NEW YORK STATE
COMPONENT RETEST

MATHEMATICS A
COMPONENT 7
MODULE 2

THURSDAY, MAY 15, 2003

SCORING KEY
AND
RATING GUIDE

Multiple Choice Key

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

Math A Component Retest
May 2003
Component 7, Module 2

Key to Multiple-Choice Questions

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

Rubric

(7)

[4] 3 and 2, and appropriate work is shown, such as using systems of linear equations or trial and error with at least three trials and appropriate checks.

[3] One incorrect equation is written, but the system of equations is solved appropriately.

or

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

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

or

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

or

[2] Two incorrect equations of equal difficulty are written, but the system of equations is solved appropriately.

[1] Two correct linear equations are written, but no further correct work is shown.

or

[1] 3 and 2, but no work or only one trial with an appropriate check is shown.

[0] 3 or 2, 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.

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 Justin presented a mathematics problem to his class. He said: "I am thinking of two numbers. If I add the first number to twice the second number, the result is 7. When I subtract the second number from three times the first number, the result is also 7." What numbers will solve Justin's problem?

n=first
x=Second

$n+2x=7$
$3n-x=7$

$n=7-2x$

$3(7-2x)-x=7$

$21-6x-x=7$

$21-7x=7$
$-21 \quad -21$

$\frac{-7x}{-7}=\frac{-14}{-7}$

$\boxed{x=2}$ $\boxed{n=3}$

SCORE POINT: 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]

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$n + 2(y) = 7$ n is the 1st #

$y - 3(n) = 7$ y is the 2nd #

$\cdot 3 \quad n + 2y = 7$

$y - 3n = 7$

$\therefore$ 2nd # is (4)

$\therefore$ 1st # is (-1)

$\cancel{3n} + 6y = 21$

$y - \cancel{3n} = 7$

$\frac{7y}{7} = \frac{28}{7}$ $y = 4$

$n + 2(4) = 7$

$\cdot 2 \quad 4 - 3n = 7$

$n + \cancel{8} = 7$

$-\cancel{8} + 6n = -14$

$\frac{7n}{7} = \frac{-7}{7}$ $n = -1$

Check

$-1 + 2(4) = 7$

$-1 + 8 = 7$

$7 = 7$

SCORE POINT: 3

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 Justin presented a mathematics problem to his class. He said: "I am thinking of two numbers. If I add the first number to twice the second number, the result is 7. When I subtract the second number from three times the first number, the result is also 7." What numbers will solve Justin's problem?

Let $n = 1^{st}$

Let $x = 2^{nd}$

$4 + \boxed{3} = 7$

$2x + n = 7$

$(2)(3)$

$9 - \boxed{2} = 7$

$3n - x = 7$

$(3)(2)$

The numbers are 2 & 3

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 Justin presented a mathematics problem to his class. He said: "I am thinking of two numbers. If I add the first number to twice the second number, the result is 7. When I subtract the second number from three times the first number, the result is also 7." What numbers will solve Justin's problem?

$X = 1^{st}$ number
$Y = 2^{nd}$ number

$3(x + 2y = 7)$
$(3x - y = 7)$

$3x + 6y = 7$
$3x - y = 7$

$6y = 7$
$-y = 7$
$0 = 0$

$\{6, 0\}$

SCORE POINT: 1

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 Justin presented a mathematics problem to his class. He said: "I am thinking of two numbers. If I add the first number to twice the second number, the result is 7. When I subtract the second number from three times the first number, the result is also 7." What numbers will solve Justin's problem?

$(1(x)) + (2(y)) = 7$

$(y) - (3(x)) = 7$

$3(1x + 2y = 7)$

$-3x + y = 7$

$3x + 6y = 21$

$\frac{7y}{7} = \frac{21}{7}$

$y = 3$

$-6x$

$1x + 2y = 7$

$-2(-3x + y = 7)$

$+6x - 2y = -14$

$1x + 2y = 7$

$7x = -7$

$\boxed{x = -1}$

SCORE POINT: 0

Rubric

(8)

[4] 3, and appropriate work is shown, such as $25x = 15 + 20x$, a graph of the equations $y = 25x$ and $y = 20x + 15$, 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] An appropriate solution is shown (algebraic or trial and error), but the dollar amount, 75, is given as the answer.

or

[3] Only one equation is graphed correctly, but an appropriate answer is given.

