

NINTH YEAR MATHEMATICS

Monday, January 26, 1970—1:15 to 4:15 p.m., only

The last page of the booklet is the answer sheet, which is perforated. Fold the last page along the perforation and then, slowly and carefully, tear off the answer sheet. Now fill in the heading of your answer sheet. When you have finished the heading, you may begin the examination immediately.

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.

- What is the numerical value of $3x + 4y$ if $x = 2$ and $y = \frac{1}{2}$?
- If the replacement set is $\{2,3,4,5\}$, list the element(s) of the solution set of $x - 2 > 2$.
- A man 6 feet tall casts a shadow that is 5 feet long. How many feet long is the shadow cast by a nearby tree which is 42 feet tall?
- Find the *positive* root of the equation $3x^2 - 243 = 0$.
- What is the numerical value of $(\cos 60^\circ + \sin 30^\circ)$?
- Express in terms of h and g the number of inches in h yards and g feet.
- If x is a whole number, find the value of x which will make the following expression true:

$$\frac{1}{3} < \frac{x}{6} < \frac{2}{3}$$
- There are 250 pupils in the 9th grade in a certain school and 80% of these are taking elementary algebra. What is the number of pupils taking elementary algebra?
- Find $\sqrt{28}$ to the nearest tenth.
- Find the number of inches in the perimeter of a square whose area is 9 square inches.
- Given $\frac{y}{2a} = b$, solve for y in terms of a and b .
- Express as a single fraction in *simplest* form:

$$\frac{n+7}{3} + \frac{n-3}{4}$$
- Solve the following system of equations for x :

$$\begin{aligned} 3x + y &= 7 \\ 2x - y &= 8 \end{aligned}$$
- Factor completely:

$$3ax + 3ay + 6a$$
- Express as a trinomial the product of $x + 1$ and $x - 3$.
- Find the quotient of $x^3 + 3x^2 + 2x$ divided by $x + 1$.
- From $4x^2 - 8x$ subtract $7x^2 + 3x$.
- Solve for n :

$$\frac{1}{2}(140 - n) = 30$$
- Find the solution set of:

$$.1y + .01y = 2.2$$

Directions (20-30): Write in the space provided on the answer sheet the number providing the response that best completes each statement or answers each question.

20 Which number has the smallest value?

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

21 The expression $(-4)(-2)$ is equivalent to

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

22 The equation $6(x + y) = 6x + 6y$ is an example of the

- (1) associative law of multiplication
 (2) associative law of addition
 (3) commutative law of addition
 (4) distributive law

23 The product of 4^2 and 4^3 is

- (1) 4^5 (2) 4^6
 (3) 4^7 (4) 4^8

24 Which number pair does not belong to the solution set of $x - 2y = 10$?

- (1) $(-4, -7)$ (2) $(1, 2)$
 (3) $(5, -2)$ (4) $(6, -2)$

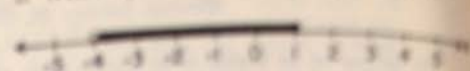
25 Which is an equation of the straight line parallel to the x -axis and 1 unit above it?

- (1) $y = 1$ (2) $x = 1$
 (3) $y = -1$ (4) $x = -1$

26 The set $\{1, 2\}$ is a proper subset of

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

27 Which expression is shown by the graph below?



- (1) $1 < x < -4$ (2) $-4 < x < 1$
 (3) $-3 < x < 1$ (4) $-4 < x < 1$

28 The value of $(-4) \div 10$ is

- (1) -2 (2) -14
 (3) 2 (4) 14

29 The fraction $\frac{-4}{3 - 2x}$ is equivalent to

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

30 The sum of $2\sqrt{12}$ and $\sqrt{48}$ is

- (1) $2\sqrt{30}$ (2) $2\sqrt{5}$
 (3) $2\sqrt{3}$ (4) $15\sqrt{3}$

FOR TEACHERS ONLY

SCORING KEY

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Use only red ink or 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 20-30, allow credit if the pupil has written the correct answer instead of the number 1, 2, 3, or 4.

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|-----------------|-------------------------------|--------|
| (1) 8 | (11) $2ab$ | (21) 1 |
| (2) 5 or (5) | (12) $\frac{7n + 19}{12}$ | (22) 4 |
| (3) 35 | (13) 3 | (23) 2 |
| (4) 9 | (14) $3a(x + y + 2)$ | (24) 3 |
| (5) 1 | (15) $x^2 - 2x - 3$ | (25) 1 |
| (6) $36h + 12g$ | (16) $x(x + 2)$ or $x^2 + 2x$ | (26) 3 |
| (7) 3 | (17) $-3x^2 - 11x$ | (27) 3 |
| (8) 200 | (18) 80 | (28) 4 |
| (9) 5.3 | (19) 20 | (29) 2 |
| (10) 12 | (20) 1 | (30) 2 |

[OVER]