frac{1}{8}$; d) $61\frac{5}{11}-2\frac{9}{22}$.
3. Multiply the common fractions:
a) $\frac{21}{32}\cdot\frac{16}{35}$; b) $4\frac{1}{6}\cdot 3\frac{5}{8}$; c) $18\cdot 2\frac{3}{36}$.
4. Perform the division of common fractions:
a) $\frac{7}{12}\div\frac{14}{25}$; b) $5\frac{3}{10}\div 2\frac{2}{15}$; c) $96\div 3\frac{5}{48}$; d) $11\frac{1}{9}\div 2\frac{7}{54}$.
5. How do you add (subtract) mixed numbers?

Option 5

1. Perform the addition of common fractions:
a) $\frac{5}{14}+\frac{3}{28}$; b) $1\frac{7}{9}+2\frac{5}{18}$; c) $6+2\frac{2}{3}$.
2. Perform the subtraction of common fractions:
a) $\frac{13}{15}-\frac{4}{25}$; b) $19\frac{3}{10}-8\frac{7}{20}$; c) $8-6\frac{5}{6}$; d) $35\frac{7}{8}-2\frac{3}{16}$.
3. Multiply the following common fractions:
a) $\frac{11}{27}\cdot\frac{81}{121}$; b) $3\frac{5}{12}\cdot 4\frac{2}{9}$; c) $18\cdot 2\frac{1}{24}$.
4. Perform the division of common fractions:
a) $\frac{8}{21}\div\frac{64}{189}$; b) $3\frac{2}{7}\div 1\frac{5}{14}$; c) $72\div 1\frac{4}{81}$; d) $5\frac{9}{20}\div 2\frac{11}{25}$.
5. How do you add (subtract) mixed numbers?

Option 6

1. Perform the addition of common fractions:
a) $\frac{9}{16}+\frac{5}{32}$; b) $4\frac{11}{20}+3\frac{9}{25}$; c) $7+5\frac{3}{7}$.
2. Perform the subtraction of common fractions:
a) $\frac{17}{18}-\frac{2}{27}$; b) $12\frac{8}{11}-6\frac{5}{22}$; c) $9-7\frac{2}{9}$; d) $50\frac{1}{4}-5\frac{3}{8}$.
3. Multiply the common fractions:
a) $\frac{19}{36}\cdot\frac{108}{133}$; b) $2\frac{7}{10}\cdot 3\frac{5}{9}$; c) $25\cdot 1\frac{1}{50}$.
4. Do the division of the common fractions:
a) $\frac{7}{15}\div\frac{49}{225}$; b) $4\frac{5}{12}\div 2\frac{5}{6}$; c) $96\div 1\frac{5}{96}$; d) $6\frac{3}{8}\div 3\frac{7}{24}$.
5. How do you add (subtract) mixed numbers?

Option 7

1. Perform the addition of common fractions:
a) $\frac{3}{11}+\frac{7}{22}$; b) $5\frac{9}{14}+8\frac{5}{21}$; c) $10+3\frac{1}{5}$.
2. Perform the subtraction of common fractions:
a) $\frac{19}{20}-\frac{7}{40}$; b) $14\frac{3}{8}-9\frac{5}{16}$; c) $12-4\frac{7}{12}$; d) $45\frac{3}{5}-2\frac{7}{10}$.
3. Multiply the common fractions:
a) $\frac{21}{44}\cdot\frac{88}{147}$; b) $7\frac{4}{11}\cdot 5\frac{5}{6}$; c) $30\cdot 1\frac{3}{75}$.
4. Do the division of the common fractions:
a) $\frac{5}{12}\div\frac{25}{144}$; b) $6\frac{1}{9}\div 3\frac{5}{18}$; c) $108\div 1\frac{2}{81}$; d) $9\frac{5}{7}\div 4\frac{2}{21}$.
5. What does it mean to find the common denominator of two fractions?

