

The University of the State of New York
REGENTS HIGH SCHOOL EXAMINATION

NINTH YEAR MATHEMATICS

A

Tuesday, June 17, 1975—9:15 a.m. to 12:15 p.m., only

The last page of the booklet is the answer sheet. Fold the last page along the perforations and, slowly and carefully, tear off the answer sheet. Then fill in the heading of your answer sheet.

On page 5 you will find the "Tables of Natural Trigonometric Functions" which you may need to answer some questions in this examination. Fold this page along the perforations, and tear it off also slowly and carefully.

When you have completed the examination, you must sign the statement printed at the end of the answer paper, indicating that you had no unlawful knowledge of the questions or answers prior to the examination and that you have neither given nor received assistance in answering any of the questions during the examination. Your answer paper cannot be accepted if you fail to sign this declaration.

DO NOT OPEN THIS EXAMINATION BOOKLET UNTIL THE SIGNAL IS GIVEN

Part I

Answer all questions in this part. Each correct answer will receive 2 credits. No partial credit will be allowed. Write your answers in the spaces provided on the separate answer sheet.

- 1 On a map 1 inch represents 100 miles. How many miles are represented by a line segment $3\frac{1}{2}$ inches long?
- 2 Solve for y : $5y - 2(y - 5) = 19$
- 3 Solve for a : $a + \frac{a}{4} = 5$
- 4 Solve for x : $.01x = 3$
- 5 Solve for x : $x + |-5| = 7$
- 6 From $5x^2 + 4x - 3$ subtract $x^2 - 2x + 7$.
- 7 Find the value of $\sqrt{53}$ to the nearest tenth.
- 8 Express as a binomial the product of $(3x - 2)$ and $(3x + 2)$.
- 9 A girl received marks of 87, 93, and 86 on three tests. What mark must she receive on a fourth test in order to have an average of 90?
- 10 One factor of $x^2 - 4x - 21$ is $x + 3$. What is the other factor?
- 11 The ratio of two numbers is 1:5 and their sum is 24. What is the smaller number?
- 12 A test was failed by 15% of a class. If 6 students failed, how many students were in the class?
- 13 The sides of a triangle are represented by $5x - 1$, $4x + 3$, and $2x - 4$. Express the perimeter of the triangle in terms of x .
- 14 Find the positive root of the equation $2x^2 - 18 = 0$.
- 15 If $\sin A = \frac{2}{3}$, find the measure of angle A to the nearest degree.
- 16 Using the formula $P = K^2R$, what is the value of P when $K = 5$ and $R = 18$?

- 17 Express as a single fraction in simplest form:

$$\frac{x - 4}{3} + \frac{x}{4}$$

- 18 Express in terms of x the total number of cents in $4x$ dimes.

Directions (19–30): Write in the space provided on the separate answer sheet the numeral preceding the expression that best completes each statement or answers each question.

- 19 Which ordered pair is the solution of the following system of equations?

$$\begin{aligned} 6x + 2y &= 14 \\ 3x + 2y &= 8 \end{aligned}$$

- | | |
|-----------|------------|
| (1) (1,2) | (3) (1,4) |
| (2) (2,1) | (4) (4,-2) |

- 20 If $4x + a = 4a + x$, then x equals

- | | |
|----------|-------|
| (1) a | (3) 0 |
| (2) $5a$ | (4) 4 |

- 21 The square of a positive integer is 49. The square of the next consecutive integer is

- | | |
|--------|--------|
| (1) 8 | (3) 50 |
| (2) 16 | (4) 64 |

- 22 If m is subtracted from $6m$, the result is

- | | |
|-----------|-------|
| (1) $5m$ | (3) 5 |
| (2) $-5m$ | (4) 6 |

- 23 The greatest common factor of the numbers 12, 30, and 60 is

- | | |
|---------|-------|
| (1) 360 | (3) 3 |
| (2) 60 | (4) 6 |

- 24 A member of the solution set of $4x - 1 < 3$ is

- | | |
|-------|-------|
| (1) 1 | (3) 3 |
| (2) 2 | (4) 0 |

- 25 The product of xy^2 and x^2y^3 is

- | | |
|--------------|--------------|
| (1) x^3y^5 | (3) x^2y^5 |
| (2) x^5y^6 | (4) x^2y^6 |

26 The y -intercept of the line whose equation is

$$y = 3x - \frac{2}{3} \text{ is}$$

(1) $-\frac{2}{3}$ (3) 3

(2) -2 (4) $\frac{2}{3}$

27 The graph of which equation passes through the point $(0,0)$?

(1) $x = 3$ (3) $y = 3x + 3$

(2) $y = 3$ (4) $y = 3x$

28 Which is an illustration of the associative property of multiplication?

(1) $(ab)c = a(bc)$ (3) $ab = ba$

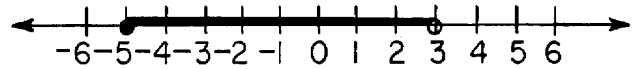
(2) $a(0) = 0$ (4) $a(1) = a$

29 The expression $4\sqrt{2} - \sqrt{18}$ is equivalent to

(1) 1 (3) $7\sqrt{2}$


(2) $\sqrt{2}$ (4) $-5\sqrt{2}$

30 Which open sentence is shown by the graph?



(1) $-5 < x < 3$ (3) $-5 < x \leq 3$

(2) $-5 \leq x \leq 3$ (4) $-5 \leq x < 3$

 GO RIGHT ON TO THE NEXT PAGE.

Answers to the following questions are to be written on paper provided by the school.

Part II

Answer four questions from this part. Show all work unless otherwise directed.

- 31 On the same set of coordinate axes, graph the following system of inequalities and label the solution set S .

$$\begin{aligned}y + 3x &> 6 \\ y &\leq 2x - 4\end{aligned} \quad [8,2]$$

- 32 Solve the system of equations for x and y and check:

$$\begin{aligned}3x - 2y &= 6 \\ \frac{y - 1}{x} &= \frac{1}{2}\end{aligned} \quad [8,2]$$

- 33 The two legs of a right triangle are in the ratio 3:4. If the hypotenuse is 15 inches, find the number of inches in *each* leg. [Only an algebraic solution will be accepted.] [4,6]

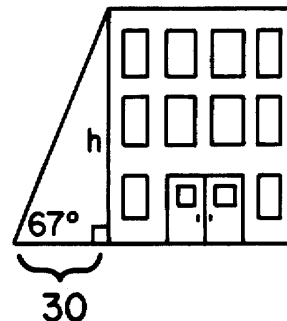
- 34 Answer both *a* and *b*.

Write an equation or a system of equations that can be used to solve *each* of the following problems. In *each* case state what the variable or variables represent. [Solution of the equations is not required.]

- a* A woman invested some money at 5% and twice as much money at 7%. If the total yearly income from the two investments is \$760, how much was invested at *each* rate? [5]
- b* Maria can shovel snow from the driveway in two hours. Henry takes three hours for the same work. How long would it take to shovel the driveway if they both work together? [5]

- 35 Answer both *a* and *b*.

- a* From a point 30 feet from the foot of a building, the angle of elevation of the top of the building is 67° , as shown in the accompanying figure.



