

The Order of Operations

Curriculum-Based Readers Theatre Script

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|-----|---|-----|---|
| 1 | Once upon a time, | All | The wrong answer! [sound effect] |
| 2 | a young student... | 5 | Aaaugh! Okay—help me and I’ll |
| 3 | was home alone... | | excuse your aunt for whatever she did. |
| 4 | working on a math problem. | 11 | Long, long ago people created rules for |
| 5 | $(4 \times 20) \div 8 + 65 - 2 \times 5^2$ | | doing calculations. |
| | equals 133? 225? 28.16? UH! Which | 12 | These rules are called: |
| | answer is right? | All | The Order of Operations! |
| 1 | The young student was frustrated. | 5 | So, was your old Aunt Sally one of |
| 2 | And then she started hearing voices... | | those rules creators? |
| 3 | whispery voices! | 13 | No—that sentence we spoke is just a |
| All | Please Excuse My Dear Aunt Sally. | | way to remember the rules. |
| 5 | Wha-What? | All | Please Excuse My Dear Aunt Sally. |
| All | Please Excuse My Dear Aunt Sally. | 14 | “P” as in “Please” stands for |
| 5 | Please go away! I don’t know any Aunt | | Parentheses. |
| | Sally and I am trying to do my math | All | Do the operations in Parentheses |
| | homework. | | First. [gesture] |
| 4 | We’re only trying to help you. | 5 | Okay. (4×20) . That equals 80. |
| 1 | It’s clear that you need to know... | 15 | “E” as in “Excuse” stands for |
| All | The Order of Operations! | | Exponents. |
| 5 | No. I need to know how to get the | All | Do operations with Exponents next. |
| | right answer to this equation. | 5 | You mean powers and roots? |
| 6 | You need to know how to handle all | All | Yes. |
| | those operations. | 5 | Okay. 5 squared equals 25. |
| 5 | Operations? | 16 | “M” as in “My” and “D” as in “Dear” |
| All | Operations: things like add, subtract, | | mean Multiply and Divide. |
| | multiply, divide, square. | 5 | So my next step is to do all |
| 5 | Oh, right. | | multiplication and division? |
| 7 | Are you wondering what part should | All | Correct. Work from left to right in |
| | you calculate first? | | the equation. |
| 8 | Should you start at the left and go to | 5 | Here goes: $80 \div 8$ equals 10! 2×25 |
| | the right? | | equals 50. What’s next? Wait a |
| 9 | Or go from right to left? | | minute—Aunt Sally! I’ll bet that stands |
| 10 | Warning: Calculate your operations in | | for “Addition” and “Subtraction!” |
| | the wrong order, and you will get | All | Right you are! [gesture] Again, work |
| | | | from left to right in the equation. |

- 5 $10 + 65 - 50$.
 $10 + 65$ equals 75.
 $75 - 50 = 25$.
 25! That's the correct answer?
- All [gesture] [sound effect]
- 5 And what's that sentence for remembering the Order of Operations again?
- All **Please Excuse My Dear Aunt Sally.**
- 14 "P" as in "Please" stands for...
- All **Parentheses.**
- 15 "E" as in "Excuse" stands for...
- All **Exponents.**
- 16 "M" as in "My" and "D" as in "Dear" mean...
- All **Multiply and Divide—**
 5 working from left to right.
- 17 "A" as in "Aunt" and "S" as in "Sally" mean...
- All **"Addition" and "Subtraction"—**
 5 working from left to right.
- All **Please Excuse My Dear Aunt Sally.**
- 5 Okay, well, um like—Thanks for the math help. But I think you better go now.
- All **Please do well on your test! [gesture]**

