

The University of the State of New York

REGENTS HIGH SCHOOL EXAMINATION

MATHEMATICS B

Thursday, June 20, 2002 — 1:15 to 4:15 p.m., only

Print Your Name:

Print Your School's Name:

Print your name and the name of your school in the boxes above. Then turn to the last page of this booklet, which is the answer sheet for Part I. 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.

Scrap paper is not permitted for any part of this examination, but you may use the blank spaces in this booklet as scrap paper. A perforated sheet of scrap graph paper is provided at the end of this booklet for any question for which graphing may be helpful but is not required. Any work done on this sheet of scrap graph paper will *not* be scored. All work should be written in pen, except graphs and drawings, which should be done in pencil.

This examination has four parts, with a total of 34 questions. You must answer all questions in this examination. Write your answers to the Part I multiple-choice questions on the separate answer sheet. Write your answers to the questions in Parts II, III, and IV directly in this booklet. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. The formulas that you may need to answer some questions in this examination are found on page 2.

When you have completed the examination, you must sign the statement printed at the end of the answer sheet, 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 sheet cannot be accepted if you fail to sign this declaration.

Notice . . .

A graphing calculator, a straightedge (ruler), and a compass must be available for your use while taking this examination.

DO NOT OPEN THIS EXAMINATION BOOKLET UNTIL THE SIGNAL IS GIVEN.

Formulas

Area of Triangle

$$K = \frac{1}{2} ab \sin C$$

Functions of the Sum of Two Angles

$$\sin(A + B) = \sin A \cos B + \cos A \sin B$$

$$\cos(A + B) = \cos A \cos B - \sin A \sin B$$

Functions of the Difference of Two Angles

$$\sin(A - B) = \sin A \cos B - \cos A \sin B$$

$$\cos(A - B) = \cos A \cos B + \sin A \sin B$$

Law of Sines

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

Law of Cosines

$$a^2 = b^2 + c^2 - 2bc \cos A$$

Functions of the Double Angle

$$\sin 2A = 2 \sin A \cos A$$

$$\cos 2A = \cos^2 A - \sin^2 A$$

$$\cos 2A = 2 \cos^2 A - 1$$

$$\cos 2A = 1 - 2 \sin^2 A$$

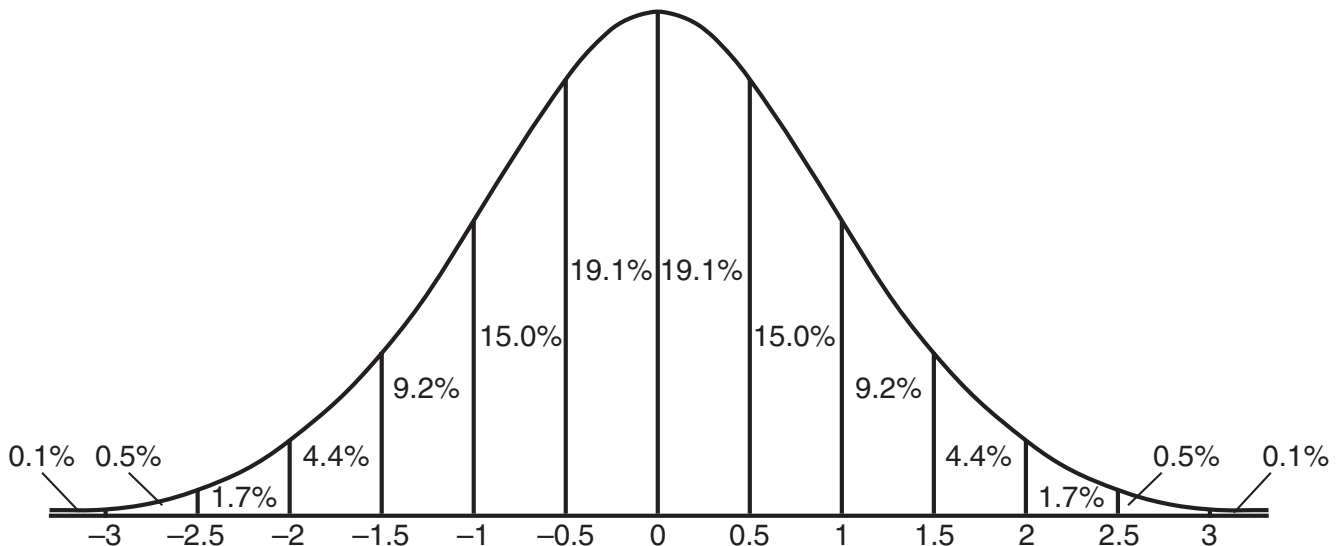
Functions of the Half Angle

$$\sin \frac{1}{2} A = \pm \sqrt{\frac{1 - \cos A}{2}}$$

$$\cos \frac{1}{2} A = \pm \sqrt{\frac{1 + \cos A}{2}}$$

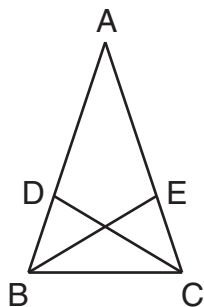
Normal Curve

Standard Deviation



- 4 In the accompanying diagram of $\triangle ABC$, $\overline{AB} \cong \overline{AC}$, $\overline{BD} = \frac{1}{3}\overline{BA}$, and $\overline{CE} = \frac{1}{3}\overline{CA}$.

Use this space for computations.