Find the height of the building to the *nearest* foot. [5]

- b* The width and length of a rectangle are 5 and 12 inches, respectively. Find, to the *nearest degree*, the angle formed by a diagonal and a longer side. [5]

- 36 Ted left home on his bicycle traveling at the rate of 6 miles per hour. One hour later his friend Jack set out to overtake him traveling at the rate of 8 miles per hour. In how many hours will Jack overtake Ted? [Only an algebraic solution will be accepted.] [6,4]

- 37 The replacement set for x in *each* open sentence listed below is $\{-3, -2, -1, 0, 1, 2\}$. On your answer paper write the letters *a* through *e* and next to *each* write the solution set of the open sentence. [Each answer must be a subset of the replacement set.] [10]

a $x^2 = 4$

b $3x < x - 2$

c $4x - 5 = x$

d $|x| = 1$

e $3x = x$

THE UNIVERSITY OF THE STATE OF NEW YORK
THE STATE EDUCATION DEPARTMENT
BUREAU OF ELEMENTARY AND SECONDARY EDUCATIONAL TESTING

Tables of Natural Trigonometric Functions
(For use with 9th and 10th Year Mathematics Regents Examinations)

Angle	Sine	Cosine	Tangent	Angle	Sine	Cosine	Tangent
1°	.0175	.9998	.0175	46°	.7193	.6947	1.0355
2°	.0349	.9994	.0349	47°	.7314	.6820	1.0724
3°	.0523	.9986	.0524	48°	.7431	.6691	1.1106
4°	.0698	.9976	.0699	49°	.7547	.6561	1.1504
5°	.0872	.9962	.0875	50°	.7660	.6428	1.1918
6°	.1045	.9945	.1051	51°	.7771	.6293	1.2349
7°	.1219	.9925	.1228	52°	.7880	.6157	1.2799
8°	.1392	.9903	.1405	53°	.7986	.6018	1.3270
9°	.1564	.9877	.1584	54°	.8090	.5878	1.3764
10°	.1736	.9848	.1763	55°	.8192	.5736	1.4281
11°	.1908	.9816	.1944	56°	.8290	.5592	1.4826
12°	.2079	.9781	.2126	57°	.8387	.5446	1.5399
13°	.2250	.9744	.2309	58°	.8480	.5299	1.6003
14°	.2419	.9703	.2493	59°	.8572	.5150	1.6643
15°	.2588	.9659	.2679	60°	.8660	.5000	1.7321
16°	.2756	.9613	.2867	61°	.8746	.4848	1.8040
17°	.2924	.9563	.3057	62°	.8829	.4695	1.8807
18°	.3090	.9511	.3249	63°	.8910	.4540	1.9626
19°	.3256	.9455	.3443	64°	.8988	.4384	2.0503
20°	.3420	.9397	.3640	65°	.9063	.4226	2.1445
21°	.3584	.9336	.3839	66°	.9135	.4067	2.2460
22°	.3746	.9272	.4040	67°	.9205	.3907	2.3559
23°	.3907	.9205	.4245	68°	.9272	.3746	2.4751
24°	.4067	.9135	.4452	69°	.9336	.3584	2.6051
25°	.4226	.9063	.4663	70°	.9397	.3420	2.7475
26°	.4384	.8988	.4877	71°	.9455	.3256	2.9042
27°	.4540	.8910	.5095	72°	.9511	.3090	3.0777
28°	.4695	.8829	.5317	73°	.9563	.2924	3.2709
29°	.4848	.8746	.5543	74°	.9613	.2756	3.4874
30°	.5000	.8660	.5774	75°	.9659	.2588	3.7321
31°	.5150	.8572	.6009	76°	.9703	.2419	4.0108
32°	.5299	.8480	.6249	77°	.9744	.2250	4.3315
33°	.5446	.8387	.6494	78°	.9781	.2079	4.7046
34°	.5592	.8290	.6745	79°	.9816	.1908	5.1446
35°	.5736	.8192	.7002	80°	.9848	.1736	5.6713
36°	.5878	.8090	.7265	81°	.9877	.1564	6.3138
37°	.6018	.7986	.7536	82°	.9903	.1392	7.1154
38°	.6157	.7880	.7813	83°	.9925	.1219	8.1443
39°	.6293	.7771	.8098	84°	.9945	.1045	9.5144
40°	.6428	.7660	.8391	85°	.9962	.0872	11.4301
41°	.6561	.7547	.8693	86°	.9976	.0698	14.3007
42°	.6691	.7431	.9004	87°	.9986	.0523	19.0811
43°	.6820	.7314	.9325	88°	.9994	.0349	28.6363
44°	.6947	.7193	.9657	89°	.9998	.0175	57.2900
45°	.7071	.7071	1.0000	90°	1.0000	.0000	

The University of the State of New York

REGENTS HIGH SCHOOL EXAMINATION

NINTH YEAR MATHEMATICS

A

Part I Score:

Rater's Initials:
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Tuesday, June 17, 1975 — 9:15 a.m. to 12:15 p.m., only

ANSWER SHEET

Pupil.....Teacher.....

School.....Grade.....

Your answers to Part I should be recorded on this answer sheet.

Part I

Answer all questions in this part.

- | | | |
|---------|---------|---------|
| 1..... | 11..... | 21..... |
| 2..... | 12..... | 22..... |
| 3..... | 13..... | 23..... |
| 4..... | 14..... | 24..... |
| 5..... | 15..... | 25..... |
| 6..... | 16..... | 26..... |
| 7..... | 17..... | 27..... |
| 8..... | 18..... | 28..... |
| 9..... | 19..... | 29..... |
| 10..... | 20..... | 30..... |

Your answers for Part II should be placed on paper provided by the school.

The declaration below should be signed when you have completed the examination.

I do hereby affirm, at the close of this examination, that I had no unlawful knowledge of the questions or answers prior to the examination, and that I have neither given nor received assistance in answering any of the questions during the examination.

Signature

FOR TEACHERS ONLY

9

SCORING KEY

NINTH YEAR MATHEMATICS

A

Tuesday, June 17, 1975 — 9:15 a.m. to 12:15 p.m., only

Use only *red* ink or *red* pencil in rating Regents papers. Do not attempt to *correct* the pupil's work by making insertions or changes of any kind. Use checkmarks to indicate pupil errors.

Unless otherwise specified, mathematically correct variations in the answers will be allowed. Units need not be given when the wording of the questions allows such omissions.

Part I

Allow 2 credits for each correct answer; allow no partial credit. For questions 19–30, allow credit if the pupil has written the correct answer instead of the number 1, 2, 3, or 4.

- | | | |
|----------------------|---------------------------|--------|
| (1) 350 | (11) 4 | (21) 4 |
| (2) 3 | (12) 40 | (22) 1 |
| (3) 4 | (13) $11x - 2$ | (23) 4 |
| (4) 300 | (14) 3 | (24) 4 |
| (5) 2 | (15) 24 | (25) 1 |
| (6) $4x^2 + 6x - 10$ | (16) 450 | (26) 1 |
| (7) 7.3 | (17) $\frac{7x - 16}{12}$ | (27) 4 |
| (8) $9x^2 - 4$ | (18) $40x$ | (28) 1 |
| (9) 94 | (19) 2 | (29) 2 |
| (10) $x - 7$ | (20) 1 | (30) 4 |

[OVER]

NINTH YEAR MATHEMATICS — *concluded*

Part II

Please refer to the Department's pamphlet *Suggestions on the Rating of Regents Examination Papers in Mathematics*. Care should be exercised in making deductions as to whether the error is purely a mechanical one or due to a violation of some principle. A mechanical error generally should receive a deduction of 10 percent, while an error due to a violation of some cardinal principle should receive a deduction ranging from 30 percent to 50 percent, depending on the relative importance of the principle in the solution of the problem.

(32) $x = 4$ [8]
 $y = 3$
 Check [2]

(35) a 71 [5]
 b 23 [5]

(33) Analysis [4]
 9, 12 [6]

(36) Analysis [6]
 3 [4]

(34) a Let x = amount invested at 5%
 $.05x + 2(.07)x = 760$ [5]
 b Let x = time worked together
 $\frac{x}{2} + \frac{x}{3} = 1$ [5]

(37) a {2, -2} [1, 1]
 b {-3, -2} [1, 1]
 c { } [2]
 d {1, -1} [1, 1]
 e {0} [2]

FOR TEACHERS ONLY

3/13
9

SCORING KEY NINTH YEAR MATHEMATICS

B

Tuesday, June 24, 1975—9:15 a.m. to 12:15 p.m., only

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Part I

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- | | | |
|-----------------|---------------------------|--------|
| (1) -12 | (11) 7 | (21) 3 |
| (2) 8 | (12) $\frac{13m + 14}{8}$ | (22) 2 |
| (3) -3 | (13) 10 | (23) 2 |
| (4) 2 | (14) $\frac{2}{3}$ | (24) 4 |
| (5) 1.2 | (15) 25 | (25) 1 |
| (6) $S = An$ | (16) 4.5 | (26) 3 |
| (7) $3a + 7b$ | (17) 5 | (27) 3 |
| (8) 18 | (18) $5\sqrt{2}$ | (28) 4 |
| (9) $5a(x + 4)$ | (19) 4 | (29) 1 |
| (10) $2x + 3$ | (20) 2 | (30) 2 |

[OVER]

Part II

Please refer to the Department's pamphlet *Suggestions on the Rating of Regents Examination Papers in Mathematics*. Care should be exercised in making deductions as to whether the error is purely a mechanical one or due to a violation of some principle. A mechanical error generally should receive a deduction of 10 percent, while an error due to a violation of some cardinal principle should receive a deduction ranging from 30 percent to 50 percent, depending on the relative importance of the principle in the solution of the problem.

