DO NOT OPEN THIS EXAMINATION BOOKLET UNTIL THE SIGNAL IS GIVEN.
1 Allison purchased 4 shirts and a number of pairs of slacks. Using these shirts and slacks, she can wear 20 different outfits consisting of a shirt and a pair of slacks. How many slacks did she buy?

2 In the accompanying diagram, parallel lines \( \ell \) and \( m \) are cut by transversal \( t \) at a 45° angle. Find the number of degrees in the measure of angle \( x \).

3 The accompanying circle represents the 2400 students at Central High School, and the shaded portion represents the freshman class. What is the total number of students in the freshman class?

4 In the accompanying diagram, \( \triangle ABC \) is similar to \( \triangle DEF \), \( AC = 3 \), \( CB = 5 \), and \( DF = 9 \). Find \( FE \).

5 Solve for \( y \): \[ 6y - 4 = 2y + 10 \]

6 The perimeter of a regular pentagon is 60. What is the length of one side of the pentagon?

7 The formula for changing Celsius (C) temperature to Fahrenheit (F) temperature is \( F = 1.8C + 32 \). What is the number of degrees in the value of \( C \) when \( F = 68° \)?

8 In the accompanying diagram, \( \overline{AC} \) is extended from \( C \) through \( D \), \( m \angle BCD = 140 \), and \( m \angle B = 80 \). Find \( m \angle BAC \).

9 The table below shows the distribution of bowling scores. In which interval does the median lie?

<table>
<thead>
<tr>
<th>Interval</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>91–110</td>
<td>10</td>
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<tr>
<td>111–130</td>
<td>11</td>
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<tr>
<td>131–150</td>
<td>8</td>
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<tr>
<td>151–170</td>
<td>4</td>
</tr>
<tr>
<td>171–190</td>
<td>6</td>
</tr>
<tr>
<td>191–210</td>
<td>5</td>
</tr>
</tbody>
</table>

10 Solve this system of equations for \( x \):
\[
\begin{align*}
2x - 3y &= 10 \\
2x + 3y &= 14
\end{align*}
\]
11 What is the y-intercept of the line whose equation is $y = 7x + 5$?

12 The radius of a circle is represented by $3x + 2$, and the length of the diameter is 22 centimeters. Find the value of $x$, in centimeters.

13 The hypotenuse of a right triangle is 26 centimeters and one leg is 24 centimeters. Find the number of centimeters in the second leg.

14 Solve for the positive value of $x$: $\frac{1}{4}x^2 = 16$

15 If 0.000043 is expressed as $4.3 \times 10^n$, what is the value of $n$?

16 What is the area of $\triangle ABC$ as shown in the accompanying diagram?

17 If a base angle of an isosceles triangle measures 50°, what is the number of degrees in the measure of the vertex angle?

19 Which expression is equivalent to $x^2 + 7x + 6$?

   (1) $(x + 6)(x + 1)$  
   (2) $(x + 3)(x + 2)$  
   (3) $(x + 1)(x + 7)$  
   (4) $x(x + 7)$

20 In the accompanying diagram, the circle is divided into six equal parts. If the pointer is spun once, what is the probability that the pointer will land on a number divisible by 3?

   (1) 1  
   (2) $\frac{1}{6}$  
   (3) $\frac{2}{6}$  
   (4) 0

21 The numbers in a distribution are represented by $3x, x + 2, 2x$, and $x - 5$. If $x = 2$, then the mode of these numbers is

   (1) 6  
   (2) 2  
   (3) -3  
   (4) 4

22 Which property is illustrated by the equation $3(x + 4) = 3x + 12$?

   (1) associative property of addition  
   (2) commutative property of addition  
   (3) distributive property of multiplication over addition  
   (4) transitive property of equality

23 Nine students scored 75 or less on a mathematics test. If 75 is the 25th percentile, what is the number of students who took this test?

   (1) 6  
   (2) 12  
   (3) 36  
   (4) 45

24 If the area of a rectangle is represented by $8x^3y^6$ and the width is represented by $2xy^2$, the length is represented by

   (1) $4x^2y^4$  
   (2) $6x^2y^4$  
   (3) $4x^2y^3$  
   (4) $6x^2y^3$
25 The sum of \( \frac{5x}{2} \) and \( \frac{3x}{5} \) is

(1) \( \frac{8x}{7} \) \hspace{1cm} (3) \( \frac{15x}{10} \)
(2) \( \frac{8x}{10} \) \hspace{1cm} (4) \( \frac{31x}{10} \)

26 The expression \( 5(x - 3) - 4(x - 3) \) is equivalent to

(1) \( x - 6 \)
(2) \( x - 3 \)
(3) \( x - 27 \)
(4) \( x - 27 \)

27 Which letter has horizontal but does not have vertical line symmetry?

(1) B
(2) W
(3) O
(4) N

28 Which graph illustrates the relationship \( x + y \leq 4 \)?

29 Which statement is always true?

(1) \( p \land \neg p \)
(2) \( p \lor \neg p \)
(3) \( p \rightarrow \neg p \)
(4) \( p \leftrightarrow \neg p \)

30 Which of these expressions is undefined when \( x = 5 \)?

(1) \( \frac{x - 5}{1} \)
(2) \( \frac{5 - x}{1} \)
(3) \( \frac{1}{x - 5} \)
(4) \( x - 5 \)

31 The expression \( 2\sqrt{2} - \sqrt{50} \) is equivalent to

(1) \( \sqrt{48} \)
(2) \( -3\sqrt{2} \)
(3) \( -7\sqrt{2} \)
(4) \( 5\sqrt{2} \)

