

Abstract: This paper provides an overview and research summary of Direct Instruction (DI) mathematics programs, specifically *DIS-TAR Arithmetic I* and

\dots $E_{n+1} = 1 - (E_n + 1 - n) = 1 - E_n - 1 + n = n - E_n$, & $E_{n+1} = 1 - n + 1 = 2 - n$.

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Figure 1

EXERCISE 1 EQUALITY

$$\sum_{k=0}^n \binom{n}{k} = 2^n$$

$$\sum_{k=0}^n \binom{n}{k} = \sum_{k=0}^n \binom{n}{n-k} = \sum_{k=0}^n \binom{n}{k}$$

$$\sum_{k=0}^n \binom{n}{k} = \sum_{k=0}^n \binom{n}{k} + \sum_{k=1}^n \binom{n}{k}$$

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$$\sum_{k=0}^n \binom{n}{k} = 2^n$$

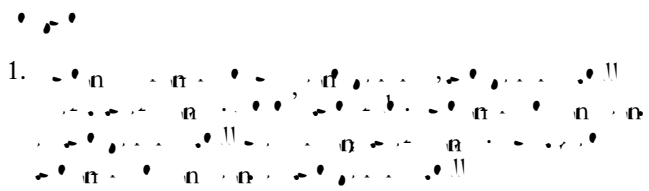
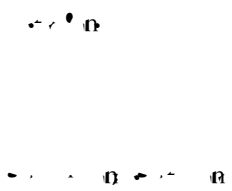
3 equals 3.

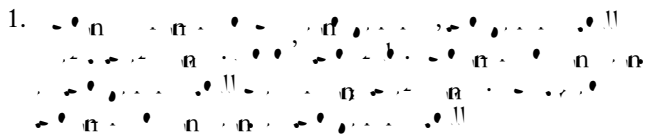

$$\sum_{k=0}^n \binom{n}{k} = \sum_{k=0}^n \binom{n}{k}$$

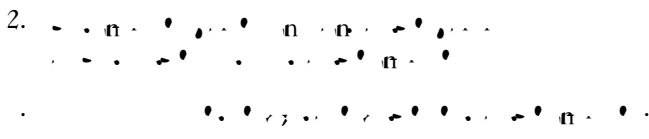
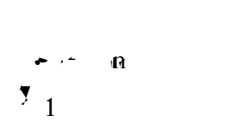
$$\sum_{k=0}^n \binom{n}{k} = \sum_{k=0}^n \binom{n}{k} + \sum_{k=1}^n \binom{n}{k}$$

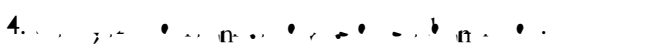

$$\sum_{k=0}^n \binom{n}{k} = \sum_{k=0}^n \binom{n}{k} + \sum_{k=1}^n \binom{n}{k}$$

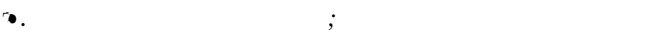
\dots $E_{n+1} = 1 - n + 1 = 2 - n$.





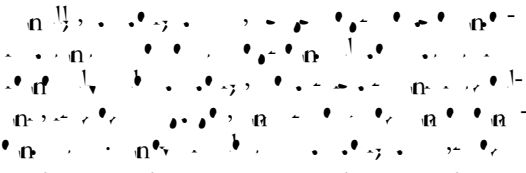
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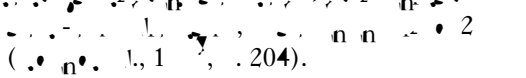
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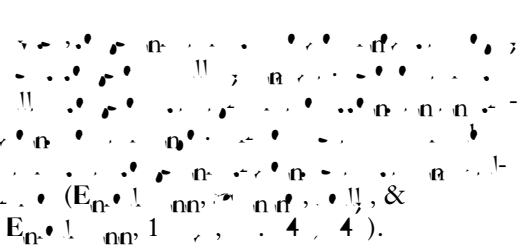
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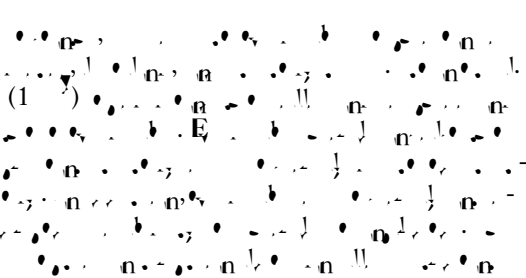
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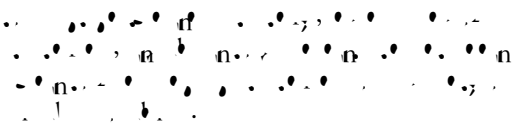
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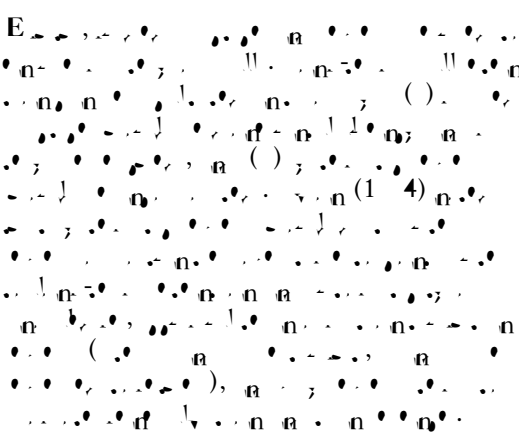