32 a $\frac{5+x}{2x}$ [5]

b $-\frac{1}{3}$ [5]

33 Analysis [6]

46, 53 [4]

34 Analysis [5]

3, 5, 7 [5]

35 a 39 [5]

b 17 [5]

36 Analysis [5]

200 [5]

37 a 1 [2]

b 2 [2]

c 1 [2]

d 3 [2]

e 1 [2]

The University of the State of New York
REGENTS HIGH SCHOOL EXAMINATION

NINTH YEAR MATHEMATICS

C

June 1975

The last page of this test booklet is the answer sheet. Turn to the last page and detach it very carefully from the booklet. Then fill in the heading of your answer sheet.

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Part I

Answer all questions in this part. Each correct answer will receive 2 credits. No partial credit will be allowed.

Directions (1-35): Write in the space provided on the separate answer sheet the numeral preceding the expression that best completes each statement or answers each question.

1 Which expression represents the number of cents in n nickels and d dimes?

(1) $15nd$

(3) $5n + 10d$

(2) nd

(4) $n + d$

2 Which set is closed under addition?

(1) $\{1\}$

(3) $\{0, 1\}$

(2) $\{0\}$

(4) $\{0, -1\}$

3 The expression $(-2x^2)^3$ is equivalent to

(1) $6x^8$

(3) $8x^6$

(2) $-6x^8$

(4) $-8x^6$

4 The expression $\frac{5x}{3} + \frac{x}{2}$ is equivalent to

(1) $\frac{5x^2}{6}$

(3) $\frac{13x}{6}$

(2) $\frac{6x}{5}$

(4) $\frac{13x}{12}$

- 5 Which expression has a value of 7?
- (1) $-|-5| - |-2|$ (3) $-|5 + 2|$
(2) $|-5 - 2|$ (4) $|-5| - 2$
- 6 The expression $(3x - 1)^2$ is equivalent to
- (1) $9x^2 + 1$ (3) $9x^2 + 6x + 1$
(2) $6x - 2$ (4) $9x^2 - 6x + 1$
- 7 What is the value of $\sqrt{300}$ to the nearest integer?
- (1) 14 (3) 57
(2) 17 (4) 150
- 8 In factored form, $3x^2 + x - 4$ is equivalent to
- (1) $(3x - 2)(x + 2)$ (3) $(3x + 4)(x - 1)$
(2) $(3x - 4)(x + 1)$ (4) $(3x + 1)(x - 4)$
- 9 Which expression is equivalent to $2\sqrt{75}$?
- (1) $7\sqrt{3}$ (3) $27\sqrt{3}$
(2) $10\sqrt{3}$ (4) $50\sqrt{3}$
- 10 If the legs of a right triangle are 2 and 5, what is the hypotenuse of the triangle?
- (1) $\sqrt{7}$ (3) 29
(2) $\sqrt{29}$ (4) 7

11 What is the area of a circle whose radius is 10?

- (1) 10π
- (2) 20π

- (3) 25π
- (4) 100π

12 A football team has lost $\frac{1}{5}$ of the games it has played. If it has played x games, how many games has the team won?

(1) $\frac{5x - 1}{5}$

(3) $\frac{4}{5}$

(2) $\frac{5x + 1}{5}$

(4) $\frac{4x}{5}$

13 The average of $5n - 3$ and $3n + 7$ is

(1) $8n + 4$

(3) $4n + 2$

(2) $2n - 10$

(4) $n - 5$

14 Subtract the product of (-5) and (-3) from 15.

(1) 0

(3) 23

(2) 13

(4) 30

15 When $8xy^2 + 12xy - 4x$ is divided by $4x$, the quotient is

(1) $2y^2 + 3y$

(3) $2y^2 + 3y - 1$

(2) $5y^3 - 1$

(4) $2y^2 + 3y - x$

16 The perimeter of a square whose area is 64 is

(1) 16

(3) 64

(2) 32

(4) 256

17 Which open sentence is shown by the graph below?



- (1) $-3 \leq x < 2$ (3) $x < 2$
(2) $-3 < x < 2$ (4) $x \geq -3$

18 If the replacement set for x is $\{-1, 0, 1, 3, 5\}$, then the solution set of $x - 3 < 0$ is

- (1) $\{-1, 0, 1\}$ (3) $\{5\}$
(2) $\{-1, 0, 1, 3\}$ (4) $\{ \}$

19 The hypotenuse of a right triangle measures 10 inches and one angle measures 31° . Which equation could be used to find x , the length of the side opposite the 31° angle?

- (1) $\sin 31^\circ = \frac{10}{x}$ (3) $\sin 31^\circ = \frac{x}{10}$
(2) $\cos 31^\circ = \frac{x}{10}$ (4) $\tan 31^\circ = \frac{x}{10}$

20 A triangle has sides of 12, 16, and 20. If the longest side of a similar triangle is 15, what is the length of its shortest side?

- (1) 7 (3) 12
(2) 9 (4) 25

21 If Tom hits the ball 3 times in 10 attempts, what is the ratio of hits to misses?

- (1) $\frac{7}{3}$ (3) $\frac{3}{7}$
(2) $\frac{7}{10}$ (4) $\frac{3}{10}$

22 If $7x^2 - 3x$ is subtracted from $4x^2 - 5x$, the result is

(1) $3x^2 - 8x$

(3) $3x^2 + 2x$

(2) $-3x^2 - 8x$

(4) $-3x^2 - 2x$

23 The coordinates of the point at which the graph of $y = -2x - 3$ intersects the y-axis is

(1) $(-3, 0)$

(3) $(3, 0)$

(2) $(0, -3)$

(4) $(0, 3)$

24 The root of the equation $5y + 9.1 = -2.4$ is

(1) -11.5

(3) 1.34

(2) 2.3

(4) -2.3

25 Solve for x: $\frac{5x}{2} - \frac{2x}{3} = 11$

(1) 1

(3) 6

(2) 5

(4) 22

26 When $2x^2 + x - 10$ is divided by $x + 2$, the remainder is

(1) -3

(3) -16

(2) -4

(4) 0

27 What is the value of x in the following system of equations?

$$6x + y = 52$$

$$2x + y = 4$$

(1) 7

(3) -14

(2) 12

(4) -20

28 The graph of the equation $y + 3x = 7$ has a slope of

- (1) -3
- (2) 7
- (3) 3
- (4) -7

29 Find the solution set of $x^2 + 2x - 8 = 0$

- (1) $\{-4, 2\}$
- (2) $\{-4, -2\}$
- (3) $\{4, -2\}$
- (4) $\{4, 2\}$

30 Which set does not contain negative numbers?

- (1) rational numbers
- (2) integers
- (3) real numbers
- (4) whole numbers

31 The sum of $2\sqrt{3}$ and $2\sqrt{27}$ is

- (1) $7\sqrt{3}$
- (2) $8\sqrt{3}$
- (3) $20\sqrt{3}$
- (4) $2\sqrt{30}$

32 Find the value of $x^3 - x - 8$ if $x = -3$.

- (1) -14
- (2) 22
- (3) -32
- (4) -38

33 The sale price of a coat was \$36.75. This was 75% of the original selling price. What was the original selling price?

(1) \$27.56

(3) \$45.94

(2) \$24.50

(4) \$49.00

34 If a natural number x is divided by its reciprocal, the quotient is

(1) 1

(3) -1

(2) $\frac{1}{x}$

(4) x^2

35 Which number is largest?

(1) .42

(3) $-\frac{3}{4}$

(2) $\frac{2}{5}$

(4) $-\frac{2}{7}$

Part II

This part consists of 15 questions. Answer 10 questions from this part. Each correct answer will receive 3 credits. No partial credit will be allowed.