Triangle EBC can be proved congruent to triangle DCB by

- (1) SAS \cong SAS (3) SSS \cong SSS
(2) ASA \cong ASA (4) HL \cong HL
- 5 The path of a rocket is represented by the equation $y = \sqrt{25 - x^2}$. The path of a missile designed to intersect the path of the rocket is represented by the equation $x = \frac{3}{2}\sqrt{y}$. The value of x at the point of intersection is 3. What is the corresponding value of y ?
- (1) -2 (3) -4
(2) 2 (4) 4
- 6 On a standardized test, the distribution of scores is normal, the mean of the scores is 75, and the standard deviation is 5.8. If a student scored 83, the student's score ranks
- (1) below the 75th percentile
(2) between the 75th percentile and the 84th percentile
(3) between the 84th percentile and the 97th percentile
(4) above the 97th percentile

- 7 Which statement is true for all real number values of x ?

- (1) $|x - 1| > 0$ (3) $\sqrt{x^2} = x$
(2) $|x - 1| > (x - 1)$ (4) $\sqrt{x^2} = |x|$

Use this space for
computations.

8 If x is a positive integer, $4x^{\frac{1}{2}}$ is equivalent to

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

(3) $4\sqrt{x}$

(2) $2x$

(4) $4\frac{1}{x}$

9 What is the equation of a parabola that goes through points $(0,1)$, $(-1,6)$, and $(2,3)$?

(1) $y = x^2 + 1$

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

(2) $y = 2x^2 + 1$

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

10 If $f(x) = 2x^2 + 4$ and $g(x) = x - 3$, which number satisfies $f(x) = (f \circ g)(x)$?

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

(3) 5

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

(4) 4

11 A linear regression equation of best fit between a student's attendance and the degree of success in school is $h = 0.5x + 68.5$. The correlation coefficient, r , for these data would be

(1) $0 < r < 1$

(3) $r = 0$

(2) $-1 < r < 0$

(4) $r = -1$

12 What is the solution set of the equation $\frac{x}{x-4} - \frac{1}{x+3} = \frac{28}{x^2 - x - 12}$?

(1) $\{ \}$

(3) $\{-6\}$

(2) $\{4, -6\}$

(4) $\{4\}$

13 Which equation represents a function?

(1) $4y^2 = 36 - 9x^2$

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

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

(4) $x = y^2 - 6x + 8$

Use this space for
computations.

14 What is the solution set of the equation $x = 2\sqrt{2x-3}$?

(1) $\{ \}$

(3) $\{6\}$

(2) $\{2\}$

(4) $\{2,6\}$

15 What is the sum of $\sqrt{-2}$ and $\sqrt{-18}$?

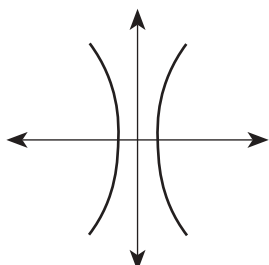
(1) $5i\sqrt{2}$

(3) $2i\sqrt{5}$

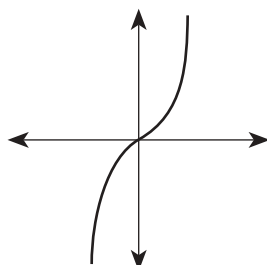
(2) $4i\sqrt{2}$

(4) $6i$

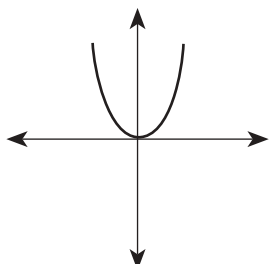
16 Which diagram represents a one-to-one function?



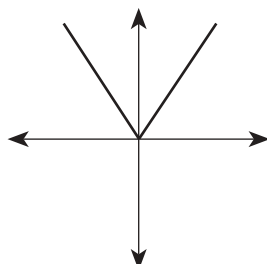
(1)



(3)



(2)



(4)

17 Point P' is the image of point $P(-3,4)$ after a translation defined by $T_{(7,-1)}$. Which other transformation on P would also produce P' ?

Use this space for computations.

- (1) $r_{y=-x}$ (3) R_{90°
 (2) $r_{y\text{-axis}}$ (4) R_{-90°

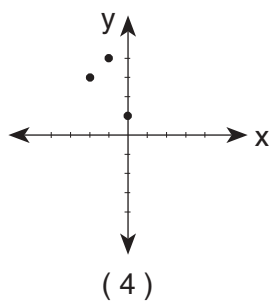
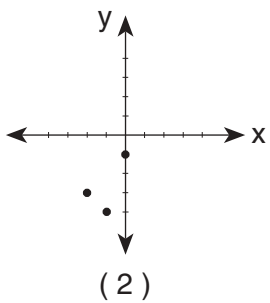
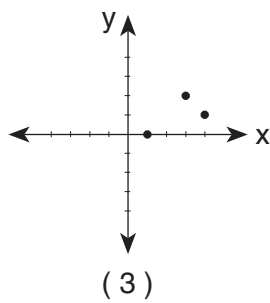
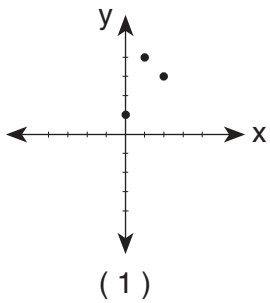
18 Which transformation does *not* preserve orientation?

- (1) translation (3) reflection in the y -axis
 (2) dilation (4) rotation

19 The roots of the equation $2x^2 - x = 4$ are

- (1) real and irrational (3) real, rational, and unequal
 (2) real, rational, and equal (4) imaginary

20 Which graph represents the inverse of $f(x) = \{(0,1),(1,4),(2,3)\}$?



Part II

Answer all questions in this part. Each correct answer will receive 2 credits. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. For all questions in this part, a correct numerical answer with no work shown will receive only 1 credit. [12]

21 On a nationwide examination, the Adams School had a mean score of 875 and a standard deviation of 12. The Boswell School had a mean score of 855 and a standard deviation of 20. In which school was there greater consistency in the scores? Explain how you arrived at your answer.

