The University of the State of New York

COMPONENT RETEST

IN

MATHEMATICS A

COMPONENT 4
MODULE 2

Thursday, April 25, 2002 — 11:00 to 11:50 a.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.

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 two parts, with a total of nine 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 Part II directly in this booklet. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc.

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

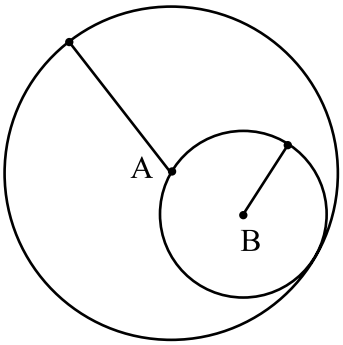
DO NOT OPEN THIS TEST BOOKLET UNTIL THE SIGNAL IS GIVEN.

Part I

Answer all questions in this part. Each correct answer will receive 2 credits. No partial credit will be allowed. Record your answers in the spaces provided on the separate answer sheet. [12]

1 In the accompanying diagram, circle *A* has a radius of 20 centimeters.

Use this space for computations.



What is the length of the radius of circle *B*?

(1) 5 cm

(2) 10 cm

(3) 20 cm

(4) 30 cm

2 Which algebraic expression represents the perimeter of a rectangle with sides x and y?

(1) $2xy$

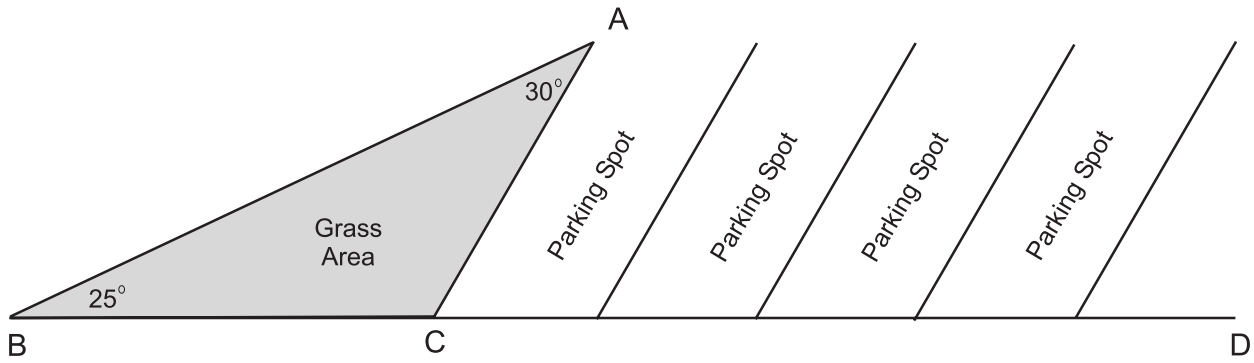
(2) xy

(3) $(x + y) \div 2$

(4) $2(x + y)$

Use this space for computations.

3 The town center in Bernardsville has diagonal parking spots, as shown in the accompanying diagram. The first spot uses one side of a triangular-shaped grass area as a border.



What is m$\angle ACD$?

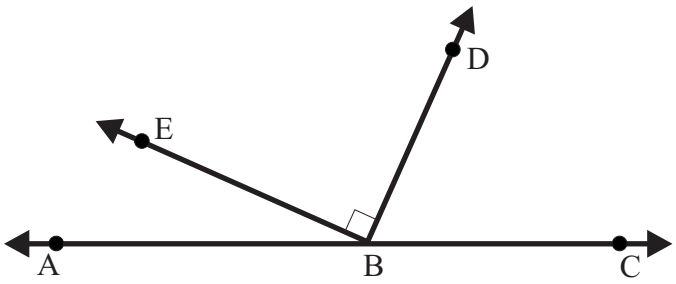
(1) 25

(2) 30

(3) 55

(4) 125

4 Which statement describes $\angle ABE$ and $\angle EBC$ in the accompanying diagram?



(1) They are complementary.

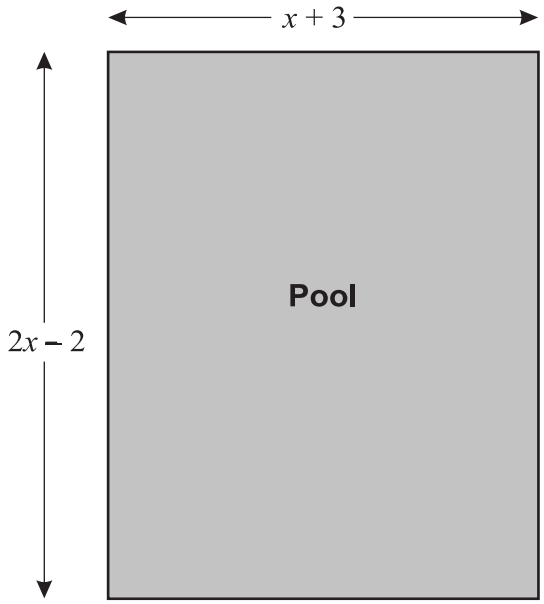
(2) They are supplementary.