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Directions (36-50): Choose ten of the following 15 questions. For each one chosen, write in the space provided on the separate answer sheet the numeral preceding the expression that best completes the statement or answers the question.

36 Solve for y : $ax + by = c$

(1) $y = c - ax$

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37 The product $\frac{(a + 3)^2}{x^2} \cdot \frac{4x^2}{4a + 12}$ is equivalent to

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(4) $\frac{(a + 3)^3}{x^4}$

38 Bob has 3 more baseball cards than Steve. Together they have a total of 165 cards. How many cards does Bob have?

(1) 41

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39 Three numbers are in the ratio 4:5:7. If their sum is 128, the largest of the three numbers is

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- 40 What is the root of the equation $\frac{x + 22}{6} - \frac{20 - x}{3} + 2 = 0$?
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49 A man invested x dollars at 7% and y dollars at 5%. He received an annual income of \$290 on his total investment of \$5,000. Which pair of equations could be used to find the amount invested at each rate?

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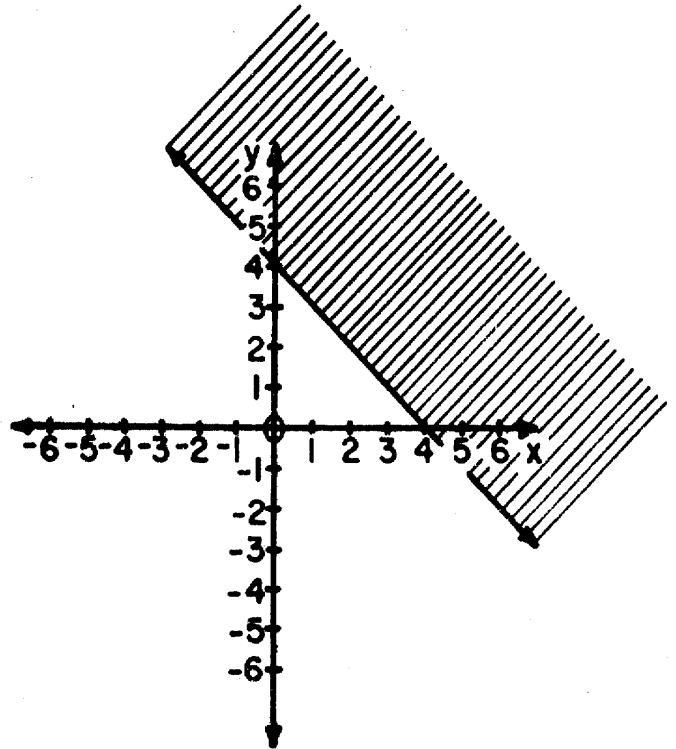
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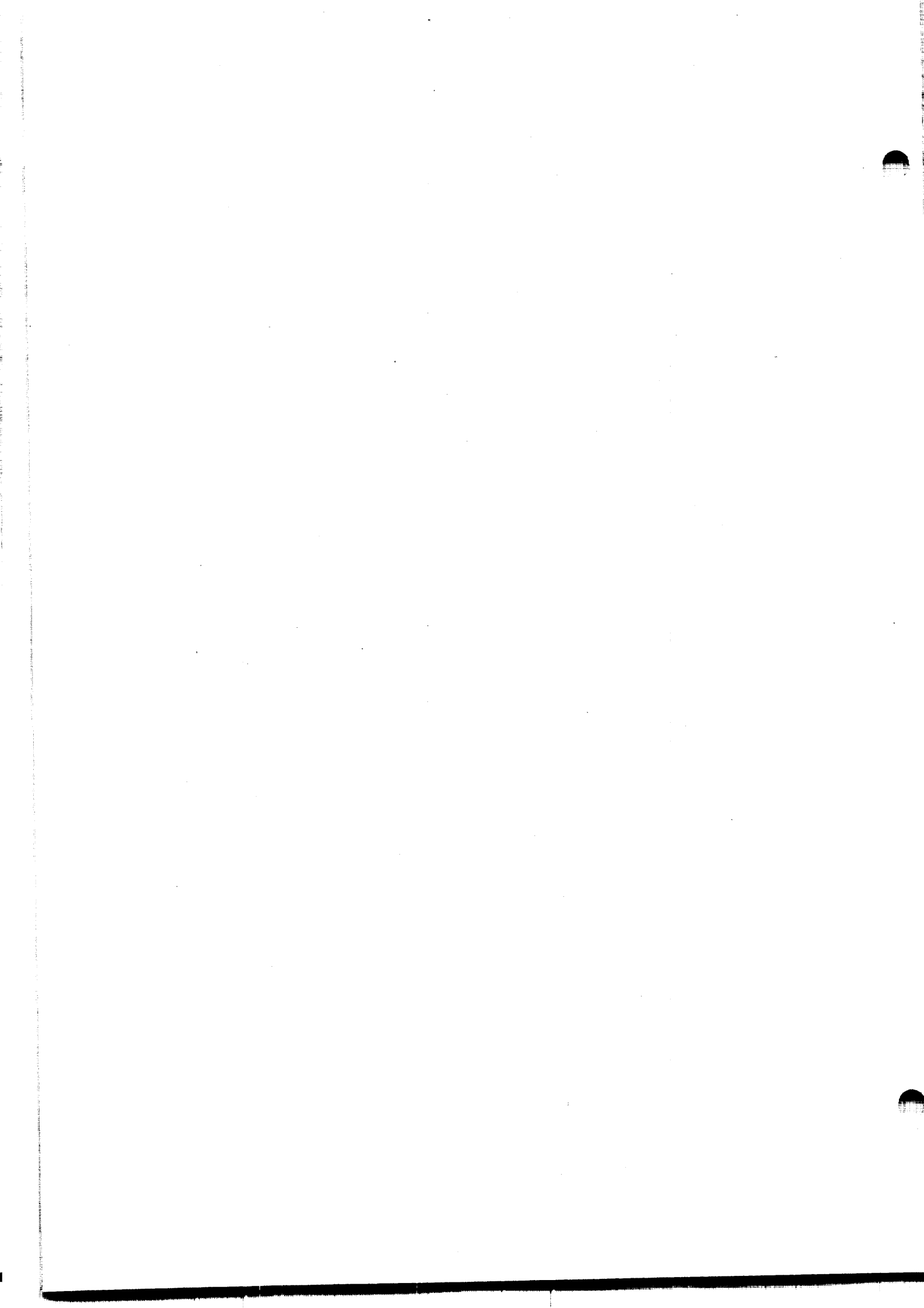
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THE UNIVERSITY OF THE STATE OF NEW YORK
THE STATE EDUCATION DEPARTMENT
 BUREAU OF ELEMENTARY AND SECONDARY EDUCATIONAL TESTING

Tables of Natural Trigonometric Functions
 (For use with 9th and 10th Year Mathematics Regents Examinations)