22 Is $\frac{1}{2} \sin 2x$ the same expression as $\sin x$? Justify your answer.

23 After studying a couple's family history, a doctor determines that the probability of any child born to this couple having a gene for disease X is 1 out of 4. If the couple has three children, what is the probability that *exactly* two of the children have the gene for disease X ?

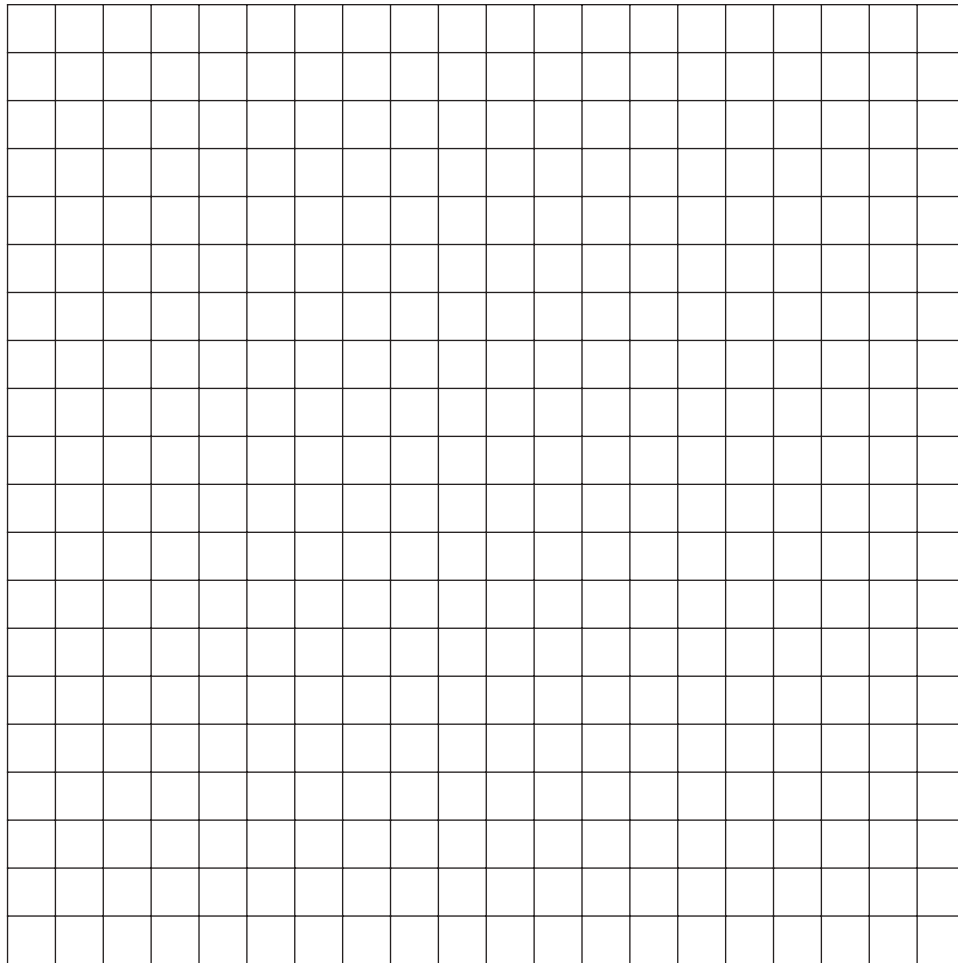
24 Growth of a certain strain of bacteria is modeled by the equation $G = A(2.7)^{0.584t}$, where:

G = final number of bacteria
 A = initial number of bacteria
 t = time (in hours)

In approximately how many hours will 4 bacteria first increase to 2,500 bacteria? Round your answer to the *nearest hour*.

25 The equation $W = 120I - 12I^2$ represents the power (W), in watts, of a 120-volt circuit having a resistance of 12 ohms when a current (I) is flowing through the circuit. What is the maximum power, in watts, that can be delivered in this circuit?

26 Island Rent-a-Car charges a car rental fee of \$40 plus \$5 per hour or fraction of an hour. Wayne's Wheels charges a car rental fee of \$25 plus \$7.50 per hour or fraction of an hour. Under what conditions does it cost *less* to rent from Island Rent-a-Car? [The use of the accompanying grid is optional.]



Part III

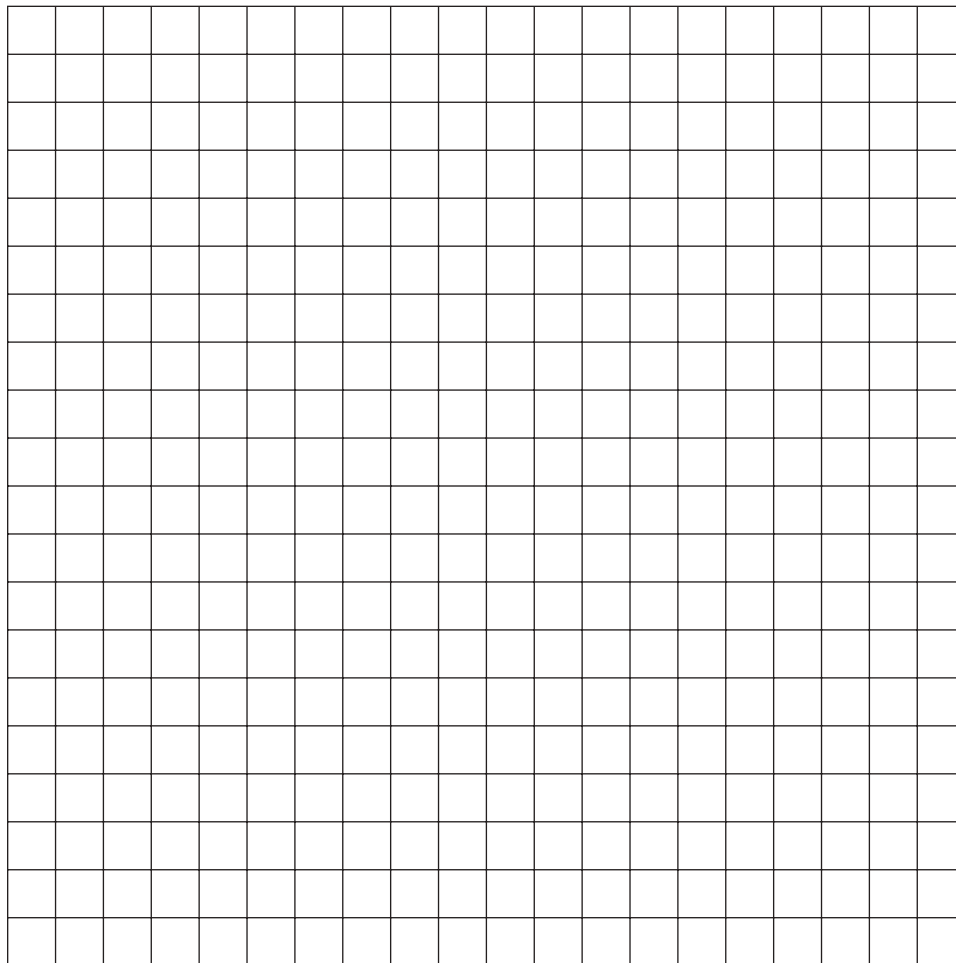
Answer all questions in this part. Each correct answer will receive 4 credits. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. For all questions in this part, a correct numerical answer with no work shown will receive only 1 credit. [24]