Option 8

1. Perform the addition of common fractions:
a) $\frac{11}{20}+\frac{7}{40}$; b) $6\frac{5}{18}+4\frac{3}{27}$; c) $11+7\frac{2}{11}$.
2. Perform the subtraction of common fractions:
a) $\frac{23}{30}-\frac{4}{15}$; b) $17\frac{8}{13}-8\frac{5}{26}$; c) $14-9\frac{3}{14}$; d) $52\frac{2}{9}-3\frac{1}{18}$.
3. Multiply the common fractions:
a) $\frac{13}{25}\cdot\frac{75}{104}$; b) $4\frac{7}{16}\cdot 6\frac{5}{8}$; c) $40\cdot 1\frac{4}{100}$.
4. Perform the division of common fractions:
a) $\frac{3}{8}\div\frac{27}{72}$; b) $7\frac{2}{15}\div 3\frac{1}{10}$; c) $120\div 1\frac{3}{125}$; d) $10\frac{4}{9}\div 5\frac{5}{18}$.
5. How do you add (subtract) mixed numbers?

Option 9

1. Perform the addition of common fractions:
   a) $\frac{13}{21}+\frac{5}{42}$; b) $7\frac{4}{15}+2\frac{11}{30}$; c) $9+6\frac{5}{8}$.
2. Perform the subtraction of common fractions:
   a) $\frac{17}{18}-\frac{5}{36}$; b) $13\frac{2}{7}-9\frac{3}{14}$; c) $11-4\frac{5}{6}$; d) $46\frac{5}{9}-7\frac{2}{27}$.
3. Multiply the common fractions:
   a) $\frac{25}{48}\cdot\frac{72}{125}$; b) $8\frac{3}{16}\cdot5\frac{2}{5}$; c) $35\cdot1\frac{7}{140}$.
4. Perform the division of common fractions:
   a) $\frac{4}{9}\div\frac{36}{81}$; b) $6\frac{2}{11}\div3\frac{1}{22}$; c) $144\div1\frac{5}{144}$; d) $8\frac{7}{8}\div4\frac{1}{16}$.
5. What does it mean to find the common denominator of two fractions?

Option 10

1. Perform the addition of common fractions:
   a) $\frac{9}{19}+\frac{7}{38}$; b) $3\frac{5}{12}+6\frac{7}{24}$; c) $8+5\frac{4}{9}$.
2. Perform the subtraction of common fractions:
   a) $\frac{23}{30}-\frac{4}{15}$; b) $18\frac{6}{17}-12\frac{5}{34}$; c) $13-9\frac{2}{13}$; d) $50\frac{7}{11}-4\frac{3}{22}$.
3. Multiply the common fractions:
   a) $\frac{19}{42}\cdot\frac{84}{133}$; b) $9\frac{2}{13}\cdot3\frac{7}{9}$; c) $28\cdot1\frac{5}{84}$.
4. Perform the division of common fractions:
   a) $\frac{11}{16}\div\frac{44}{96}$; b) $5\frac{3}{10}\div2\frac{7}{15}$; c) $162\div1\frac{2}{81}$; d) $7\frac{5}{6}\div3\frac{8}{27}$.
5. How do you add (subtract) mixed numbers?

Independent work for LESSON 8

on the topic “Decimals and operations with them”

The independent work is designed to test your knowledge of the basic rules on the topic “Decimals and operations with them” and your ability to add, subtract, multiply and divide decimals. The activity is designed to take 15-20 minutes.

Option 1

1. Write the decimals in Ukrainian: 1,07; 15,21; 11,004; 0,1; 350,354.
2. Perform addition of the decimals:
   a) 0,067+332,9; b) 67,99+13,01.

3. Perform the subtraction of decimals:
   a) 568,9–79,5479; b) 6,00012–134,4.
4. Multiply the decimals:
   a) 178,9·0,00001; b) 2,4·5,0003.
5. Perform the division of decimals:
   a) 506,1÷0,003; b) 0,00012÷1,2.

Option 2

1. Write the decimals in Ukrainian: 2,045; 18,009; 7,001; 0,07; 125,673.
2. Perform the addition of the decimals:
   a) 0,098 + 432,6; b) 78,23 + 9,77.
3. Perform the subtraction of decimals:
   a) 354,8 – 42,127; b) 7,009 – 19,3.
4. Multiply the decimals:
   a) 215,4 · 0,0001; b) 3,6 · 7,002.
5. Perform the division of decimals:
   a) 904,2 ÷ 0,004; b) 0,00036 ÷ 1,8.