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1°	.0175	.9998	.0175	46°	.7193	.6947	1.0355
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4°	.0698	.9976	.0699	49°	.7547	.6561	1.1504
5°	.0872	.9962	.0875	50°	.7660	.6428	1.1918
6°	.1045	.9945	.1051	51°	.7771	.6293	1.2349
7°	.1219	.9925	.1228	52°	.7880	.6157	1.2799
8°	.1392	.9903	.1405	53°	.7986	.6018	1.3270
9°	.1564	.9877	.1584	54°	.8090	.5878	1.3764
10°	.1736	.9848	.1763	55°	.8192	.5736	1.4281
11°	.1908	.9816	.1944	56°	.8290	.5592	1.4826
12°	.2079	.9781	.2126	57°	.8387	.5446	1.5399
13°	.2250	.9744	.2309	58°	.8480	.5299	1.6003
14°	.2419	.9703	.2493	59°	.8572	.5150	1.6643
15°	.2588	.9659	.2679	60°	.8660	.5000	1.7321
16°	.2756	.9613	.2867	61°	.8746	.4848	1.8040
17°	.2924	.9563	.3057	62°	.8829	.4695	1.8807
18°	.3090	.9511	.3249	63°	.8910	.4540	1.9626
19°	.3256	.9455	.3443	64°	.8988	.4384	2.0503
20°	.3420	.9397	.3640	65°	.9063	.4226	2.1445
21°	.3584	.9336	.3839	66°	.9135	.4067	2.2460
22°	.3746	.9272	.4040	67°	.9205	.3907	2.3559
23°	.3907	.9205	.4245	68°	.9272	.3746	2.4751
24°	.4067	.9135	.4452	69°	.9336	.3584	2.6051
25°	.4226	.9063	.4663	70°	.9397	.3420	2.7475
26°	.4384	.8988	.4877	71°	.9455	.3256	2.9042
27°	.4540	.8910	.5095	72°	.9511	.3090	3.0777
28°	.4695	.8829	.5317	73°	.9563	.2924	3.2709
29°	.4848	.8746	.5543	74°	.9613	.2756	3.4874
30°	.5000	.8660	.5774	75°	.9659	.2588	3.7321
31°	.5150	.8572	.6009	76°	.9703	.2419	4.0108
32°	.5299	.8480	.6249	77°	.9744	.2250	4.3315
33°	.5446	.8387	.6494	78°	.9781	.2079	4.7046
34°	.5592	.8290	.6745	79°	.9816	.1908	5.1446
35°	.5736	.8192	.7002	80°	.9848	.1736	5.6713
36°	.5878	.8090	.7265	81°	.9877	.1564	6.3138
37°	.6018	.7986	.7536	82°	.9903	.1392	7.1154
38°	.6157	.7880	.7813	83°	.9925	.1219	8.1443
39°	.6293	.7771	.8098	84°	.9945	.1045	9.5144
40°	.6428	.7660	.8391	85°	.9962	.0872	11.4301
41°	.6561	.7547	.8693	86°	.9976	.0698	14.3007
42°	.6691	.7431	.9004	87°	.9986	.0523	19.0811
43°	.6820	.7314	.9325	88°	.9994	.0349	28.6363
44°	.6947	.7193	.9657	89°	.9998	.0175	57.2900
45°	.7071	.7071	1.0000	90°	1.0000	.0000	



The University of the State of New York
REGENTS HIGH SCHOOL EXAMINATION

NINTH YEAR MATHEMATICS

June 1975

ANSWER SHEET



Part I Score:
Part II Score:
<hr/>	
Total
Rater's Initials:

Pupil.....Teacher.....

School.....Grade.....

All of your answers should be recorded on this answer sheet.

Part I: Answer all questions in this part.

- | | | | |
|----|----|----|----|
| 1 | 11 | 21 | 31 |
| 2 | 12 | 22 | 32 |
| 3 | 13 | 23 | 33 |
| 4 | 14 | 24 | 34 |
| 5 | 15 | 25 | 35 |
| 6 | 16 | 26 | |
| 7 | 17 | 27 | |
| 8 | 18 | 28 | |
| 9 | 19 | 29 | |
| 10 | 20 | 30 | |

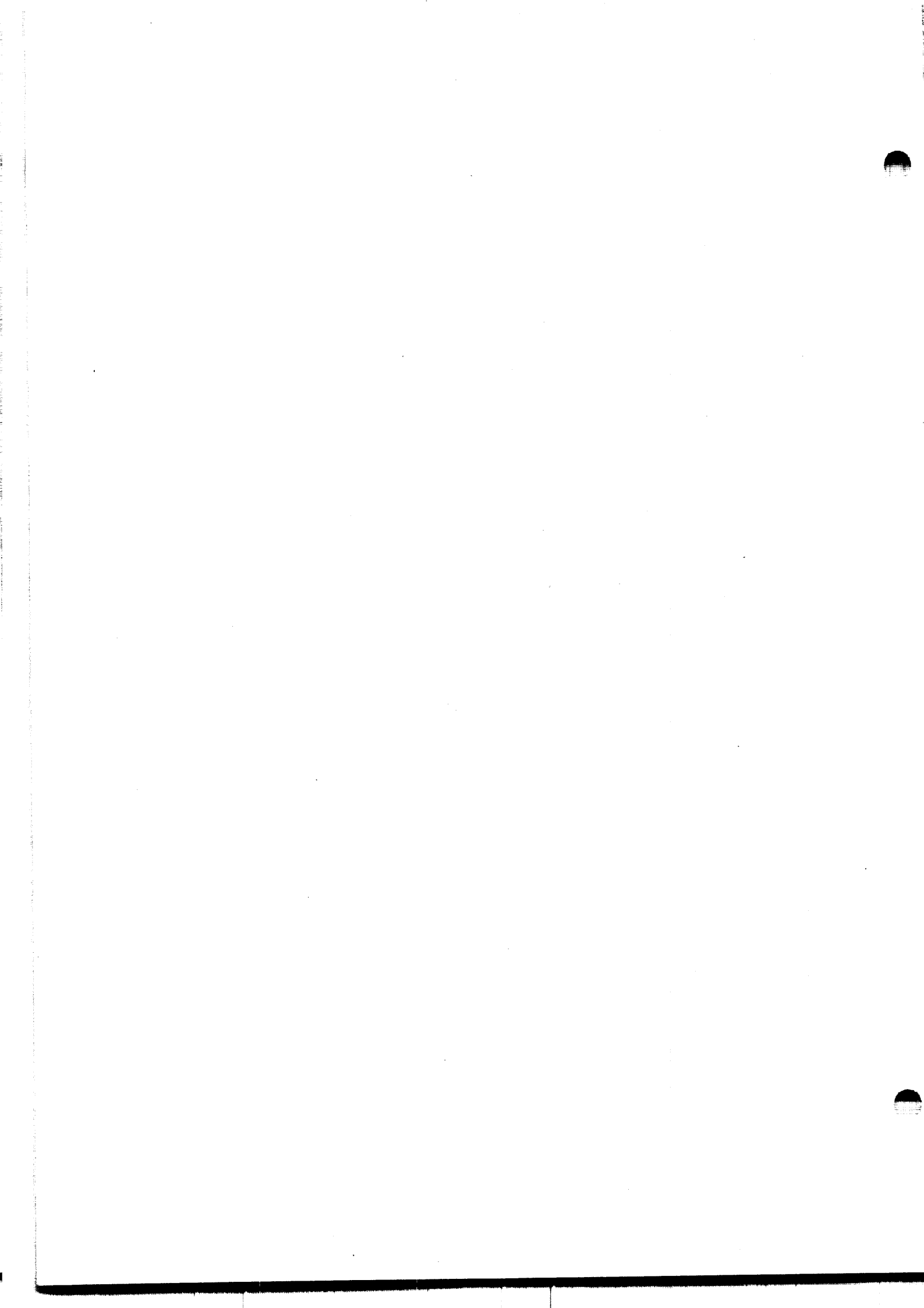
Part II: Answer 10 questions in this part.

- | | |
|----|----|
| 36 | 46 |
| 37 | 47 |
| 38 | 48 |
| 39 | 49 |
| 40 | 50 |
| 41 | |
| 42 | |
| 43 | |
| 44 | |
| 45 | |

The declaration below should be signed when you have completed the examination.

I do hereby affirm, at the close of this examination, that I had no unlawful knowledge of the questions or answers prior to the examination, and that I have neither given nor received assistance in answering any of the questions during the examination.

Signature



FOR TEACHERS ONLY

9

SCORING KEY NINTH YEAR MATHEMATICS

C

June 1975

Use only *red ink* or *red pencil* in rating Regents papers. Do not attempt to *correct* the pupil's work by making insertions or changes of any kind. Use checkmarks to indicate pupil errors.

Part I

Allow 2 credits for each correct answer; allow no partial credit. Allow credit if the pupil has written the correct answer instead of the number 1, 2, 3, or 4.

(1) 3	(8) 3	(15) 3	(22) 4	(29) 1
(2) 2	(9) 2	(16) 2	(23) 2	(30) 4
(3) 4	(10) 2	(17) 1	(24) 4	(31) 2
(4) 3	(11) 4	(18) 1	(25) 3	(32) 3
(5) 2	(12) 4	(19) 3	(26) 2	(33) 4
(6) 4	(13) 3	(20) 2	(27) 2	(34) 4
(7) 2	(14) 1	(21) 3	(28) 1	(35) 1

Part II

Allow 3 credits for each of 10 of the following. Allow credit if the pupil has written the correct answer instead of the number 1, 2, 3, or 4. If a student has answered more than 10 questions on Part II, do not allow credit on those questions beyond the first ten answered.