27 An electronics company produces a headphone set that can be adjusted to accommodate different-sized heads. Research into the distance between the top of people's heads and the top of their ears produced the following data, in inches:

4.5, 4.8, 6.2, 5.5, 5.6, 5.4, 5.8, 6.0, 5.8, 6.2, 4.6, 5.0, 5.4, 5.8

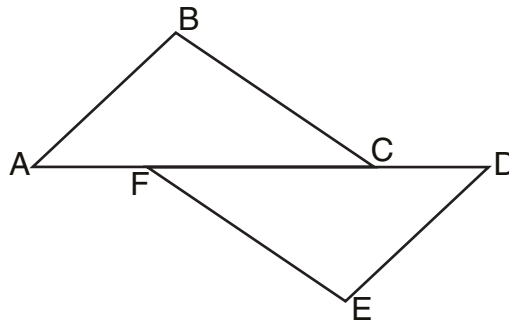
The company decides to design their headphones to accommodate three standard deviations from the mean. Find, to the *nearest tenth*, the mean, the standard deviation, and the range of distances that must be accommodated.

28 A pelican flying in the air over water drops a crab from a height of 30 feet. The distance the crab is from the water as it falls can be represented by the function $h(t) = -16t^2 + 30$, where t is time, in seconds. To catch the crab as it falls, a gull flies along a path represented by the function $g(t) = -8t + 15$. Can the gull catch the crab before the crab hits the water? Justify your answer. [The use of the accompanying grid is optional.]



29 Complete the partial proof below for the accompanying diagram by providing reasons for steps 3, 6, 8, and 9.

Given: \overline{AFCD}
 $\overline{AB} \perp \overline{BC}$
 $\overline{DE} \perp \overline{EF}$
 $\overline{BC} \parallel \overline{FE}$
 $\overline{AB} \cong \overline{DE}$

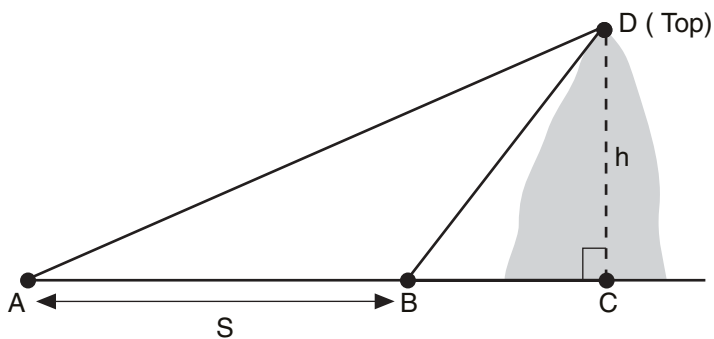


Prove: $\overline{AC} \cong \overline{FD}$

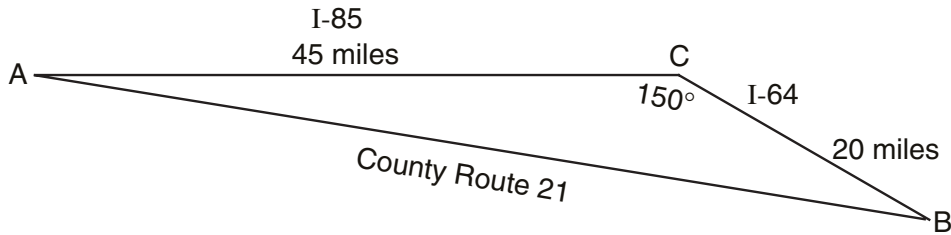
Statements	Reasons
1 \overline{AFCD}	1 Given
2 $\overline{AB} \perp \overline{BC}$, $\overline{DE} \perp \overline{EF}$	2 Given
3 $\angle B$ and $\angle E$ are right angles.	3 _____ _____
4 $\angle B \cong \angle E$	4 All right angles are congruent.
5 $\overline{BC} \parallel \overline{FE}$	5 Given
6 $\angle BCA \cong \angle FED$	6 _____ _____
7 $\overline{AB} \cong \overline{DE}$	7 Given
8 $\triangle ABC \cong \triangle DEF$	8 _____ _____
9 $\overline{AC} \cong \overline{FD}$	9 _____ _____

30 Solve for x : $\log_4(x^2 + 3x) - \log_4(x + 5) = 1$

31 A ship at sea heads directly toward a cliff on the shoreline. The accompanying diagram shows the top of the cliff, D , sighted from two locations, A and B , separated by distance S . If $m\angle DAC = 30$, $m\angle DBC = 45$, and $S = 30$ feet, what is the height of the cliff, to the nearest foot?