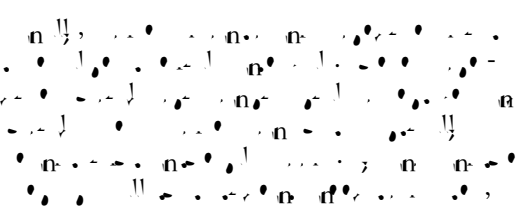












1. $\frac{1}{2}x^2 - \frac{1}{3}x + \frac{1}{4}$
2. $\frac{1}{3}x^2 - \frac{1}{4}x + \frac{1}{5}$
3. $\frac{1}{4}x^2 - \frac{1}{5}x + \frac{1}{6}$
4. $\frac{1}{5}x^2 - \frac{1}{6}x + \frac{1}{7}$
5. $\frac{1}{6}x^2 - \frac{1}{7}x + \frac{1}{8}$
6. $\frac{1}{7}x^2 - \frac{1}{8}x + \frac{1}{9}$
7. $\frac{1}{8}x^2 - \frac{1}{9}x + \frac{1}{10}$
8. $\frac{1}{9}x^2 - \frac{1}{10}x + \frac{1}{11}$
9. $\frac{1}{10}x^2 - \frac{1}{11}x + \frac{1}{12}$
10. $\frac{1}{11}x^2 - \frac{1}{12}x + \frac{1}{13}$

$f(x) = \frac{1}{x^2} - \frac{1}{x}$

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Figure 4

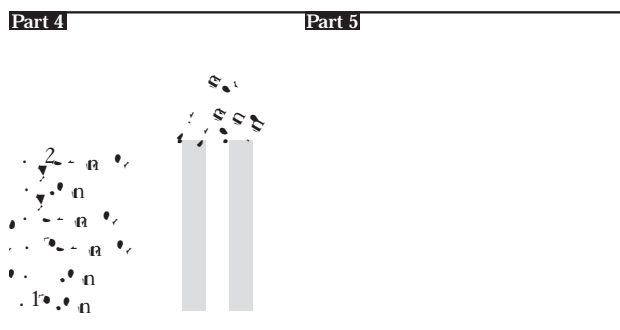
$f(x) = \frac{1}{x^2} - \frac{1}{x}$

$f(x) = \frac{1}{x^2} - \frac{1}{x}$

Part 1 **Part 2**

 _____, 11, _____, 12, _____

Part 3
 $\times 1$ $\times 2$ $\times 4$ $\times 2$ $\times 4$



Part 6
 _____ 20 _____
 _____ 2 _____ 1 1 _____

Part 7
 0 1 2 0 1 2

Part 8

$E_{n+1} = \frac{1}{n+1} - \frac{1}{n}$ & $E_{n+1} = \frac{1}{n+1}$

$(1 - \frac{1}{n})^n$... $(1 - \frac{1}{n})^n \approx e^{-1}$... $(1 - \frac{1}{n})^n \approx 0.367879441171442322$... $(1 - \frac{1}{n})^n \approx 36.7879\%$... $(1 - \frac{1}{n})^n \approx 0.367879441171442322$...

