

**NEW YORK STATE
COMPONENT RETEST**

**MATHEMATICS A
COMPONENT 4
MODULE 2**

TUESDAY, MAY 13, 2003

**SCORING KEY
AND
RATING GUIDE**

Multiple Choice Key

1	1
2	4
3	3
4	2
5	1
6	4

Math A Component Retest
May 2003
Component 4, Module 2

Key to Multiple-Choice Questions

(1)	1
(2)	4
(3)	3
(4)	2
(5)	1
(6)	4

Rubric

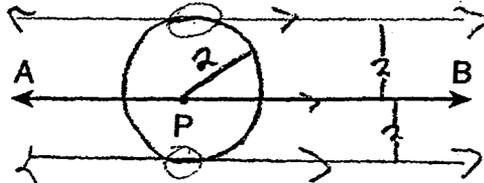
(7)

- [4] 2, and a diagram showing two lines parallel to \overline{AB} , one 2 units above and one 2 units below, and a circle with center P and radius 2 units.
- [3] A correct diagram is drawn, but the number of points that satisfy both conditions is not given or is incorrect.
- [2] One of the loci is drawn incorrectly or is incomplete, (e.g., only one line parallel to \overline{AB} is shown), but an appropriate number of points is given for the intersection of the loci shown.
- [1] Both loci are drawn incorrectly, but an appropriate number of points is given for the intersection of the loci shown.
- or*
- [1] Only one locus is drawn correctly, and an incorrect answer or no answer is given.
- or*
- [1] 2, 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 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, point P is located on \overline{AB} . Draw the locus of points 2 units from \overline{AB} and 2 units from point P . How many points satisfy both conditions?

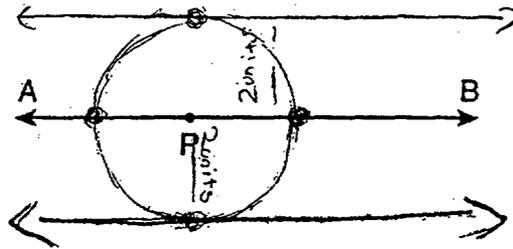


2 points

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]

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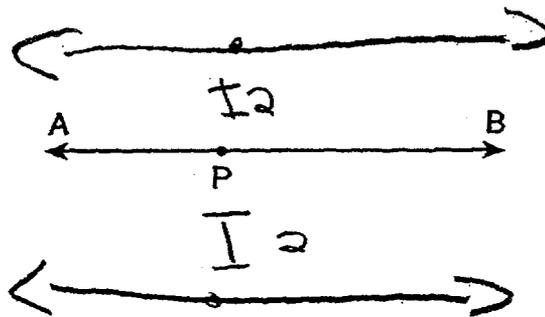


4 points satisfy both conditions

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]

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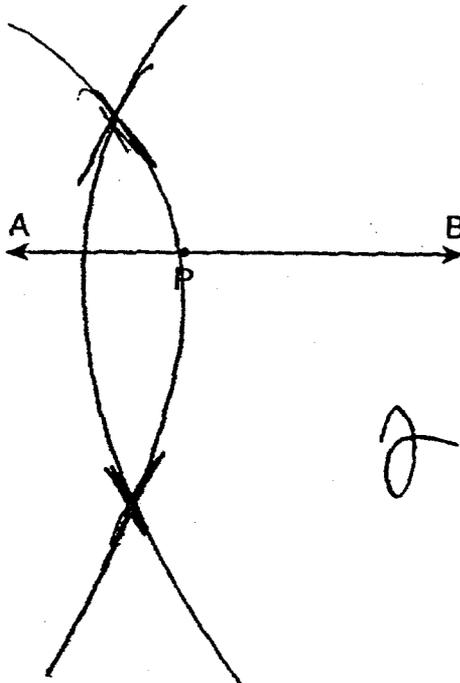


2 pts

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, point P is located on \overline{AB} . Draw the locus of points 2 units from \overline{AB} and 2 units from point P . How many points satisfy both conditions?

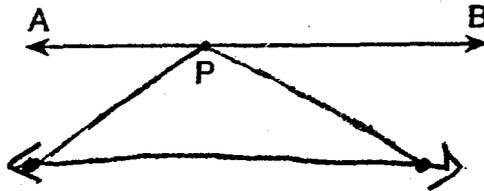


2

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, point P is located on \overline{AB} . Draw the locus of points 2 units from \overline{AB} and 2 units from point P . How many points satisfy both conditions?



3 points
satisfy both
conditions.

Rubric

(8)

[4] 32 and 58, and appropriate work is shown, such as $2x - 6 + x = 90$ or trial and error with at least three trials and appropriate checks.