Option 3

1. Write the decimals in Ukrainian: 4,356; 0,89; 105,003; 0,005; 780,142.
2. Perform the addition of the decimals:
   a) 0,125 + 256,8; b) 96,87 + 3,13.
3. Perform the subtraction of decimals:
   a) 781,5 – 23,406; b) 8,0008 – 27,7.
4. Multiply the decimals:
   a) 94,7 · 0,00002; b) 4,5 · 8,004.
5. Perform division of decimals:
   a) 768,3 ÷ 0,006; b) 0,00048 ÷ 2,4.

Option 4

1. Write the decimals in Ukrainian: 5,78; 0,604; 23,0005; 0,0002; 910,653.
2. Perform addition of decimals:
   a) 0,072 + 143,5; b) 54,66 + 5,34.
3. Perform the subtraction of decimals:
   a) 632,9 – 17,831; b) 9,002 – 43,2.
4. Multiply the decimals:
   a) 163,2 · 0,00005; b) 5,7 · 9,008.
5. Perform division of decimals:
   a) 845,7 ÷ 0,007; b) 0,00072 ÷ 3,6.

Option 5

1. Write the decimals in Ukrainian: 6,01; 0,502; 56,004; 0,003; 110,472.
2. Perform the addition of decimals:
   a) 0,091 + 287,4; b) 32,88 + 7,12.
3. Perform the subtraction of decimals:
   a) 459,2 – 35,692; b) 5,0003 – 21,6.
4. Multiply the decimals:
   a) 78,6 · 0,00003; b) 6,8 · 4,009.
5. Perform the division of decimals:
   a) 923,1 ÷ 0,005; b) 0,00084 ÷ 4,2.

Option 6

1. Write the decimals in Ukrainian: 3,052; 0,701; 98,0002; 0,004; 267,348.
2. Perform addition of decimals:
   a) 0,156 + 129,7; b) 74,22 + 8,78.
3. Perform the subtraction of decimals:
   a) 519,3 – 61,892; b) 6,0014 – 37,5.
4. Multiply the decimals:
   a) 189,4 · 0,00007; b) 3,2 · 6,005.
5. Perform the division of decimals:
   a) 632,8 ÷ 0,002; b) 0,00096 ÷ 5,4.

Option 7

1. Write the decimals in Ukrainian: 4,607; 0,305; 12,009; 0,002; 543,821.
2. Perform the addition of decimals:
   a) 0,219 + 378,5; b) 62,99 + 9,01.
3. Perform the subtraction of decimals:
   a) 794,6 – 58,783; b) 7,0009 – 28,4.
4. Multiply the decimals:
   a) 146,8 · 0,00009; b) 4,9 · 9,007.
5. Perform the division of decimals:
   a) 789,2 ÷ 0,009; b) 0,00084 ÷ 6,3.

Option 8

1. Write the decimals in Ukrainian: 5,489; 0,608; 25,0003; 0,006; 376,592.
2. Perform the addition of decimals:
   a) 0,311 + 496,2; b) 81,57 + 2,43.
3. Perform the subtraction of decimals:
   a) 635,8 – 22,731; b) 4,0002 – 30,8.

4. Multiply the decimals:
   a) 178,5 · 0,00008; b) 2,8 · 7,006.
5. Perform the division of decimals:
   a) 904,1 ÷ 0,004; b) 0,00072 ÷ 7,2.

Option 9

1. Write the decimals in Ukrainian: 6,735; 0,402; 34,0006; 0,009; 251,684.
2. Perform the addition of decimals:
   a) 0,145 + 254,6; b) 59,81 + 5,19.
3. Perform the subtraction of decimals:
   a) 724,3 – 49,214; b) 3,0006 – 19,2.
4. Multiply the decimals:
   a) 135,9 · 0,00006; b) 5,1 · 8,003.
5. Perform the division of decimals:
   a) 815,6 ÷ 0,008; b) 0,00096 ÷ 8,4.

Option 10

1. Write the decimals in Ukrainian: 7,289; 0,503; 41,0009; 0,007; 198,473.
2. Perform addition of decimals:
   a) 0,184 + 369,8; b) 46,72 + 6,28.
3. Perform the subtraction of decimals:
   a) 538,7 – 37,569; b) 5,0007 – 25,9.
4. Multiply the decimals:
   a) 158,3 · 0,00004; b) 4,2 · 6,009.
5. Perform the division of decimals:
   a) 921,4 ÷ 0,005; b) 0,00084 ÷ 9,6.