32 Kieran is traveling from city A to city B . As the accompanying map indicates, Kieran could drive directly from A to B along County Route 21 at an average speed of 55 miles per hour or travel on the interstates, 45 miles along I-85 and 20 miles along I-64. The two interstates intersect at an angle of 150° at C and have a speed limit of 65 miles per hour. How much time will Kieran save by traveling along the interstates at an average speed of 65 miles per hour?



Part IV

Answer all questions in this part. Each correct answer will receive 6 credits. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. For all questions in this part, a correct numerical answer with no work shown will receive only 1 credit. [12]

- 33 On a monitor, the graphs of two impulses are recorded on the same screen, where $0^\circ \leq x < 360^\circ$. The impulses are given by the following equations:

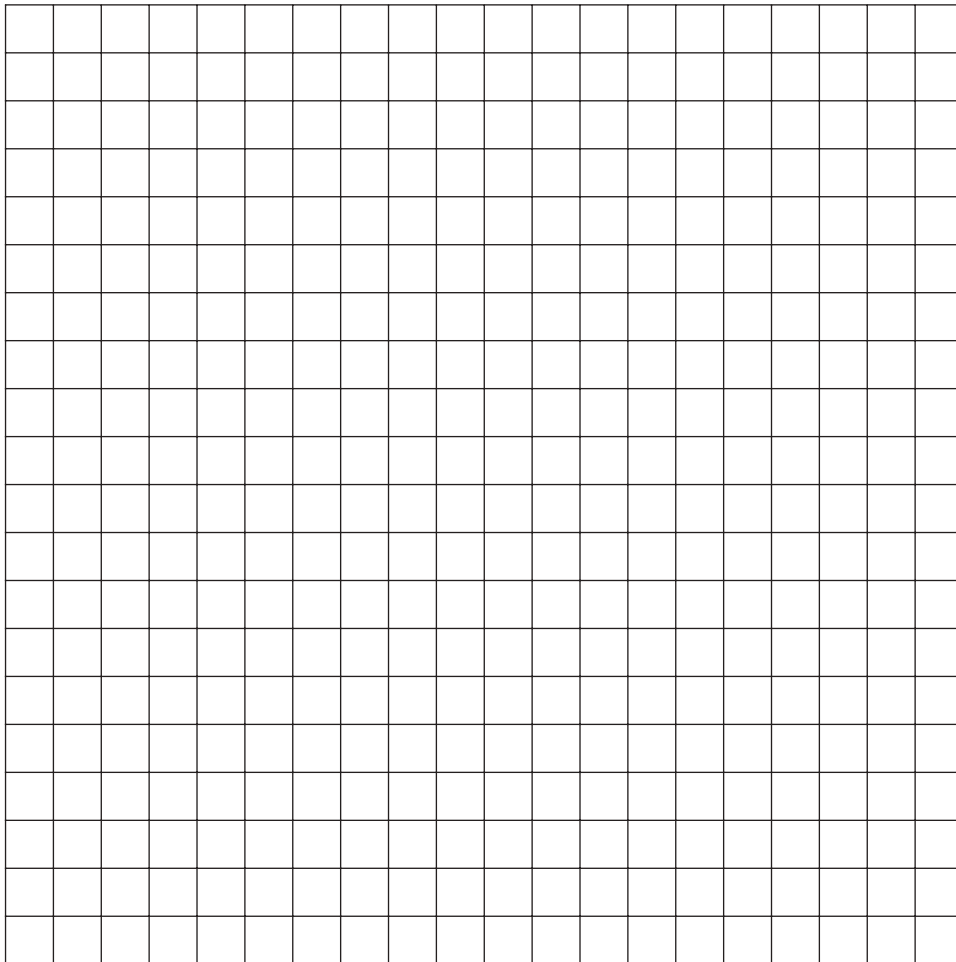
$$y = 2 \sin^2 x$$

$$y = 1 - \sin x$$

Find all values of x , in degrees, for which the two impulses meet in the interval $0^\circ \leq x < 360^\circ$. [Only an algebraic solution will be accepted.]

34 The table below, created in 1996, shows a history of transit fares from 1955 to 1995. On the accompanying grid, construct a scatter plot where the independent variable is years. State the exponential regression equation with the coefficient and base rounded to the *nearest thousandth*. Using this equation, determine the prediction that should have been made for the year 1998, to the *nearest cent*.