Bases and Exponents

Curriculum-Based Readers Theatre Script

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|---|--|
| <p>1 Two [gesture]</p> <p>2 times Two [gesture]</p> <p>All equals Four.</p> <p>1 Two [gesture]</p> <p>2 times two [gesture]</p> <p>3 times two [gesture]</p> <p>All equals eight.</p> <p>1 Two [gesture]</p> <p>2 times two [gesture]</p> <p>3 times two [gesture]</p> <p>4 times two [gesture]</p> <p>All equals sixteen.</p> <p>1 Two [gesture]</p> <p>2 times two [gesture]</p> <p>3 times two [gesture]</p> <p>4 times two [gesture]</p> <p>5 times two [gesture]</p> <p>All equals thirty-two.</p> <p>6 Hey, this takes way too long. Don't you know about bases and exponents?</p> <p>3 What's a base?</p> <p>2 The beginnings of soup!</p> <p>4 Where you run after you hit the ball!</p> <p>1 The low part of music!</p> <p>6 No, in math, what is the base?</p> <p>All The base is the number which you keep multiplying. [gesture]</p> <p>1-5 Oh, like the two that we kept multiplying!</p> <p>6 Correct. Now, what is an exponent?</p> <p>5 The opposite of imponent?</p> <p>All [sound effect]</p> <p>5 No, really, what is an exponent?</p> | <p>All In math, an exponent shows you the number of times you multiply the base by itself.</p> <p>7 An exponent is written as a small number to the right and above the base number.</p> <p>1 Oh! So, two... [gesture]</p> <p>2 times two [gesture]</p> <p>7 can be written as the number two with a small two right and above it!</p> <p>8 And you call it "Two to the second power" or...</p> <p>All "Two squared!" [sound effect]</p> <p>8 And it equals four. [gesture]</p> <p>1 Two [gesture]</p> <p>2 times two [gesture]</p> <p>3 times two [gesture]</p> <p>9 can be written as the number two with a small three right and above it!</p> <p>10 And you call it "Two to the third power" or...</p> <p>All "Two cubed!" [sound effect]</p> <p>10 And it equals eight.</p> <p>1 Two [gesture]</p> <p>2 times two [gesture]</p> <p>3 times two [gesture]</p> <p>4 times two [gesture]</p> <p>11 can be written as the number two with a small four right and above it.</p> <p>12 And you call it...</p> <p>All "Two to the fourth power." [sound effect]</p> <p>12 And it equals sixteen.</p> <p>6 Now you try it on your own.</p> <p>1 Two [gesture]</p> |
|---|--|

2 times two [gesture]
3 times two [gesture]
4 times two [gesture]
5 times two [gesture]
1 can be written as the number two with
a small five right and above it.
2 And you call it..
All “Two to the fifth power.”
[sound effect]

2 And it equals thirty-two.
All [gesture] [sound effect]
6 I think you got it.
All **Base—the number you keep
multiplying by itself.**
6 How often?
All **As many times as the exponent tells
you to! [gesture] [sound effect]**
6 Well done.

Range, Median, and Mode

Curriculum-Based Readers Theatre Script

[Note: Performers 1 - 7 wear headbands labeled with numerals 2, 3, 3, 4, 5, 5, 5.]

8 Excuse me, but could you please tell me why you are wearing headbands with numbers on them?

1 - 7 Because we are the Median Mode Rangers! [gesture] [sound effect]

8 Um. Okay.

9 So, what exactly do you Median Mode Rangers do for a living?

1 - 7 We live to help the world understand range, median, and mode.

10 You mean like in Math?

1 That is correct. Please allow us to demonstrate.

2 We'll start with range.

11 Range?

1 - 7 Range—the distance between two numbers!
Range—the distance from the greatest to the least! [gesture]

All Oh, so range means “distance.”
[gesture]

12 Median?

1 - 7 Median—the middle number in a list of numbers arranged in order!

1 - 3 Median—half the numbers in the list are less. [gesture]

5 - 7 Median—half the numbers in the list are greater! [gesture]

All Oh, so median means “middle.”
[gesture]

13 Mode?

1 - 7 Mode—the numbers that most often repeat!

Mode—the numbers that most often repeat!

All Oh, so mode means “the most popular of the numbers!” [gesture]

14 So—what’s up with the numbers on your heads?

3 Because we Median Mode Rangers know that it’s easier to understand range, median, and mode when we show you with numbers.

4 Roll call!

1 Two!

2 Three!

3 Three!

4 Four!

5 Five!

6 Five!

7 Five!

15 So let’s start with range. What’s your range?

[1 - 7 arrange themselves in random order as All chant the definition below.]

All Range—the distance between two numbers!

Range—the distance from the greatest to the least! [gesture]

7 In this list of numbers, I am the greatest! The number 5! [gesture]

1 And I am the least! The number 2!
[gesture]

8 So, to find the range, we subtract.
Correct?

1 - 7 Correct! $5 - 2 = 3$.
3 is the range! [sound effect]

All Range means “distance.” [gesture]
3 is the range! [sound effect]

10 Easy enough. Now how about your
median?

[1 - 7 arrange themselves in a line from lowest to
highest as All chant the definition below.]

All Median—the middle number in a list
of numbers arranged in order!

Median—half the numbers in the list
are less. [gesture]

Median—half the numbers in the list
are greater! [gesture]

1 Who’s in the middle?

4 I’m in the middle! [gesture]

7 Then you are the median!
4 is the median!

1 - 3 Half the numbers in this list are less
than 4. [gesture]

5 - 7 Half the numbers in this list are greater
than 4. [gesture]

All Median means “middle.” [gesture]
4 is the median!

11 Show us the mode!

[1 - 4 gesture towards the performers wearing the
number “5” as All chant the definition
below.]

All Mode—the numbers that most often
repeat!

Mode—the numbers that most often
repeat!

1 - 4 It’s clear to see that in our list, the
numbers that most often repeat are...