Independent work for the LESSON 9

on the topic “Ratio. Proportions. Percentages”

Independent work is designed to test the knowledge of basic concepts on the topic “Relationships. Proportions. Percentages” and the ability to apply the basic property of proportion to find the unknown term. The work is designed for 20-30 minutes.

Option 1

1. What is the quotient of 6 in 30?
2. How many times is 21 more than 7?

3. Write the middle and extreme terms of the proportion: $\frac{7}{13} = \frac{28}{52}$.
4. Find the unknown term in the proportion: $\frac{x}{1,3} = \frac{5}{3,9}$.
5. Find 12% of 500 UAH.
6. Find the floor area of a room if you know that 23% of its area is 5.3 m².

Option 2

1. What is the quotient of 8 in 40?
2. How many times is 36 more than 9?
3. Write the middle and extreme terms of the proportion: $\frac{5}{9} = \frac{25}{45}$.
4. Find the unknown term in the proportion: $\frac{x}{2,4} = \frac{7}{4,8}$.
5. Find 15% of 800 UAH.
6. Find the area of a wall if 18% of its area is 4.5 m².

Option 3

1. What is the quotient of 12 in 48?
2. How many times is 50 more than 10?
3. Write the middle and extreme terms of the proportion: $\frac{9}{16} = \frac{27}{48}$.
4. Find the unknown term in the proportion: $\frac{x}{3,6} = \frac{4}{7,2}$.
5. Find 10% of 1 200 UAH.
6. Find the roof area of a house if 20% of its area is 7.2 m².

Option 4

1. What is the quotient of 15 in 75?
2. How many times is 60 more than 12?
3. Write the middle and extreme terms of the proportion: $\frac{3}{7} = \frac{12}{28}$.
4. Find the unknown term in the proportion: $\frac{x}{4,5} = \frac{6}{9}$.
5. Find 25% of 1 500 UAH.
6. Find the area of a garden if 30% of its area is 12.6 m².

Option 5

1. What is the quotient of 18 in 90?
2. How many times is 81 more than 9?
3. Write the middle and extreme terms of the proportion: $\frac{4}{11} = \frac{16}{44}$.
4. Find the unknown term in the proportion: $\frac{x}{5} = \frac{9}{15}$.

5. Find 8% of 2 000 UAH.
6. Find the area of a swimming pool if 27% of its area is 9.45 m².

Option 6

1. What is the quotient of 25 in 100?
2. How many times is 72 greater than 12?
3. Write the middle and extreme terms of the proportion: $\frac{6}{14} = \frac{18}{42}$.
4. Find the unknown term in the proportion: $\frac{x}{7} = \frac{10}{35}$.
5. Find 30% of 2 500 UAH.
6. Find the area of a park if 35% of its area is 14.7 m².

Option 7

1. What is the quotient of 20 of 80?
2. How many times is 99 more than 11?
3. Write the middle and extreme terms of the proportion: $\frac{5}{12} = \frac{20}{48}$.
4. Find the unknown term in the proportion: $\frac{x}{9} = \frac{12}{36}$.
5. Find 18% of 3 000 UAH.
6. Find the area of a window if 22% of its area is 5.06 m².

Option 8

1. What is the quotient of 35 in 140?
2. How many times is 88 more than 16?
3. Write the middle and extreme terms of the proportion: $\frac{7}{15} = \frac{28}{60}$.
4. Find the unknown term in the proportion: $\frac{x}{12} = \frac{15}{30}$.
5. Find 22% of 3 500 UAH.
6. Find the area of a floor if 40% of its area is 24 m².

Option 9

1. What is the quotient of 27 in 108?
2. How many times is 144 more than 12?
3. Write the middle and extreme terms of the proportion: $\frac{8}{17} = \frac{24}{51}$.
4. Find the unknown term in the proportion: $\frac{x}{15} = \frac{20}{40}$.
5. Find 14% of 4 200 UAH.
6. Find the area of the facade of a building if 19% of its area is 6.84 m².