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

or

[3] Appropriate work is shown, but only one of the angles is found.

[2] An incorrect equation of equal difficulty involving the sum of angles is solved, such as $2x + 6 + x = 180$, but the measures of both angles are found appropriately.

or

[2] Appropriate work is shown, but more than one computational error is made.

or

[2] The trial-and-error method is used to find a correct solution, but only two trials with appropriate checks are shown.

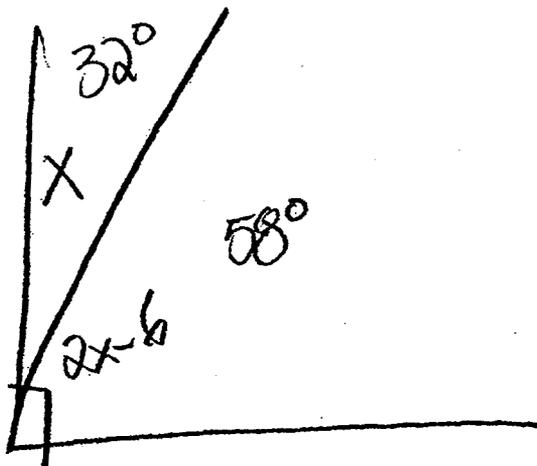
[1] 32 and 58, but no work or only one trial with an appropriate check is shown.

[0] 32 *or* 58, but no 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.

- 8 Find the measure, in degrees, of two complementary angles such that the larger angle is 6 less than twice the smaller angle.



$$\begin{array}{r} 3x-6=90 \\ +6 \quad +6 \\ \hline 3x=96 \\ \underline{\quad 3 \quad 3} \\ x=32 \end{array}$$

- 8 Find the measure, in degrees, of two complementary angles such that the larger angle is 6 less than twice the smaller angle.

$$\text{Let } = x = 32$$

$$\text{Let } = 2x = 64$$

$$\text{Let } = x - 6 = 26$$

$$x + 2x - 6 = 90$$

$$3x - 6 = 90$$

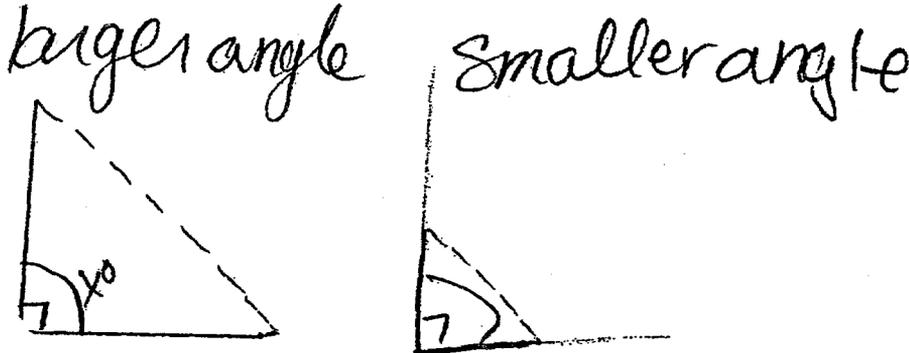
$$+ 6 \quad + 6$$

$$\begin{array}{r} 3x \quad 96 \\ \hline 3 \quad 3 \end{array}$$

$$x = 32$$

- 8 Find the measure, in degrees, of two complementary angles such that the larger angle is 6 less than twice the smaller angle.

let x be the angle
let $2x-6$ be the other angle



Complementary = 90°

$$\begin{array}{r} x + 2x - 6 \\ \hline 180^\circ \end{array}$$

$$x + 2x - 6 = 180^\circ$$

$$\begin{array}{r} 3x - 6 = 180 \\ +6 \quad +6 \\ \hline \end{array}$$

$$\frac{3x = 186}{3}$$

$$x = 62$$

let x be the angle
of 62°

let $2x-6$ be the larger
angles of 118° ANS

- 8 Find the measure, in degrees, of two complementary angles such that the larger angle is 6 less than twice the smaller angle.

$$90^\circ - 32^\circ = 58^\circ$$

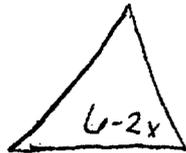
$$32^\circ + 58^\circ = 90^\circ$$

$$32^\circ \cdot 2 = 64^\circ - 6^\circ = 58^\circ$$

$$\text{Larger angle} = 58^\circ$$

$$\text{smaller angle} = 32^\circ$$

- 8 Find the measure, in degrees, of two complementary angles such that the larger angle is 6 less than twice the smaller angle.



$$\begin{array}{r} 6 - 2x = 180 \\ -6 \quad \quad -6 \\ \hline \end{array}$$

$$\begin{array}{r} 2x = 174 \\ \hline 2 \quad 2 \end{array}$$

$$\boxed{x = 87}$$

$$\boxed{107}$$

Rubric

(9)