(36) 4	(39) 4	(42) 2	(45) 4	(48) 4
(37) 1	(40) 2	(43) 2	(46) 3	(49) 3
(38) 3	(41) 2	(44) 4	(47) 3	(50) 1

The University of the State of New York
REGENTS HIGH SCHOOL EXAMINATION

**NINTH YEAR
MATHEMATICS**

C

June 1975

The last page of this test booklet is the answer sheet. Turn to the last page and detach it very carefully from the booklet. Then fill in the heading of your answer sheet.

On page 13 , you will find the "Tables of Natural Trigonometric Functions" which you may need to answer some questions in this examination. Detach this page very carefully from the test booklet also.

When you have completed the examination, you must sign the statement printed at the end of the answer paper, indicating that you had no unlawful knowledge of the questions or answers prior to the examination and that you have neither given nor received assistance in answering any of the questions during the examination. Your answer paper cannot be accepted if you fail to sign this declaration.

DO NOT OPEN THIS EXAMINATION BOOKLET UNTIL THE SIGNAL IS GIVEN

Part I

Answer all questions in this part. Each correct answer will receive 2 credits. No partial credit will be allowed.

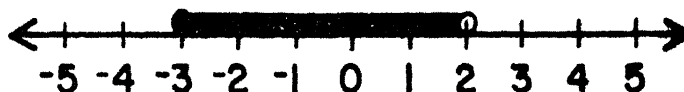
Directions (1-35): Write in the space provided on the separate answer sheet the numeral preceding the expression that best completes each statement or answers each question.

- 1 Which expression represents the number of cents in n nickels and d dimes?
(1) $15nd$ (3) $5n + 10d$
(2) nd (4) $n + d$
- 2 Which set is closed under addition?
(1) $\{1\}$ (3) $\{0,1\}$
(2) $\{0\}$ (4) $\{0,-1\}$
- 3 The expression $(-2x^2)^3$ is equivalent to
(1) $6x^8$ (3) $8x^6$
(2) $-6x^8$ (4) $-8x^6$
- 4 The expression $\frac{5x}{3} + \frac{x}{2}$ is equivalent to
(1) $\frac{5x^2}{6}$ (3) $\frac{13x}{6}$
(2) $\frac{6x}{5}$ (4) $\frac{13x}{12}$

- 5 Which expression has a value of 7?
- (1) $-|-5|-|-2|$ (3) $-|5 + 2|$
(2) $|-5 - 2|$ (4) $|-5| - 2$
- 6 The expression $(3x - 1)^2$ is equivalent to
- (1) $9x^2 + 1$ (3) $9x^2 + 6x + 1$
(2) $6x - 2$ (4) $9x^2 - 6x + 1$
- 7 What is the value of $\sqrt{300}$ to the nearest integer?
- (1) 14 (3) 57
(2) 17 (4) 150
- 8 In factored form, $3x^2 + x - 4$ is equivalent to
- (1) $(3x - 2)(x + 2)$ (3) $(3x + 4)(x - 1)$
(2) $(3x - 4)(x + 1)$ (4) $(3x + 1)(x - 4)$
- 9 Which expression is equivalent to $2\sqrt{75}$?
- (1) $7\sqrt{3}$ (3) $27\sqrt{3}$
(2) $10\sqrt{3}$ (4) $50\sqrt{3}$
- 10 If the legs of a right triangle are 2 and 5, what is the hypotenuse of the triangle?
- (1) $\sqrt{7}$ (3) 29
(2) $\sqrt{29}$ (4) 7

- 11 What is the area of a circle whose radius is 10?
- (1) 10π (3) 25π
(2) 20π (4) 100π
- 12 A football team has lost $\frac{1}{5}$ of the games it has played. If it has played x games, how many games has the team won?
- (1) $\frac{5x - 1}{5}$ (3) $\frac{4}{5}$
(2) $\frac{5x + 1}{5}$ (4) $\frac{4x}{5}$
- 13 The average of $5n - 3$ and $3n + 7$ is
- (1) $8n + 4$ (3) $4n + 2$
(2) $2n - 10$ (4) $n - 5$
- 14 Subtract the product of (-5) and (-3) from 15.
- (1) 0 (3) 23
(2) 13 (4) 30
- 15 When $8xy^2 + 12xy - 4x$ is divided by $4x$, the quotient is
- (1) $2y^2 + 3y$ (3) $2y^2 + 3y - 1$
(2) $5y^3 - 1$ (4) $2y^2 + 3y - x$
- 16 The perimeter of a square whose area is 64 is
- (1) 16 (3) 64
(2) 32 (4) 256

17 Which open sentence is shown by the graph below?



- (1) $-3 \leq x < 2$ (3) $x < 2$
(2) $-3 < x < 2$ (4) $x \geq -3$
- 18 If the replacement set for x is $\{-1, 0, 1, 3, 5\}$, then the solution set of $x - 3 < 0$ is
- (1) $\{-1, 0, 1\}$ (3) $\{5\}$
(2) $\{-1, 0, 1, 3\}$ (4) $\{ \}$
- 19 The hypotenuse of a right triangle measures 10 inches and one angle measures 31° . Which equation could be used to find x , the length of the side opposite the 31° angle?
- (1) $\sin 31^\circ = \frac{10}{x}$ (3) $\sin 31^\circ = \frac{x}{10}$
(2) $\cos 31^\circ = \frac{x}{10}$ (4) $\tan 31^\circ = \frac{x}{10}$
- 20 A triangle has sides of 12, 16, and 20. If the longest side of a similar triangle is 15, what is the length of its shortest side?
- (1) 7 (3) 12
(2) 9 (4) 25
- 21 If Tom hits the ball 3 times in 10 attempts, what is the ratio of hits to misses?
- (1) $\frac{7}{3}$ (3) $\frac{3}{7}$
(2) $\frac{7}{10}$ (4) $\frac{3}{10}$

- 22 If $7x^2 - 3x$ is subtracted from $4x^2 - 5x$, the result is
- (1) $3x^2 - 8x$ (3) $3x^2 + 2x$
(2) $-3x^2 - 8x$ (4) $-3x^2 - 2x$
- 23 The coordinates of the point at which the graph of $y = -2x - 3$ intersects the y-axis is
- (1) $(-3, 0)$ (3) $(3, 0)$
(2) $(0, -3)$ (4) $(0, 3)$
- 24 The root of the equation $5y + 9.1 = -2.4$ is
- (1) -11.5 (3) 1.34
(2) 2.3 (4) -2.3
- 25 Solve for x: $\frac{5x}{2} - \frac{2x}{3} = 11$
- (1) 1 (3) 6
(2) 5 (4) 22
- 26 When $2x^2 + x - 10$ is divided by $x + 2$, the remainder is
- (1) -3 (3) -16
(2) -4 (4) 0
- 27 What is the value of x in the following system of equations?
- $$\begin{aligned} 6x + y &= 52 \\ 2x + y &= 4 \end{aligned}$$
- (1) 7 (3) -14
(2) 12 (4) -20

- 28 The graph of the equation $y + 3x = 7$ has a slope of
- (1) -3 (3) 3
(2) 7 (4) -7
- 29 Find the solution set of $x^2 + 2x - 8 = 0$
- (1) $\{-4, 2\}$ (3) $\{4, -2\}$
(2) $\{-4, -2\}$ (4) $\{4, 2\}$
- 30 Which set does not contain negative numbers?
- (1) rational numbers (3) real numbers
(2) integers (4) whole numbers
- 31 The sum of $2\sqrt{3}$ and $2\sqrt{27}$ is
- (1) $7\sqrt{3}$ (3) $20\sqrt{3}$
(2) $8\sqrt{3}$ (4) $2\sqrt{30}$
- 32 Find the value of $x^3 - x - 8$ if $x = -3$.
- (1) -14 (3) -32
(2) 22 (4) -38

33 The sale price of a coat was \$36.75. This was 75% of the original selling price. What was the original selling price?