Option 10

1. What is the quotient of 40 in 200?
2. How many times is 160 more than 20?
3. Write the middle and extreme terms of the proportion: $\frac{9}{20} = \frac{36}{80}$.
4. Find the unknown term in the proportion: $\frac{x}{18} = \frac{21}{42}$.
5. Find 16% of 5 000 UAH.
6. Find the area of a sports ground if 45% of its area is 27 m².

Test work for the section “Introductory course. Arithmetic”

The test is designed to test the knowledge of the basic concepts in the section “Introductory course. Arithmetic” and the ability to apply them in solving problems. The work is designed for 45 minutes.

Option 1

1. Calculate: $-4\frac{5}{6}+3\frac{3}{23}\cdot\left(-11\frac{4}{9}-(-3{,}6):\frac{9}{35}\right)$.
2. Write the improper fraction $\frac{37}{11},\frac{201}{100},\frac{3245}{15}$ as a mixed number. Write the result in Ukrainian.
3. Write the mixed numbers $3\frac{7}{10},105\frac{3}{100},12\frac{9}{1000}$ as a decimal. Write the result in Ukrainian.
4. Find the LCM (12, 22, 26) of the numbers.
5. What is an improper fraction? Give an example.

Option 2

1. Calculate: $-5\frac{2}{7}+4\frac{1}{12}\cdot\left(-9\frac{3}{5}-(-2{,}4):\frac{7}{25}\right)$.
2. Write the improper fraction $\frac{45}{13},\frac{305}{100},\frac{2789}{18}$ as a mixed number. Write the result in Ukrainian.
3. Write the mixed numbers $4\frac{8}{11},98\frac{5}{200},15\frac{13}{1000}$ as a decimal. Write the result in Ukrainian.
4. Find the LCM (14, 28, 35) of the numbers.
5. What is a prime number? Give an example.

Option 3

1. Calculate: $-3\frac{4}{9}+2\frac{5}{18}\cdot\left(-7\frac{2}{3}-(-1{,}8):\frac{5}{21}\right)$.
2. Write the improper fraction $\frac{59}{17},\frac{501}{200},\frac{4128}{19}$ as a mixed number. Write the result in Ukrainian.
3. Write the mixed numbers $7\frac{2}{15},205\frac{7}{500},10\frac{4}{1000}$ as a decimal. Write the result in Ukrainian.
4. Find the LCM (8, 20, 32) of the numbers.
5. What is a prime number? Give an example.

Option 4

1. Calculate: $-6\frac{7}{8}+5\frac{3}{14}\cdot\left(-10\frac{1}{4}-(-4{,}2):\frac{11}{30}\right)$.
2. Write the improper fraction $\frac{81}{23},\frac{1501}{300},\frac{5982}{25}$ as a mixed number. Write the result in Ukrainian.
3. Write the mixed numbers $6\frac{5}{12},308\frac{9}{600},18\frac{15}{1000}$ as a decimal. Write the result in Ukrainian.
4. Find the LCM (16, 24, 40) of the numbers.
5. What mathematical operations do you know? Give some examples.

Option 5

1. Calculate: $-7\frac{3}{5}+4\frac{2}{9}\cdot\left(-8\frac{7}{11}-(-5{,}1):\frac{13}{27}\right)$.
2. Write the improper fraction $\frac{97}{19},\frac{1702}{400},\frac{6845}{35}$ as a mixed number. Write the result in Ukrainian.
3. Write the mixed numbers $9\frac{1}{8},402\frac{11}{900},21\frac{25}{1000}$ as a decimal. Write the result in Ukrainian.
4. Find the LCM (18, 27, 45) of the numbers.
5. What basic mathematical signs do you know? Give some examples.

Option 6

1. Calculate: $-2\frac{6}{7}+3\frac{4}{11}\cdot\left(-5\frac{8}{9}-(-2{,}7):\frac{9}{22}\right)$.
2. Write the improper fraction $\frac{115}{29},\frac{2503}{500},\frac{7412}{40}$ as a mixed number. Write the result in Ukrainian.
3. Write the mixed numbers $5\frac{3}{14},605\frac{17}{1200},13\frac{7}{1000}$ as a decimal. Write the result in Ukrainian.
4. Find the LCM (10, 25, 50) of the numbers.
5. What numbers are called odd? Give some examples.