5 - 7 Five! [gesture]

All Mode means “the most popular of the
numbers!” [gesture]
5 is the mode!

5 - 7 Oh yeah. We’re the mode! Uh huh!

12 Well, this has been very helpful.
Thanks Median Mode Rangers!

13 I guess you’ll have to get going now.

1 - 7 Not before we give you our Median
Mode Rangers Quiz! [sound effect]

All Uh oh.

1 - 7 Define range!

All Range—the distance between two
numbers!

Range—the distance from the greatest
to the least!

1 - 7 Define median!

All Median—the middle number in a list
of numbers arranged in order!

Median—half the numbers in the list
are less. [gesture]

Median—half the numbers in the list
are greater! [gesture]

1 - 7 Define mode!

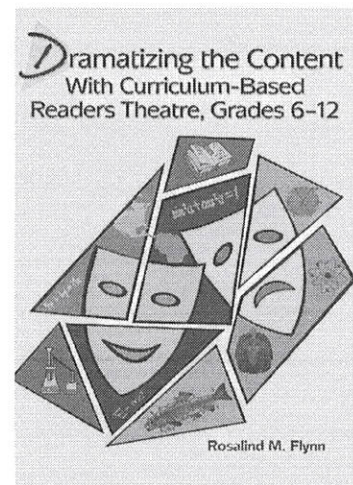
All Mode—the numbers that most often
repeat!

Mode—the numbers that most often
repeat!

1 - 7 Our work here is done! [sound effect]

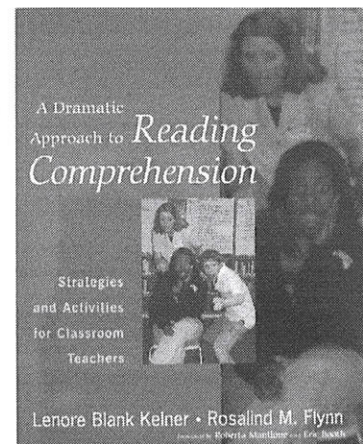
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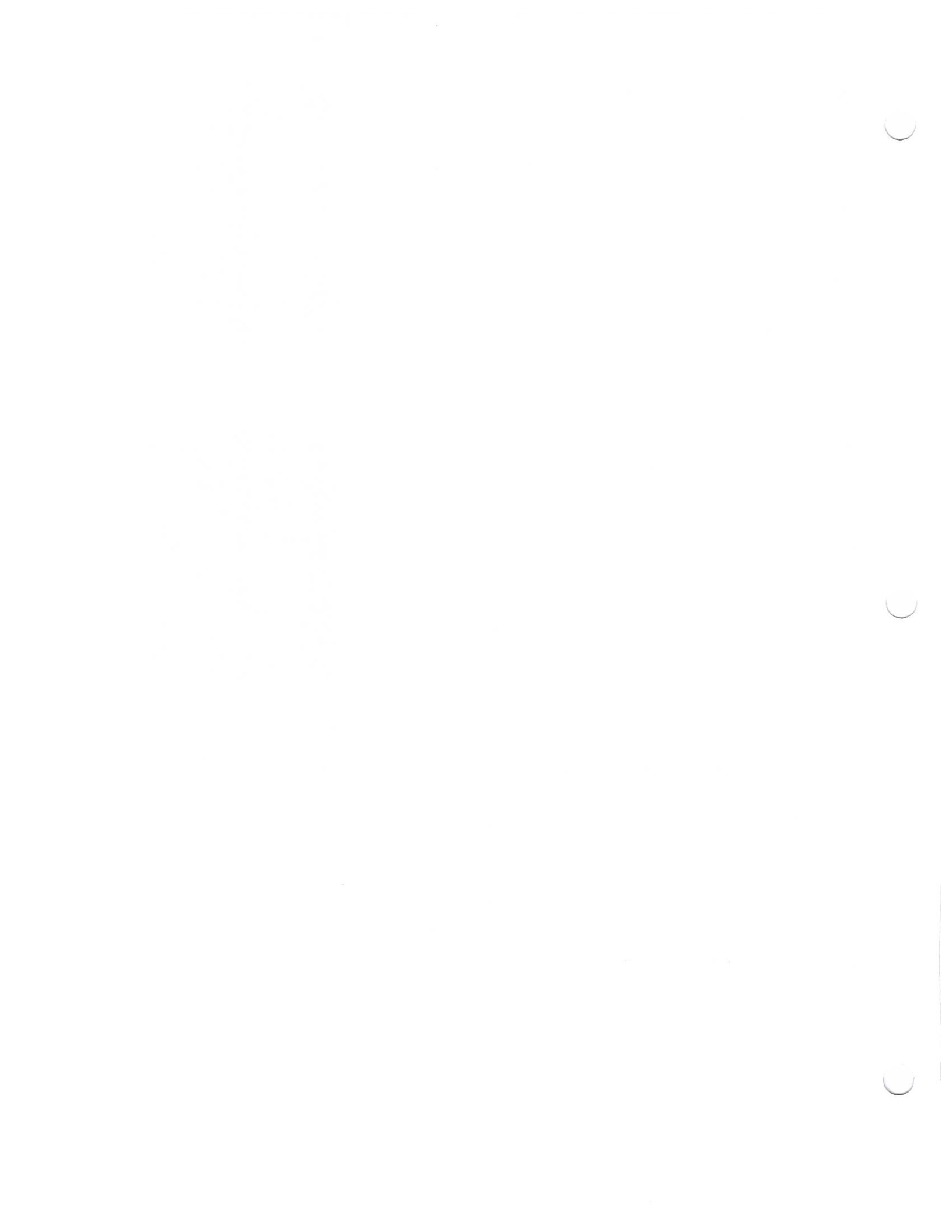