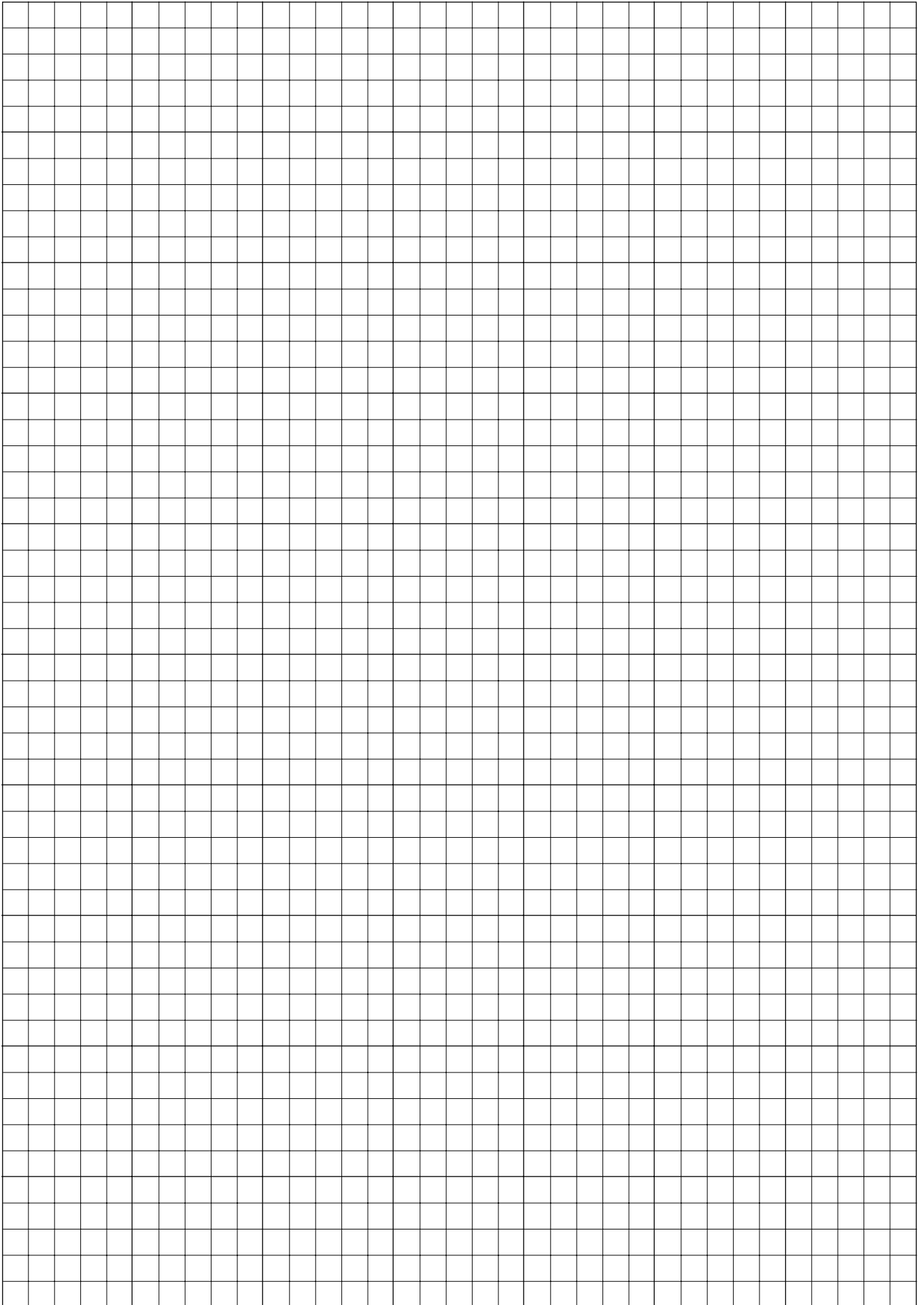
Year	55	60	65	70	75	80	85	90	95
Fare (\$)	0.10	0.15	0.20	0.30	0.40	0.60	0.80	1.15	1.50



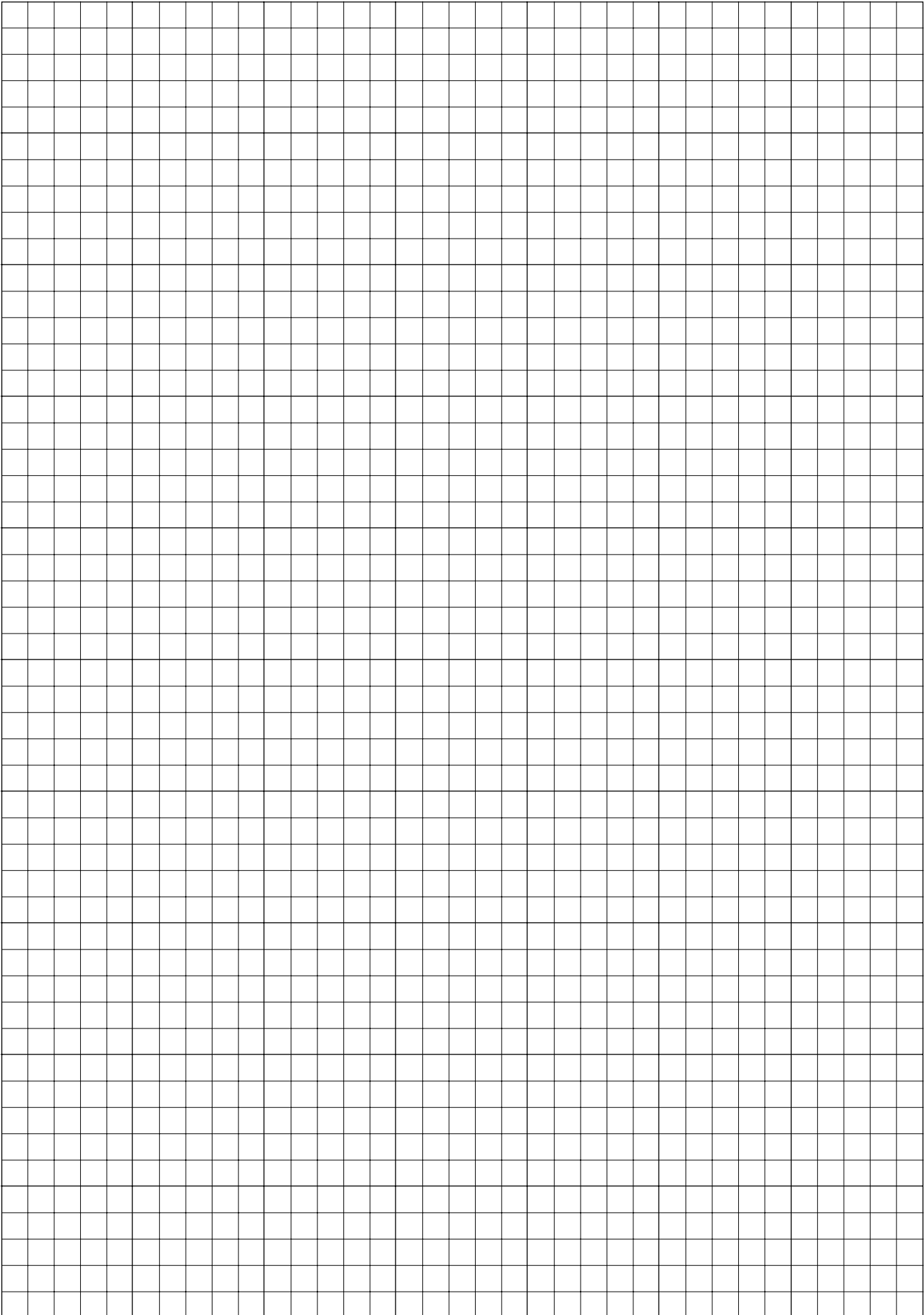
Scrap Graph Paper — This sheet will *not* be scored.