- [4] 200 in advance and 350 at the door, and appropriate work is shown, such as $1.5x + 2(550 - x) = 1,000$ or a system of equations or trial and error with at least three trials and appropriate checks.
- [3] 200 and 350, and appropriate work is shown, but the answers are not labeled or the labels are reversed.
- or*
- [3] Appropriate work is shown, but one computational error is made.
- or*
- [3] Appropriate work is shown, but only one variable is found correctly.
- [2] An incorrect equation of equal difficulty is solved and the number of tickets sold in advance and at the door are appropriate.
- or*
- [2] Appropriate work is shown, but more than one computational error is made.
- or*
- [2] The trial-and-error method is used to find a correct solution, but only two trials with appropriate checks are shown.
- or*
- [2] An appropriate equation or system of equations is given and the number of tickets sold in advance and at the door is stated, but no work is shown.
- [1] An appropriate equation or system of equations is given, but no further correct work is shown.
- or*
- [1] 200 in advance and 350 at the door, but no work is shown.
- [0] 200 in advance *or* 350 at the door, but no 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.

- 9 The 9th grade class at the local high school raised \$1,000 from the sale of tickets to a dance. Tickets sold for \$1.50 in advance and \$2.00 at the door. If a total of 550 tickets were sold, what were the number of tickets sold in advance and the number of tickets sold at the door?

Let x = advance tickets 200 advance
 Let y = at the door tickets 350 at the door

$$1.50x + 2.00y = 1000$$

$$\begin{array}{r} (-2)(x + y = 550) \\ 1.5x + 2y = 1000 \\ -2x - 2y = -1100 \\ \hline -.5x = -100 \\ \underline{-.5} \quad \underline{-.5} \end{array}$$

$$x = 200$$

$$\begin{array}{r} 200 + y = 550 \\ -200 \quad -200 \\ \hline y = 350 \end{array}$$

350 tickets
 were sold at the
 door.

- 9 The 9th grade class at the local high school raised \$1,000 from the sale of tickets to a dance. Tickets sold for \$1.50 in advance and \$2.00 at the door. If a total of 550 tickets were sold, what were the number of tickets sold in advance and the number of tickets sold at the door?

$X =$ Sold at the door

$Y =$ Sold in advance

$$\begin{array}{r} -1(1.50Y + 2.00X = 1,000) \\ \hline 1.50(Y + X = 550) \end{array}$$

$$\begin{array}{r} -1.5Y - 2X = -1,000 \\ + 1.5Y + 1.5X = + 8.25 \end{array}$$

$$\begin{array}{r} -0.5X = -99.75 \\ \hline -0.5 \quad \quad -0.5 \end{array}$$

$$X = 1983.5$$

$$1.50(1983.5) + 2.00X = 1,000$$

$$\begin{array}{r} 2975.25 + 2.00X = 1,000 \\ - 2975.25 \quad \quad - 2975.25 \end{array}$$

$$\begin{array}{r} 2.00X = -1975.25 \\ \hline 2.00 \quad \quad 2.00 \end{array}$$

$$X = -987.625$$

- 9 The 9th grade class at the local high school raised \$1,000 from the sale of tickets to a dance. Tickets sold for \$1.50 in advance and \$2.00 at the door. If a total of 550 tickets were sold, what were the number of tickets sold in advance and the number of tickets sold at the door?

$$1.50x + 2.00y = 550$$

$$x + y = 1000$$

$$x = 1000 - y$$

$$1.50(1000 - y) + 2.00y = 550$$

$$1500 - 1.50y + 2.00y = 550$$

$$1500 + .5y = 550$$

$$.5y = -950$$

$$y = -1900$$

$$1.50x + 2.00(-1900) = 550$$

$$1.50x - 3800 = 550$$

$$1.50x = 380,500$$

$$x = 253666.6667$$

- 9 The 9th grade class at the local high school raised \$1,000 from the sale of tickets to a dance. Tickets sold for \$1.50 in advance and \$2.00 at the door. If a total of 550 tickets were sold, what were the number of tickets sold in advance and the number of tickets sold at the door?

550

1000

1.50

$$1.50 \cdot 200 = 300$$

$$2.00 \cdot 350 = 700$$

✓
1000

2.00

200 tickets in advance
350 tickets at the door

- 9 The 9th grade class at the local high school raised \$1,000 from the sale of tickets to a dance. Tickets sold for \$1.50 in advance and \$2.00 at the door. If a total of 550 tickets were sold, what were the number of tickets sold in advance and the number of tickets sold at the door?

350 tickets were sold in advance
200 were sold at the door