(3) They are perpendicular.

(4) They are acute.

5 What is the area of the pool in the accompanying diagram?

Use this space for computations.



(1) $2x^2 - 6$

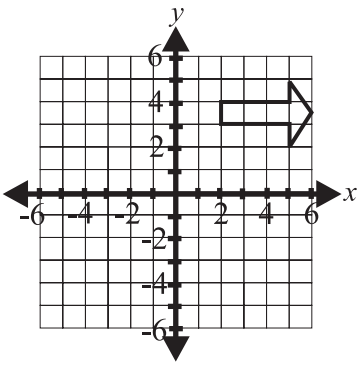
(2) $2x^2 + 4x - 6$

(3) $3x + 1$

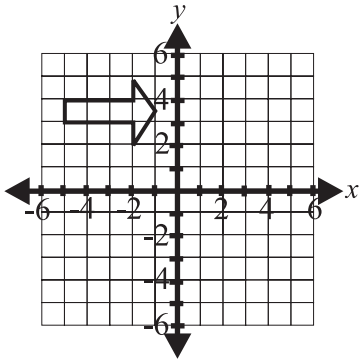
(4) $2x^2 + x - 6$

Use this space for computations.

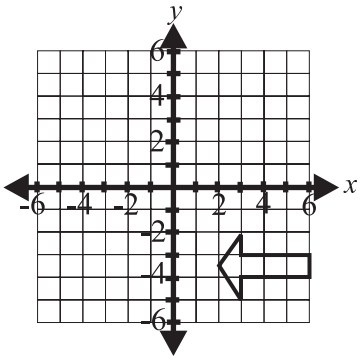
6 In the accompanying graph, an arrow is drawn.



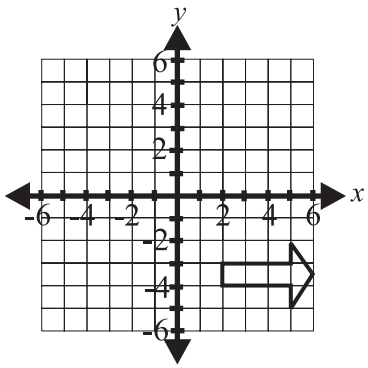
Which graph shows the arrow after it has been reflected in the *x*-axis?



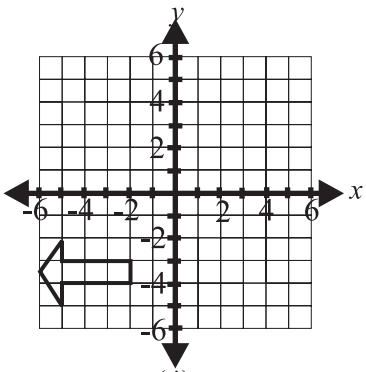
(1)



(3)



(2)

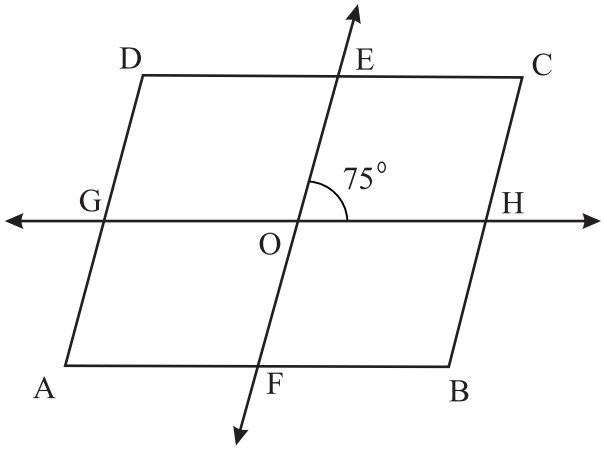


(4)

Part II

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. [12]

7 In the accompanying diagram, $\overline{AB} \parallel \overline{DC} \parallel \overleftrightarrow{GH}$, $\overline{AD} \parallel \overline{BC} \parallel \overleftrightarrow{FE}$, and m$\angle EOH = 75$. Find m$\angle A$, m$\angle B$, m$\angle C$, and m$\angle D$. Explain your answer.