[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 and appropriate checks are shown.

or

[2] The equation $25x = 15 + 20x$ is given, but no further work is shown.

or

[2] Both equations are graphed incorrectly, but an appropriate answer is given.

or

[2] An incorrect equation of equal difficulty is solved appropriately.

[1] 3, but no work or only one trial with an appropriate check is shown.

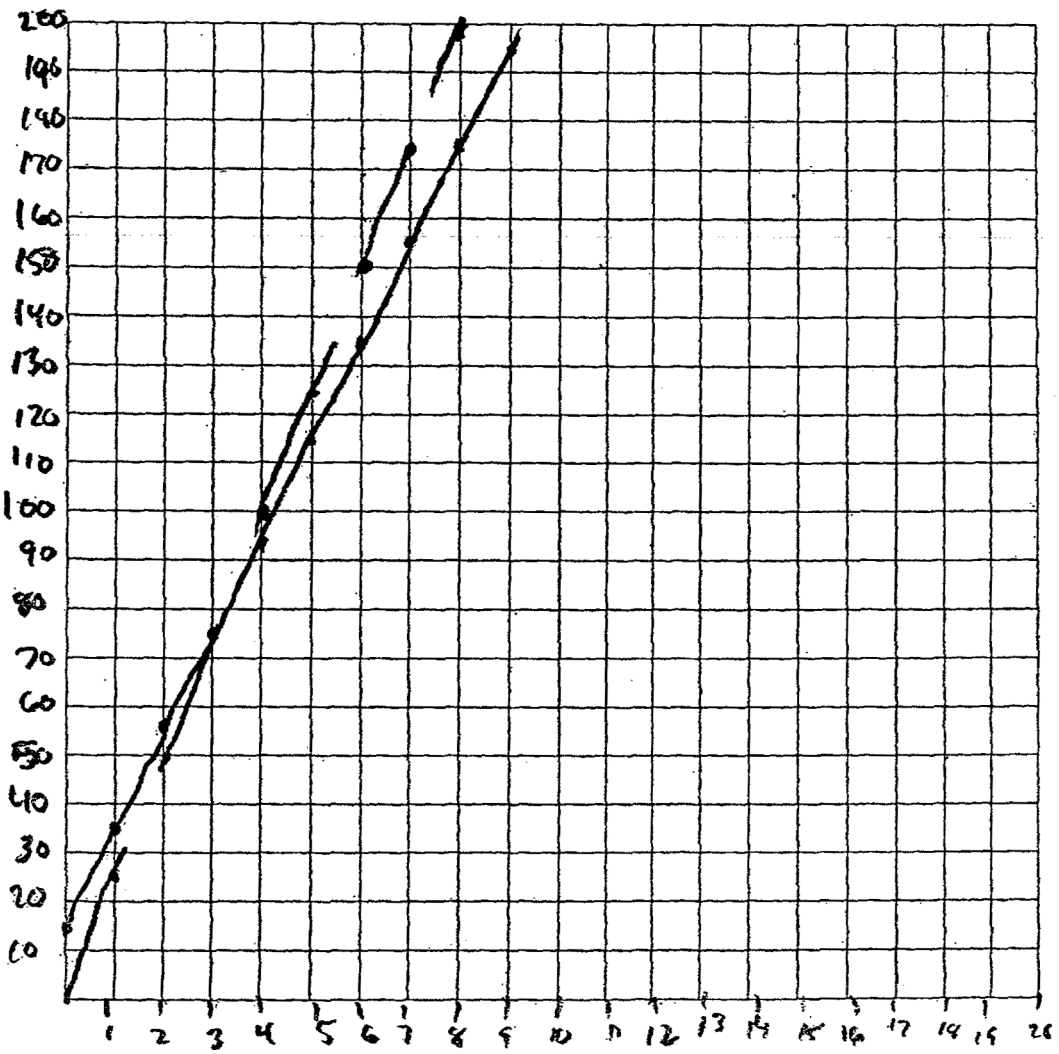
[0] A zero response is completely incorrect, irrelevant, or incoherent, or is a correct response that was obtained by an obviously incorrect procedure.