(1) \$27.56

(3) \$45.94

(2) \$24.50

(4) \$49.00

34 If a natural number x is divided by its reciprocal, the quotient is

(1) 1

(3) -1

(2) $\frac{1}{x}$

(4) x^2

35 Which number is largest?

(1) .42

(3) $\frac{-3}{4}$

(2) $\frac{2}{5}$

(4) $\frac{-2}{7}$

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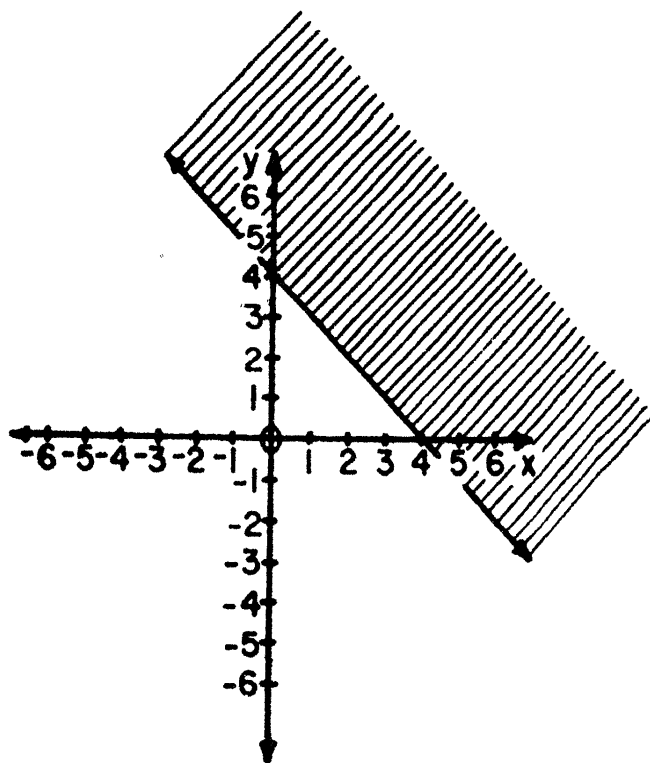
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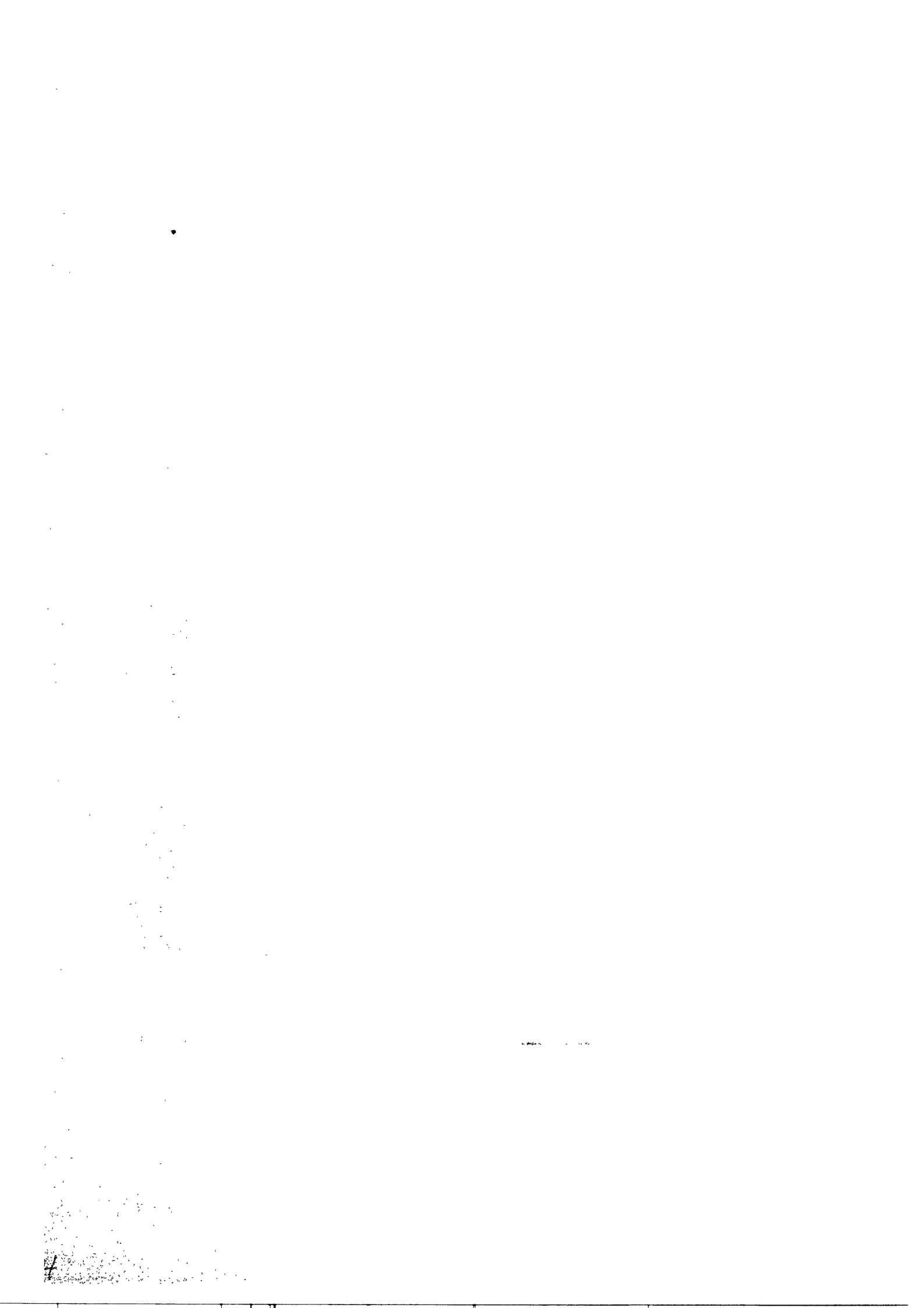
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3°	.0523	.9986	.0524	48°	.7431	.6691	1.1106
4°	.0698	.9976	.0699	49°	.7547	.6561	1.1504
5°	.0872	.9962	.0875	50°	.7660	.6428	1.1918
6°	.1045	.9945	.1051	51°	.7771	.6293	1.2349
7°	.1219	.9925	.1228	52°	.7880	.6157	1.2799
8°	.1392	.9903	.1405	53°	.7986	.6018	1.3270
9°	.1564	.9877	.1584	54°	.8090	.5878	1.3764
10°	.1736	.9848	.1763	55°	.8192	.5736	1.4281
11°	.1908	.9816	.1944	56°	.8290	.5592	1.4826
12°	.2079	.9781	.2126	57°	.8387	.5446	1.5399
13°	.2250	.9744	.2309	58°	.8480	.5299	1.6003
14°	.2419	.9703	.2493	59°	.8572	.5150	1.6643
15°	.2588	.9659	.2679	60°	.8660	.5000	1.7321
16°	.2756	.9613	.2867	61°	.8746	.4848	1.8040
17°	.2924	.9563	.3057	62°	.8829	.4695	1.8807
18°	.3090	.9511	.3249	63°	.8910	.4540	1.9626
19°	.3256	.9455	.3443	64°	.8988	.4384	2.0503
20°	.3420	.9397	.3640	65°	.9063	.4226	2.1445
21°	.3584	.9336	.3839	66°	.9135	.4067	2.2460
22°	.3746	.9272	.4040	67°	.9205	.3907	2.3559
23°	.3907	.9205	.4245	68°	.9272	.3746	2.4751
24°	.4067	.9135	.4452	69°	.9336	.3584	2.6051
25°	.4226	.9063	.4663	70°	.9397	.3420	2.7475
26°	.4384	.8988	.4877	71°	.9455	.3256	2.9042
27°	.4540	.8910	.5095	72°	.9511	.3090	3.0777
28°	.4695	.8829	.5317	73°	.9563	.2924	3.2709
29°	.4848	.8746	.5543	74°	.9613	.2756	3.4874
30°	.5000	.8660	.5774	75°	.9659	.2588	3.7321
31°	.5150	.8572	.6009	76°	.9703	.2419	4.0108
32°	.5299	.8480	.6249	77°	.9744	.2250	4.3315
33°	.5446	.8387	.6494	78°	.9781	.2079	4.7046
34°	.5592	.8290	.6745	79°	.9816	.1908	5.1446
35°	.5736	.8192	.7002	80°	.9848	.1736	5.6713
36°	.5878	.8090	.7265	81°	.9877	.1564	6.3138
37°	.6018	.7986	.7536	82°	.9903	.1392	7.1154
38°	.6157	.7880	.7813	83°	.9925	.1219	8.1443
39°	.6293	.7771	.8098	84°	.9945	.1045	9.5144
40°	.6428	.7660	.8391	85°	.9962	.0872	11.4301
41°	.6561	.7547	.8693	86°	.9976	.0698	14.3007
42°	.6691	.7431	.9004	87°	.9986	.0523	19.0811
43°	.6820	.7314	.9325	88°	.9994	.0349	28.6363
44°	.6947	.7193	.9657	89°	.9998	.0175	57.2900
45°	.7071	.7071	1.0000	90°	1.0000	.0000	