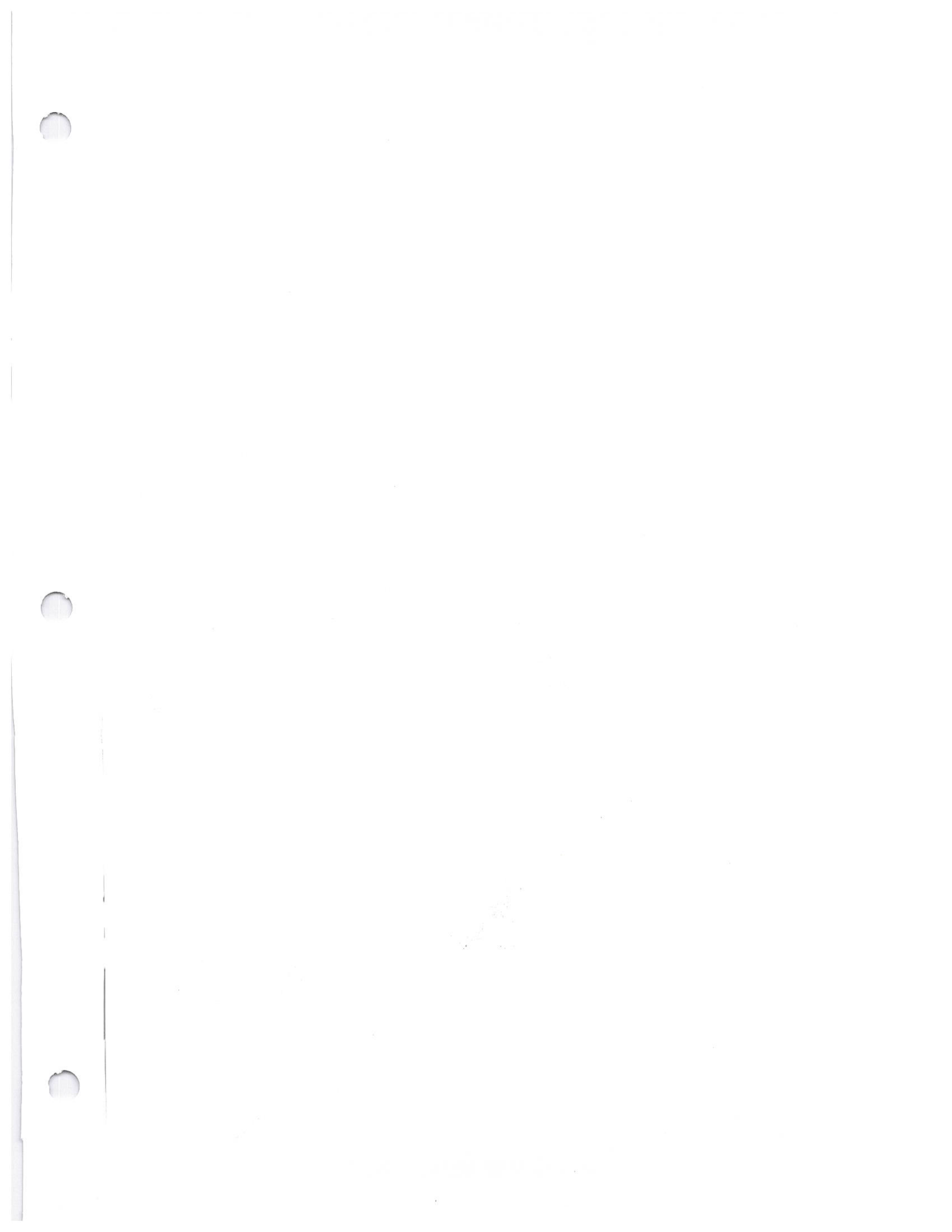
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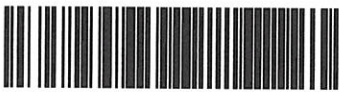
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