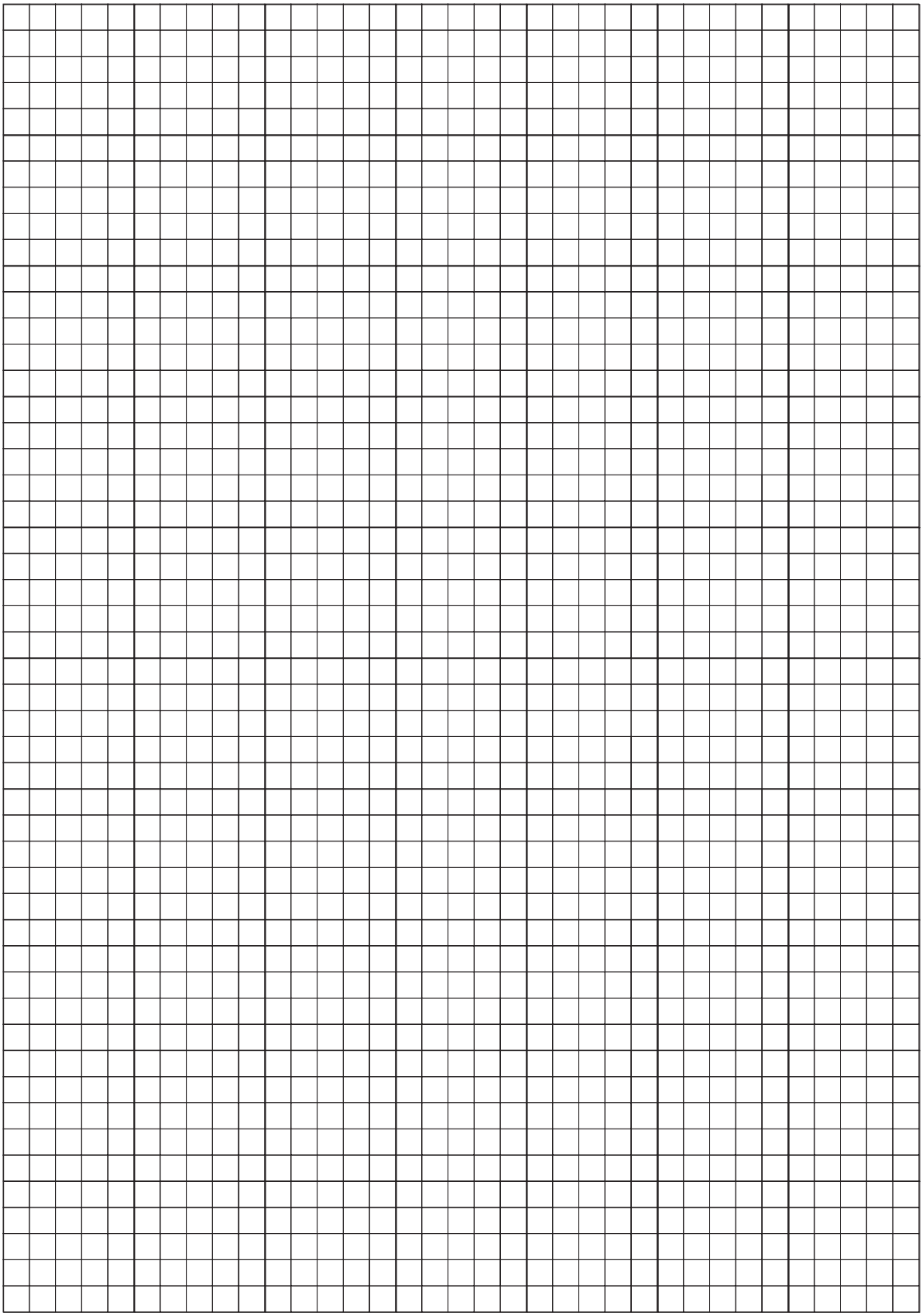


8 On the accompanying diagram of $\overleftrightarrow{APB}$, sketch the locus of points 1 unit from point *P*. Sketch the locus of points 1 unit from $\overleftrightarrow{APB}$. How many points are both 1 unit from point *P* and 1 unit from $\overleftrightarrow{APB}$?