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Direct Instruction Math Programs

$(1 - \frac{1}{n})^n$... $(1 - \frac{1}{n})^n \approx e^{-1}$... $(1 - \frac{1}{n})^n \approx 0.367879441171442322$... $(1 - \frac{1}{n})^n \approx 36.7879\%$... $(1 - \frac{1}{n})^n \approx 0.367879441171442322$...

$(E_{n-1} - 1) \ln n$... $(E_{n-1} - 1) \ln n \approx 0.367879441171442322$... $(E_{n-1} - 1) \ln n \approx 36.7879\%$... $(E_{n-1} - 1) \ln n \approx 0.367879441171442322$...

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Structure of DI Math Programs

1. $\frac{1}{x^2} = x^{-2}$

2. $\frac{d}{dx} x^{-2} = -2x^{-3}$

140. $\frac{d}{dx} (1 - x^2)^{-1/2}$

1. $\frac{d}{dx} (1 - x^2)^{-1/2}$

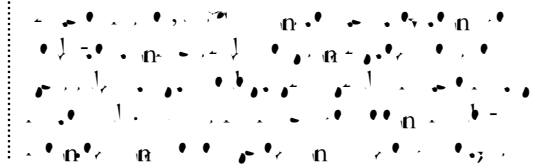
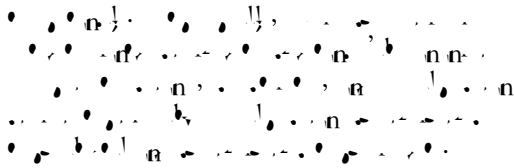


Figure 6

f ; *f* ;
f ; *f* ;

TASK 2 SYMBOL IDENTIFICATION
 Introducing a New Symbol

point. Touch
 E a

Group Activity

4



- a. This is a four. What is this? 4. Yes, this is a four.
 b. Is this a four? This is a four. Is this a four?

TASK 2 SYMBOL IDENTIFICATION
 Introducing a New Symbol

point. Touch
 E a

Group Activity

2

4

- a. This is a two. What is this? 2. Yes, this is a two.
 b. Is this a two? This is a two. Is this a two?

4

2

- c. Is this a four?
 d. When I touch it, tell me what it is.
 e. Get ready.
 f. Individual Test

- c. Is this a two?
 d. When I touch it, tell me what it is.
 e. () Get ready.
 f. Individual Test

E... &... (1...)
 ... 10, 1... 1...
 ...

The first part of the study, which was conducted in 2000, focused on the identification of the most common mathematical concepts and skills used in the curriculum. The results of this study are presented in Table 1. The second part of the study, which was conducted in 2001, focused on the identification of the most common mathematical concepts and skills used in the curriculum. The results of this study are presented in Table 2.

The results of the study show that the most common mathematical concepts and skills used in the curriculum are:

- 1. Addition and subtraction of whole numbers.
- 2. Multiplication and division of whole numbers.
- 3. Fractions and decimals.
- 4. Geometry (area and perimeter).
- 5. Algebra (linear equations and functions).

The study also found that the most common mathematical concepts and skills used in the curriculum are:

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Research Synthesis on DI Mathematics Programs

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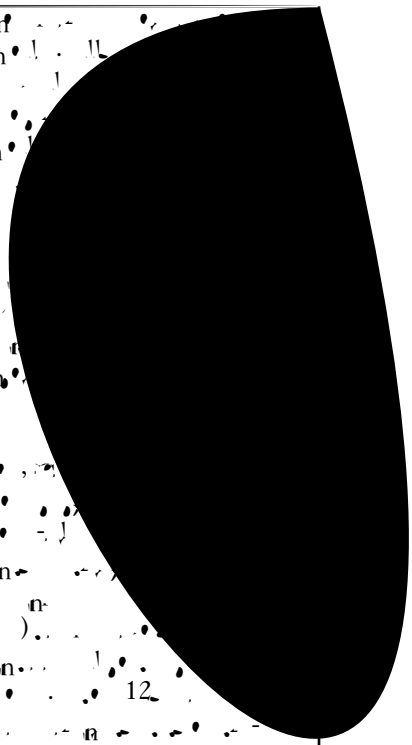
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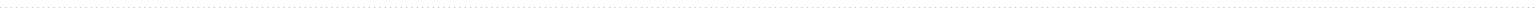
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