Tear Here

Tear Here



Scrap Graph Paper — This sheet will *not* be scored.



Tear Here

Tear Here

Tear Here

The University of the State of New York

REGENTS HIGH SCHOOL EXAMINATION

MATHEMATICS B

Thursday, June 20, 2002 — 1:15 to 4:15 p.m., only

ANSWER SHEET

Student Sex: Male Female Grade

Teacher School

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

Part I

Answer all 20 questions in this part.

- 1 6 11 16
2 7 12 17
3 8 13 18
4 9 14 19
5 10 15 20

Your answers for Parts II, III, and IV should be written in the test booklet.

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

Tear Here

FOR TEACHERS ONLY

The University of the State of New York

REGENTS HIGH SCHOOL EXAMINATION

MATHEMATICS B

Thursday, June 20, 2002 — 1:15 to 4:15 p.m., only

SCORING KEY

Mechanics of Rating

The following procedures are to be followed for scoring student answer papers for the Mathematics B examination. More detailed information about scoring is provided in the publication *Information Booklet for Administering and Scoring the Regents Examinations in Mathematics A and Mathematics B*.

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.

Each student's answer paper is to be scored by a minimum of three mathematics teachers. On the back of the student's detachable answer sheet, raters must enter their initials in the boxes next to the questions they have scored and also write their name in the box under the heading "Rater's/Scorer's Name."

Raters should record the student's scores for all questions and the total raw score on the student's detachable answer sheet. Then the student's total raw score should be converted to a scaled score by using the conversion chart printed at the end of this key. The student's scaled score should be entered in the box provided on the student's detachable answer sheet. The scaled score is the student's final examination score.

Part I

Allow a total of 40 credits, 2 credits for each of the following. Allow credit if the student has written the correct answer instead of the numeral 1, 2, 3, or 4.

(1) 4	(6) 3	(11) 1	(16) 3
(2) 2	(7) 4	(12) 3	(17) 4
(3) 2	(8) 3	(13) 2	(18) 3
(4) 1	(9) 4	(14) 4	(19) 1
(5) 4	(10) 1	(15) 2	(20) 3

Part II

For each question, use the specific criteria to award a maximum of two credits.

- (21) [2] The Adams School, and an appropriate explanation is given, such as the standard deviation is a measure of dispersion, which is how much the scores, on the average, differ from the mean. Therefore, the school with the smaller standard deviation would have the more consistent scores.

[1] The Adams School, but an incomplete explanation is given, or the school is not stated, but an appropriate explanation is given.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

- (22) [2] No, and appropriate work is shown, such as setting the expressions equal to each other, with one trials showing that the two expressions are not always equal.

[1] No, but only one trial shows that the two expressions are not always equal.

or

[1] Yes, but appropriate work is shown, such as using 0° and 180° as trials.

[0] No or yes, and no work or incorrect work is shown.

or

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

MATHEMATICS B – *continued*

(23) [2] $\frac{9}{64}$, and appropriate work is shown, such as ${}_3C_2\left(\frac{1}{4}\right)^2\left(\frac{3}{4}\right)^1$.

[1] Only ${}_3C_2\left(\frac{1}{4}\right)^2\left(\frac{3}{4}\right)^1$ is shown.

or

[1] Appropriate work is shown, but one computational error is made.

or

[1] $\frac{9}{64}$, but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

(24) [2] 12, and appropriate work is shown, such as solving $2,500 = 4(2.7)^{0.584t}$.

[1] Appropriate work is shown, but the answer is not rounded or is rounded to 11.

or

[1] Appropriate work is shown, but one computational error is made.

or

[1] 12, but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

MATHEMATICS B – *continued*

(25) [2] 300, and appropriate work is shown.

[1] Appropriate work is shown, but one computational error is made.

or

[1] 300, but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

(26) [2] More than 6 hours, and appropriate work is shown, using a graphic or algebraic solution.

[1] Appropriate work is shown, but one computational error or an error in analyzing the results is made.

or

[1] More than 6 hours, but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

Part III

For each question, use the specific criteria to award a maximum of four credits.

- (27) [4] $\bar{x} = 5.5$, $\sigma = 0.5$, and the range is 4–7, and appropriate work is shown.
- [3] $\bar{x} = 5.5$, $\sigma = 0.5$, but one computational error is made when finding the range, but appropriate work is shown.
- or***
- [3] \bar{x} is correct, but σ is incorrect, but the range is appropriate, based on the incorrect σ .
- or***
- [3] \bar{x} is incorrect, but σ and the range are appropriate, based on the incorrect \bar{x} .
- [2] \bar{x} is incorrect and σ is incorrect, but the range is appropriate, based on the incorrect \bar{x} and σ .
- or***
- [2] \bar{x} is correct and σ is correct, but the range is not determined.
- [1] $\bar{x} = 5.5$, $\sigma = 0.5$, and the range is 4–7, but no work is shown.
- [0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.
- (28) [4] Yes, and appropriate work is shown, and an appropriate justification is given.
- [3] Appropriate work is shown, and an appropriate justification is given, but one computational error is made, or the negative value of t is not rejected.
- [2] An appropriate graph or equation is shown, such as $16t^2 - 8t - 15 = 0$.
- [1] An incorrect graph or equation of equal difficulty is used, but an appropriate solution is found.
- [0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

MATHEMATICS B – *continued*

(29) [4] The reasons for all four steps are correct, such as:

Step 3: Perpendicular line segments form right angles.