The University of the State of New York
REGENTS HIGH SCHOOL EXAMINATION
NINTH YEAR MATHEMATICS



June 1975

ANSWER SHEET

Part I Score:
Part II Score:
<hr/>	
Total
Rater's Initials:

Pupil.....Teacher.....

School.....Grade.....

All of your answers should be recorded on this answer sheet.

Part I: Answer all questions in this part.

Part II: Answer 10 questions in this part.

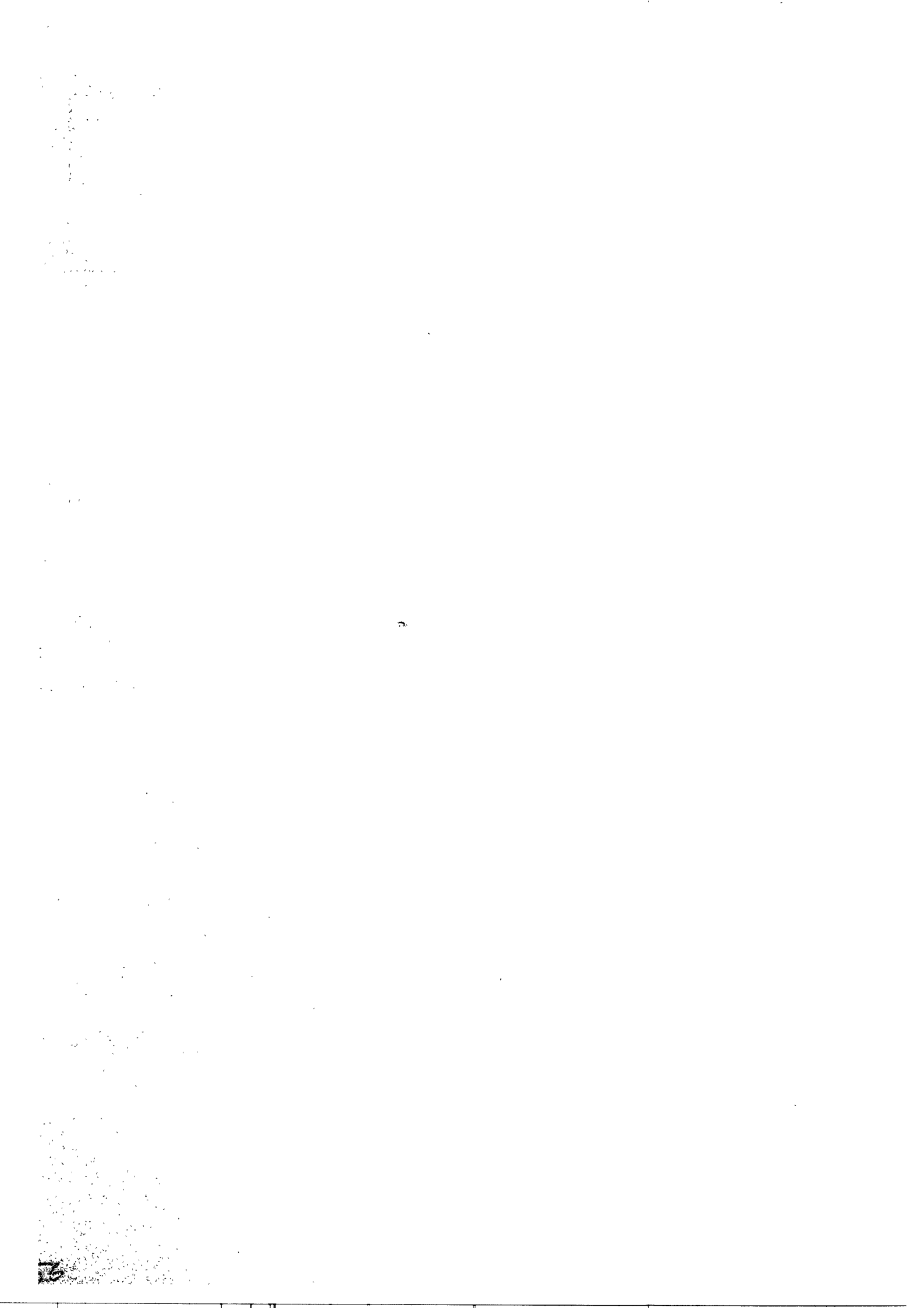
- | | | | | | | | |
|----|-------|----|-------|----|-------|----|-------|
| 1 | _____ | 11 | _____ | 21 | _____ | 31 | _____ |
| 2 | _____ | 12 | _____ | 22 | _____ | 32 | _____ |
| 3 | _____ | 13 | _____ | 23 | _____ | 33 | _____ |
| 4 | _____ | 14 | _____ | 24 | _____ | 34 | _____ |
| 5 | _____ | 15 | _____ | 25 | _____ | 35 | _____ |
| 6 | _____ | 16 | _____ | 26 | _____ | | |
| 7 | _____ | 17 | _____ | 27 | _____ | | |
| 8 | _____ | 18 | _____ | 28 | _____ | | |
| 9 | _____ | 19 | _____ | 29 | _____ | | |
| 10 | _____ | 20 | _____ | 30 | _____ | | |

- | | | | |
|----|-------|----|-------|
| 36 | _____ | 46 | _____ |
| 37 | _____ | 47 | _____ |
| 38 | _____ | 48 | _____ |
| 39 | _____ | 49 | _____ |
| 40 | _____ | 50 | _____ |
| 41 | _____ | | |
| 42 | _____ | | |
| 43 | _____ | | |
| 44 | _____ | | |
| 45 | _____ | | |

The declaration below should be signed when you have completed the examination.

I do hereby affirm, at the close of this examination, that I had no unlawful knowledge of the questions or answers prior to the examination, and that I have neither given nor received assistance in answering any of the questions during the examination.

Signature



FOR TEACHERS ONLY

9

SCORING KEY

NINTH YEAR MATHEMATICS

C

June 1975

Use only *red* ink or *red* pencil in rating Regents papers. Do not attempt to *correct* the pupil's work by making insertions or changes of any kind. Use checkmarks to indicate pupil errors.

Part I

Allow 2 credits for each correct answer; allow no partial credit. Allow credit if the pupil has written the correct answer instead of the number 1, 2, 3, or 4.

(1) 3	(8) 3	(15) 3	(22) 4	(29) 1
(2) 2	(9) 2	(16) 2	(23) 2	(30) 4
(3) 4	(10) 2	(17) 1	(24) 4	(31) 2
(4) 3	(11) 4	(18) 1	(25) 3	(32) 3
(5) 2	(12) 4	(19) 3	(26) 2	(33) 4
(6) 4	(13) 3	(20) 2	(27) 2	(34) 4
(7) 2	(14) 1	(21) 3	(28) 1	(35) 1

Part II

Allow 3 credits for each of 10 of the following. Allow credit if the pupil has written the correct answer instead of the number 1, 2, 3, or 4. If a student has answered more than 10 questions on Part II, do not allow credit on those questions beyond the first ten answered.

(36) 4	(39) 4	(42) 2	(45) 4	(48) 4
(37) 1	(40) 2	(43) 2	(46) 3	(49) 3
(38) 3	(41) 2	(44) 4	(47) 3	(50) 1