Option 7

1. Calculate: $-4\frac{9}{10}+2\frac{7}{15}\cdot\left(-6\frac{5}{12}-(-3{,}9):\frac{8}{33}\right)$.
2. Write the improper fraction $\frac{135}{31},\frac{3055}{600},\frac{8923}{50}$ as a mixed number. Write the result in Ukrainian.
3. Write the mixed numbers $7\frac{2}{9},715\frac{21}{1400},17\frac{19}{1000}$ as a decimal. Write the result in Ukrainian.

4. Find the LCM (12, 18, 36) of the numbers.
5. What numbers are called even? Give some examples.

Option 8

1. Calculate: $-3\frac{8}{11}+4\frac{5}{13}\cdot\left(-7\frac{6}{14}-(-2{,}5):\frac{12}{55}\right)$.
2. Write the improper fraction $\frac{167}{37},\frac{4012}{700},\frac{9635}{75}$ as a mixed number. Write the result in Ukrainian.
3. Write the mixed numbers $8\frac{7}{13},820\frac{23}{1800},20\frac{27}{1000}$ as a decimal. Write the result in Ukrainian.
4. Find the LCM (15, 30, 45) of numbers.
5. What numbers are called natural numbers? Give some examples.

Option 9

1. Calculate: $-5\frac{2}{9}+3\frac{6}{17}\cdot\left(-9\frac{4}{15}-(-4{,}1):\frac{14}{39}\right)$.
2. Write the improper fraction $\frac{199}{41},\frac{5023}{800},\frac{10456}{90}$ as a mixed number. Write the result in Ukrainian.
3. Write the mixed numbers $9\frac{8}{15},920\frac{25}{2000},23\frac{31}{1000}$ as a decimal. Write the result in Ukrainian.
4. Find the LCM (20, 40, 60) of the numbers.
5. What numbers are called two-digit numbers? Give some examples.

Option 10

1. Calculate: $-6\frac{5}{12}+2\frac{9}{19}\cdot\left(-8\frac{4}{10}-(-5{,}6):\frac{16}{45}\right)$.
2. Write the improper fraction $\frac{225}{49},\frac{6034}{900},\frac{11567}{100}$ as a mixed number. Write the result in Ukrainian.
3. Write the mixed numbers $10\frac{3}{7},1035\frac{27}{2500},26\frac{37}{1000}$ as a decimal. Write the result in Ukrainian.
4. Find the LCM (25, 50, 75) of the numbers.
5. What numbers are called univariate? Give some examples.

Test questions for the section “Introductory course. Arithmetic”

1. What is a digit? Name the digits.
2. What numbers are called single digits? Give examples.
3. What numbers are called two-digit? Give some examples.
4. What numbers are called three-digit? Give examples.
5. What numbers are called four-digit? Give examples.
6. What numbers are called multi-digit? Give examples.
7. What numbers are called natural? Give some examples.
8. How do we denote the set of positive integers?
9. What numbers are called integers? Give examples.
10. How do we denote the set of integers?
11. What numbers are called even? Give examples.
12. What numbers are called odd? Give some examples.
13. What numbers are called rational? Give some examples.
14. How do we denote the set of rational numbers.
15. What numbers are called irrational? Give examples.
16. What numbers are called real? Give some examples.
17. How do we denote the set of real numbers?
18. What are the basic mathematical signs you know? Give examples.
19. What additional mathematical signs you know?
20. What mathematical operations do you know? Give examples.
21. What is the sum? Name the components of addition.
22. What is the difference? Name the components of subtraction.
23. What is the product? Name the components of multiplication.
24. What is a quotient? Name the components of division.
25. Name the laws of addition and multiplication.
26. What number is called the divisor of a?
27. What number is called a multiple of a?
28. What does it mean to divide number a by number b?
29. What numbers are divisible by 2? Give some examples.
30. What numbers are divisible by 4? Give some examples.
31. What numbers are divisible by 3? Give examples.
32. What numbers are divisible by 8? Give some examples.
33. What numbers are divisible by 9? Give some examples.
34. What numbers are divisible by 25, 125? Give examples.
35. What numbers are divisible by 5, 10? Give examples.
36. What numbers are divisible by 6? Give examples.
37. What is a prime number? Give an example.
38. What is a composite number? Give an example.
39. Is 1 a prime or a composite number?
40. What does it mean to divide a number into prime factors?