Step 6: If two parallel lines are cut by a transversal, the alternate interior angles are congruent.

Step 8: $AAS \cong AAS$.

Step 9: Corresponding parts of congruent triangles are congruent.

[3] The reasons for only three steps are correct.

[2] The reasons for only two steps are correct.

[1] The reason for only one step is correct.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

(30) [4] 5 and -4 , and appropriate work is shown.

[3] Appropriate work is shown, but one computational error is made.

[2] The correct log equation, $\log_4 \frac{x^2+3x}{x+5} = \log_4 4$, is shown, but no further work or incorrect work is shown.

[1] One correct logarithmic step is shown, such as $\log_4 \frac{x^2+3x}{x+5}$.

or

[1] 5 and -4 , but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

MATHEMATICS B – *continued*

- (31) [4] 41, and appropriate work is shown.
- [3] Appropriate work is shown, but one computational or rounding error is made.
- [2] One incorrect formula is used, but an appropriate answer is found.
- or***
- [2] Appropriate work is shown, but one computational and one rounding error are made.
- [1] 41, but no work is shown.
- [0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.
- (32) [4] 0.15 hour or 9 minutes or an appropriately rounded answer, and appropriate work is shown, such as using the Law of Cosines.
- [3] Appropriate work is shown, but one computational or rounding error is made.
- [2] The correct distance along County Route 21 is found, but no further work or incorrect work is shown.
- or***
- [2] Appropriate work is shown, but one computational and one rounding error are made.
- [1] The Pythagorean theorem is used to find the distance along County Route 21, and this distance is used to compare travel times.
- or***
- [1] 0.15 hour or an equivalent answer, but no work is shown.
- [0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.
-

Part IV

For each question, use the specific criteria to award a maximum of six credits.

- (33) [6] 30, 150, and 270, and appropriate work is shown.
- [5] Appropriate work is shown, but one computational error is made.
- [4] The correct equation is shown, but only two correct solutions are found.
- [3] The correct equation is shown, but only one correct solution is found.
- [2] The correct equation is solved for x , but no further work is shown.
- [1] The correct equation is shown, but no further work is shown.
- or***
- [1] 30, 150, and 270, but no work is shown.
- [0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

MATHEMATICS B – *concluded*

(34) [6] A correct scatter plot, $y = (0.002)(1.070)^x$, and \$1.52 or an equivalent answer, and appropriate work is shown.

[5] Appropriate work is shown, but one computational or rounding error is made.

[4] A correct scatter plot is shown, but an incorrect equation of equal difficulty is used, but an appropriate fare for 1998 is determined, based on the incorrect equation.

or

[4] A correct scatter plot with a function other than exponential is used, but an appropriate equation and fare derived from that equation are shown.

[3] A correct scatter plot is shown, and an appropriate fare based on the scatter plot is found, but no equation or work is shown.

[2] Only a correct scatter plot is shown.

[1] \$1.52, but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

MATHEMATICS B

Map to Learning Standards

Key Ideas	Item Numbers
Mathematical Reasoning	4, 29
Number and Numeration	2, 7, 19
Operations	8, 10, 15, 17
Modeling/Multiple Representation	5, 9, 24, 25, 26, 28, 30, 31
Measurement	3, 20, 27, 32, 34
Uncertainty	1, 6, 11, 21, 23
Patterns/Functions	12, 13, 14, 16, 18, 22, 33

Regents Examination in Mathematics B

June 2002

Chart for Converting Total Test Raw Scores to Final Examination Scores (Scaled Scores)

Raw Score	Scaled Score	Raw Score	Scaled Score	Raw Score	Scaled Score
88	100	58	80	28	54
87	99	57	79	27	53
86	98	56	78	26	52
85	97	55	78	25	50
84	96	54	77	24	49
83	96	53	77	23	48
82	95	52	76	22	46
81	94	51	75	21	45
80	93	50	75	20	43
79	93	49	74	19	41
78	92	48	73	18	40
77	91	47	72	17	38
76	90	46	72	16	36
75	90	45	71	15	34
74	89	44	70	14	33
73	88	43	69	13	31
72	88	42	69	12	29
71	87	41	68	11	27
70	87	40	67	10	24
69	86	39	66	9	22
68	85	38	65	8	20
67	85	37	64	7	18
66	84	36	63	6	15
65	84	35	62	5	13
64	83	34	61	4	11
63	82	33	60	3	8
62	82	32	59	2	5
61	81	31	58	1	3
60	81	30	57	0	0
59	80	29	56		

To determine the student's final examination score, find the student's total test raw score in the column labeled "Raw Score" and then locate the scaled score that corresponds to that raw score. The scaled score is the student's final examination score. Enter this score in the space labeled "Scaled Score" on the student's answer sheet.

All student answer papers that receive a scaled score of 60 through 64 **must** be scored a second time. For the second scoring, a different committee of teachers may score the student's paper or the original committee may score the paper, except that no teacher may score the same open-ended questions that he/she scored in the first rating of the paper. The school principal is responsible for assuring that the student's final examination score is based on a fair, accurate, and reliable scoring of the student's answer paper.

Because scaled scores corresponding to raw scores in the conversion chart may change from one examination to another, it is crucial that for each administration, the conversion chart provided in the scoring key for that administration be used to determine the student's final score. The chart above is usable only for this administration of the mathematics B examination.