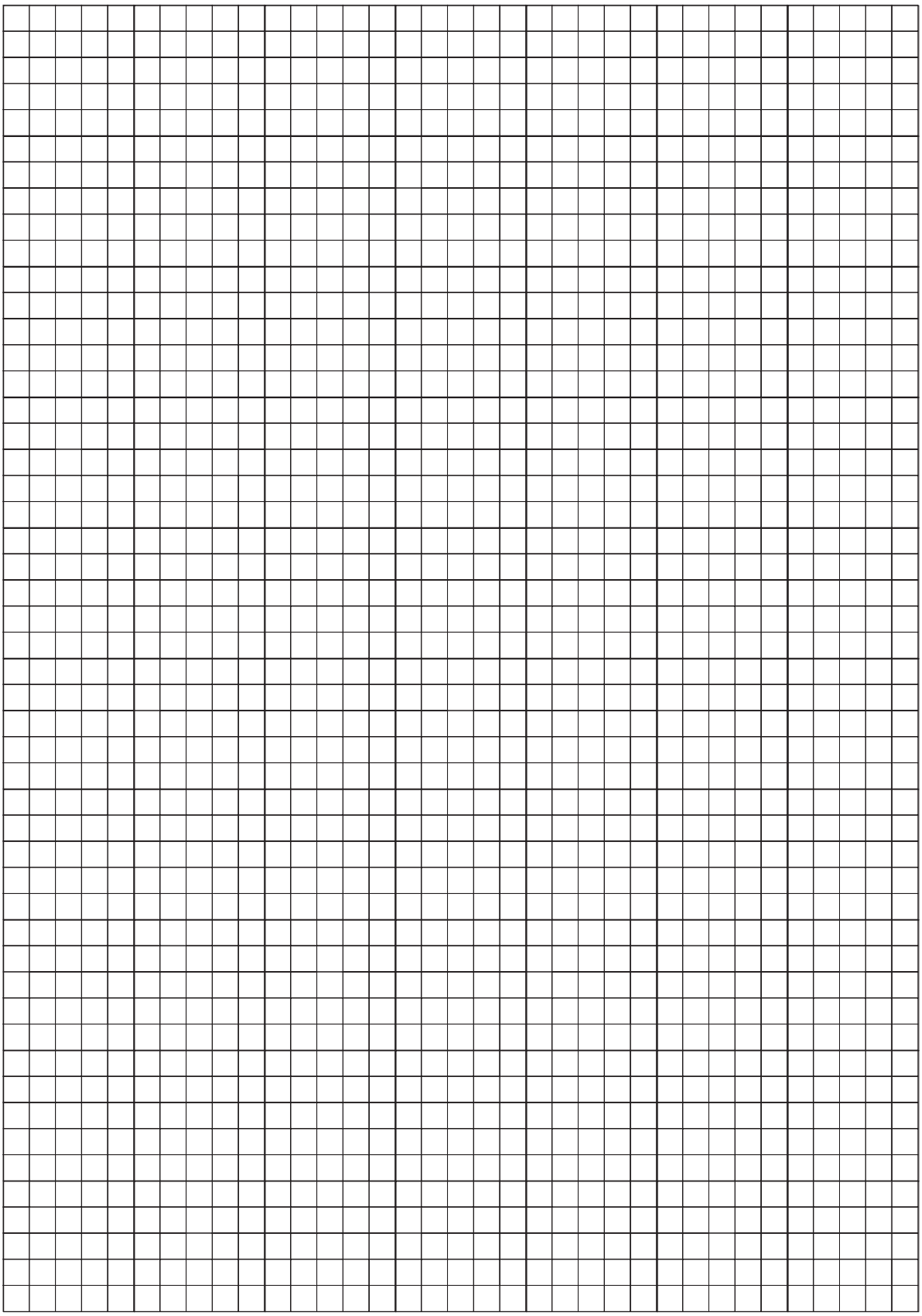
9 The Tech Corporation has developed a new scientific calculator. The profit, P, in millions of dollars, the corporation can make from the new calculator can be determined by the formula $P = -x^2 + 7x - 10$, where x is the wholesale price the corporation charges for the calculator. Complete the table below to show the profit, P, in millions of dollars, the corporation will make by charging \$2.00, \$2.50, \$3.00, \$3.50, \$4.00, or \$4.50 as the wholesale price for the calculator. At what wholesale price will Tech Corporation receive the maximum profit? Explain your answer.

x *(in dollars)*	***P***
\$2.00	
2.50	
3.00	
3.50	
4.00	
4.50	

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



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



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COMPONENT RETEST

MATHEMATICS A

COMPONENT 4 MODULE 2

Thursday, April 25, 2002 — 11:00 to 11:50 a.m., only

_____

ANSWER SHEET

Student . . . . . Sex: ☐ Male ☐ Female

School . . . . . Teacher . . . . . .

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

Part I

Answer all 6 questions in this part.

1_____

2_____

3_____

4_____

5_____

6_____

Score: ☐

Your answers for Part II 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

MATHEMATICS A			
Question	**Maximum Credit**	**Credits Earned**	**Rater's/Scorer's Initials**
Part I 1-6	**12**		
Part II 7	**4**		
8	**4**		
9	**4**		
Maximum Total	**24**		
		Total Raw Score	**Checked By**

Rater's/Scorer's Name (minimum of three)

Module 1 Score	
Module 2 Score	
Component 4 Total Score	

Score Range for Component 4 (use conversion chart)

- ☐ score range 65 and above
- ☐ score range 55–64
- ☐ score range below 55

Notes to raters . . .

- **Each paper should be scored by a minimum of three raters.**
- **The table for converting the total raw score to the scaled score is provided in the scoring key for this examination.**
- **The scaled score is the student's final examination score.**