32 Triangle \( \triangle A'B'C' \) is the image of \( \triangle ABC \) under a given transformation. If \( \triangle A'B'C' \) is similar but not congruent to \( \triangle ABC \), the transformation must be

(1) dilation
(2) line reflection
(3) rotation
(4) translation

33 A cube whose edge has a length of 4 has the same volume as a rectangular box whose length is 8 and whose width is 4. The height of the rectangular box is

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

34 What is the value of \( \frac{3}{4} \left( \frac{2}{3} \right)^0 \)?

(1) 1
(2) \( \frac{4}{3} \)
(3) \( \frac{3}{4} \)
(4) \( \frac{6}{12} \)

35 Which transformation is shown in the accompanying diagram?

(1) reflection
(2) translation
(3) rotation
(4) dilation
36  a On the same set of coordinate axes, graph the
lines of the following equations.
   (1) $y - 2x = 1$  [3]
   (2) $3x + y = 6$  [3]
   (3) $y = -3$  [2]

   b Write the coordinates of all the vertices of the tri-
angle formed by the lines graphed in part a.  [2]

37  a On your answer paper, construct and com-
plete a truth table for the statement
   $(\neg p \land q) \leftrightarrow (p \lor q)$.  [9]

   b Based on the truth table completed in part a,
is the statement $(\neg p \land q) \leftrightarrow (p \lor q)$ a
tautology?  [1]

38 Cedric and Zelda went shopping at Price Buster.
Cedric bought 2 jumbo rolls of aluminum foil
and 3 packages of AA batteries for a total cost of
$21. Zelda bought 5 identical jumbo rolls of alu-
mimum foil and 2 identical packages of AA bat-
teries for a total cost of $25. Find the cost of
1 roll of aluminum foil and find the cost of
1 package of AA batteries. [Only an algebraic
solution will be accepted.]  [10]

39 The measures of the angles of $\triangle ABC$ are rep-
resented by $x^2 + 5$, $6x - 3$, and $x + 8$.
   a Find the measure of each angle of this tri-
angle. [Only an algebraic solution will be ac-
cepted.]  [8]
   b Which type of triangle is $\triangle ABC$?  [2]

40 A bank contains 30 coins, consisting of nickels,
dimes, and quarters. There are twice as many
nickels as quarters and the remaining coins are
dimes. If the total value of the coins is $3.35,
what is the number of each type of coin in the
bank? [Show or explain the procedure used to
obtain your answer.]  [10]

41 The accompanying diagram shows two roads that
lead from Town B to Town L and four roads that
go from Town L to Town M. The numbers in
parentheses show the distances between each of
these towns.

   a Draw a tree diagram or list the sample space
showing all possible routes from Town B to
Town M.  [4]

   b Bonnie traveled from Town B to Town M,
   passing through Town L. Find the probability
   that
      (1) both roads she chose are odd-numbered
          roads  [2]
      (2) the total distance in miles from Town B to
          Town M is a prime number  [2]
      (3) the distance from Town B to Town M is
          less than 9 miles  [2]

42 In the accompanying diagram, right triangle
ABC, with the right angle at B, is inscribed in
circle O, $\overline{AC}$ is a diameter, $AB = 6$ centimeters,
and $BC = 8$ centimeters. Find the area of the
shaded region to the nearest tenth of a square
centimeter.  [10]
The University of the State of New York
REGENTS HIGH SCHOOL EXAMINATION

SEQUENTIAL MATH – COURSE I

Tuesday, June 20, 2000 — 1:15 to 4:15 p.m., only

ANSWER SHEET

Pupil ............................................. Sex: ☐ Male ☐ Female Grade ..............
Teacher .............................................. School .................................

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

Part I

Answer 30 questions from this part.

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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

Math. – Course I – June '00
FOR TEACHERS ONLY

The University of the State of New York

REGENTS HIGH SCHOOL EXAMINATION

THREE-YEAR SEQUENCE FOR HIGH SCHOOL MATHEMATICS

COURSE I

Tuesday, June 20, 2000 — 1:15 to 4:15 p.m., only

SCORING KEY

Use only red ink or red pencil in rating Regents papers. Do not attempt to correct the student's work by making insertions or changes of any kind. Use checkmarks to indicate student 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 a total of 60 credits, 2 credits for each of 30 of the following. [If more than 30 are answered, only the first 30 answered should be considered.] Allow no partial credit. For questions 18–35, allow credit if the student has written the correct answer instead of the numeral 1, 2, 3, or 4.

(1) 5 (11) 5 (21) 4 (31) 2
(2) 135 (12) 3 (22) 3 (32) 1
(3) 800 (13) 10 (23) 3 (33) 2
(4) 15 (14) 8 (24) 1 (34) 3
(5) 3.5 (15) –5 (25) 4 (35) 2
(6) 12 (16) 6 (26) 2
(7) 20 (17) 80 (27) 1
(8) 60 (18) 4 (28) 4
(9) 131–150 (19) 1 (29) 2
(10) 8 (20) 4 (30) 3

[OVER]
Part II

Please refer to the Department's publication *Guide for Rating Regents Examinations in Mathematics*, 1996 Edition. 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.

(36) $b \ (1,3), (3,-3), (-2,-3) \ [2]$

(37) $b \ \text{No} \ [1]$

(38) $\$3$ for one jumbo roll of aluminum foil

$\$5$ for one package of AA batteries

(39) $a \ 105^\circ, 57^\circ, 18^\circ \ [8]$

$b \ \text{obtuse or scalene} \ [2]$

(40) $14 \text{ nickels}$

$9 \text{ dimes} \ [10]$

$7 \text{ quarters}$

(41) $b \ (1) \ \frac{3}{8} \ [2]$

(42) $15.3 \ [10]$