41. What is the common divisor of several numbers? Give an example.
42. What is the GCD? Give an example.
43. How to find the NSD of several numbers? Give an example.
44. What is the GCD? Give an example.
45. How to find the GCD of several numbers? Give an example.
46. What numbers are mutually prime? Give an example.
47. How do you find the LCM of mutually prime numbers? Give an example.
48. What is a common fraction? Give an example.
49. What types of common fractions do you know? Give an example.
50. What is a proper fraction? Give an example.
51. What is an improper fraction? Give an example.
52. What is a mixed fraction (mixed number)? Give an example.
53. How do you turn an improper fraction into a mixed number? Give an example.
54. How do you convert a mixed number to an improper fraction? Give an example.
55. State the basic property of fractions.
56. What does it mean to reduce a fraction? Give examples.
57. How to add (subtract) fractions with the same denominators? Write the formula.
58. How do you add (subtract) fractions with different denominators? Write a formula.
59. How to find the GCD of several fractions?
60. How to add (subtract) mixed numbers?
61. How to multiply two common fractions? Write the formula.
62. How do you multiply two mixed numbers?
63. How to divide two common fractions? Write the formula.
64. How to divide two mixed numbers?
65. What fractions are called decimals? Give examples.
66. How to add (subtract) decimals? Give examples.
67. How to multiply decimals? Give examples.
68. How to divide decimals? Give examples.
69. How to turn a decimal into a common fraction (mixed number)?
70. How do you convert a common fraction to a decimal?
71. What is the ratio of two numbers? Give an example.
72. How to find the ratio of two numbers?
73. What does the ratio of two numbers show?
74. What is a proportion? Give an example.
75. What are the members of the proportion? Give examples.
76. Formulate the basic property of proportion.
77. How to find the unknown extreme term of the proportion? Give examples.
78. How to find the unknown middle term of the proportion? Give examples.
79. What is the percentage? How is it designated? Give an example.

80. How to find several percent of a given number?
81. How to find a number by its percentages?
82. How to find the percentage of two numbers?

LIST OF REFERENCES

1. Вороновская Л. П. Математика (для студентов подготовительного отделения) : учеб. пособ. / Л. П. Вороновская, Л. Б. Коваленко. – Харьков : ХНАГХ, 2007. – 150 с.
2. Кузнецова Г. А. Математика : навч. посіб. для інозем. студентів підгот. відділення [Електрон. ресурс] / Г. А. Кузнецова ; Харків. нац. ун-т міськ. госп-ва ім. О. М. Бекетова. – Електрон. текст. дані. – Харків : ХНУМГ ім. О. М. Бекетова, 2024. – 199 с. Режим доступу: https://eprints.kname.edu.ua/65949/, вільний (дата звернення: 19.12.2024). – Назва з екрана.
3. Кузнецова Г. А. Словник з математики (з перекладом російською, українською, англійською, французькою та арабською мовами для іноземних студентів підготовчого відділення) [Електрон. ресурс] / Харків. нац. ун-т міськ. госп-ва ім. О. М. Бекетова ; уклад. : Г. А. Кузнецова, С. М. Ламтюгова, Ю. В. Ситникова. – Електрон. текст. дані. – Харків : ХНУМГ ім. О. М. Бекетова, 2017. – 56 с. Режим доступу: https://eprints.kname.edu.ua/45146/, вільний (дата звернення: 19.12.2024). – Назва з екрана.
4. Мерзляк А. Г. Збірник завдань для державної підсумкової атестації з математики : 9 клас / А. Г. Мерзляк, В. Б. Полонський, М. С. Якір. – Харків : Гімназія, 2019. – 160 с. – ISBN 978-966-474-251-8.
5. Нелін Є. П. Алгебра в таблицях : навч. посіб. для учнів 7–11 кл. – Харків : Гімназія, 2011. – 128 с.
6. Lapuzina O. Mathematics : Educational text-book / O. Lapuzina, A. Loboda. – Kharkiv : NTU "KhPI", 2014. – 422 p.
7. Learner’s English-Turkish mathematical dictionary / O. Lapuzina, E. Veliev, Yu. Romanov, O. Romanova. – Kharkiv: NTU “KhPI”, 2020. – 160 p.

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(Англ. мовою)

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