8 Drew's PC Fix-It Shop charges $25 per hour. Lucy's Computer Service charges a $15 service fee and then $20 per hour. At what hour of computer repair service are the prices of the two companies equal? [The use of the accompanying grid is optional.]

at 3 hours

work on graph

Drew's — —
Lucy's ——



price

SCORE POINT: 4

8 Drew's PC Fix-It Shop charges $25 per hour. Lucy's Computer Service charges a $15 service fee and then $20 per hour. At what hour of computer repair service are the prices of the two companies equal? [The use of the accompanying grid is optional.]

Let x = # of hours

$$25x = 15 + 20x$$
$$-20x \qquad -20x$$
$$\frac{5x}{5} = \frac{15}{5}$$
$$x = 3$$

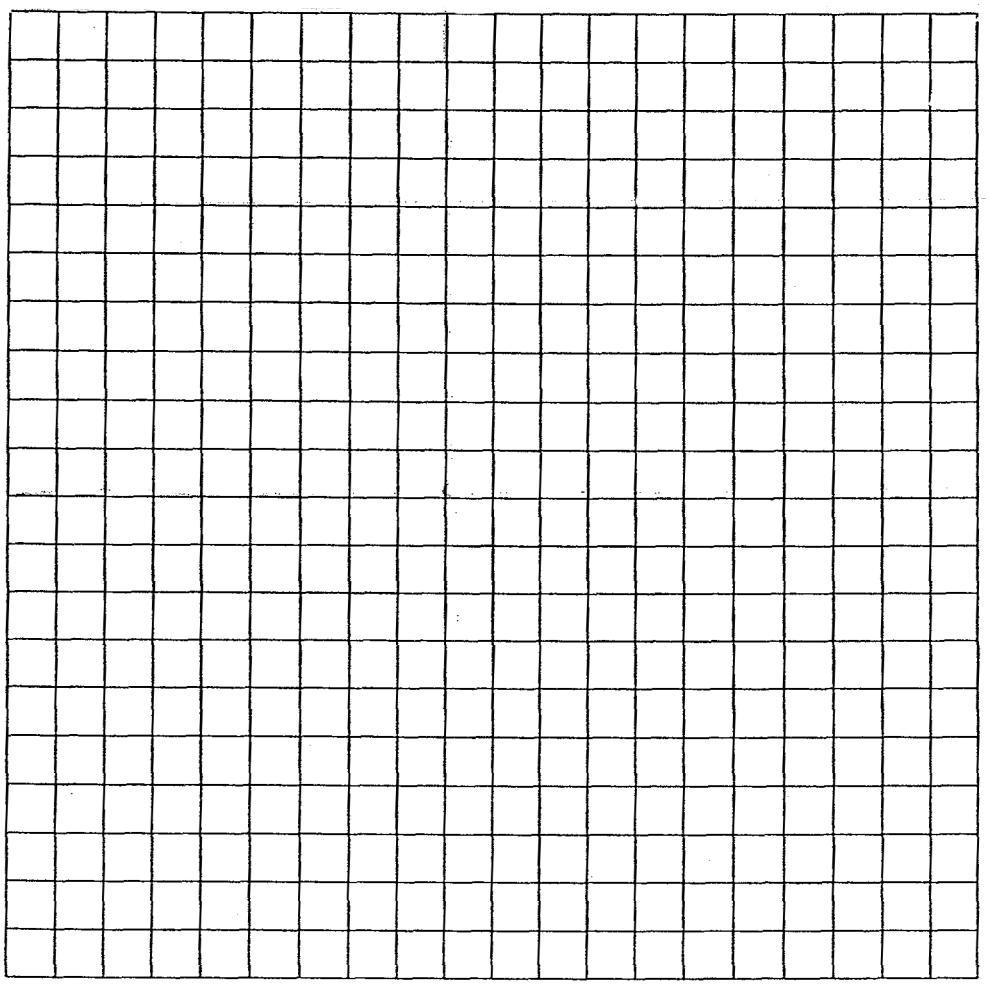
3 hours

SCORE POINT: 4

8 Drew's PC Fix-It Shop charges $25 per hour. Lucy's Computer Service charges a $15 service fee and then $20 per hour. At what hour of computer repair service are the prices of the two companies equal? [The use of the accompanying grid is optional.]

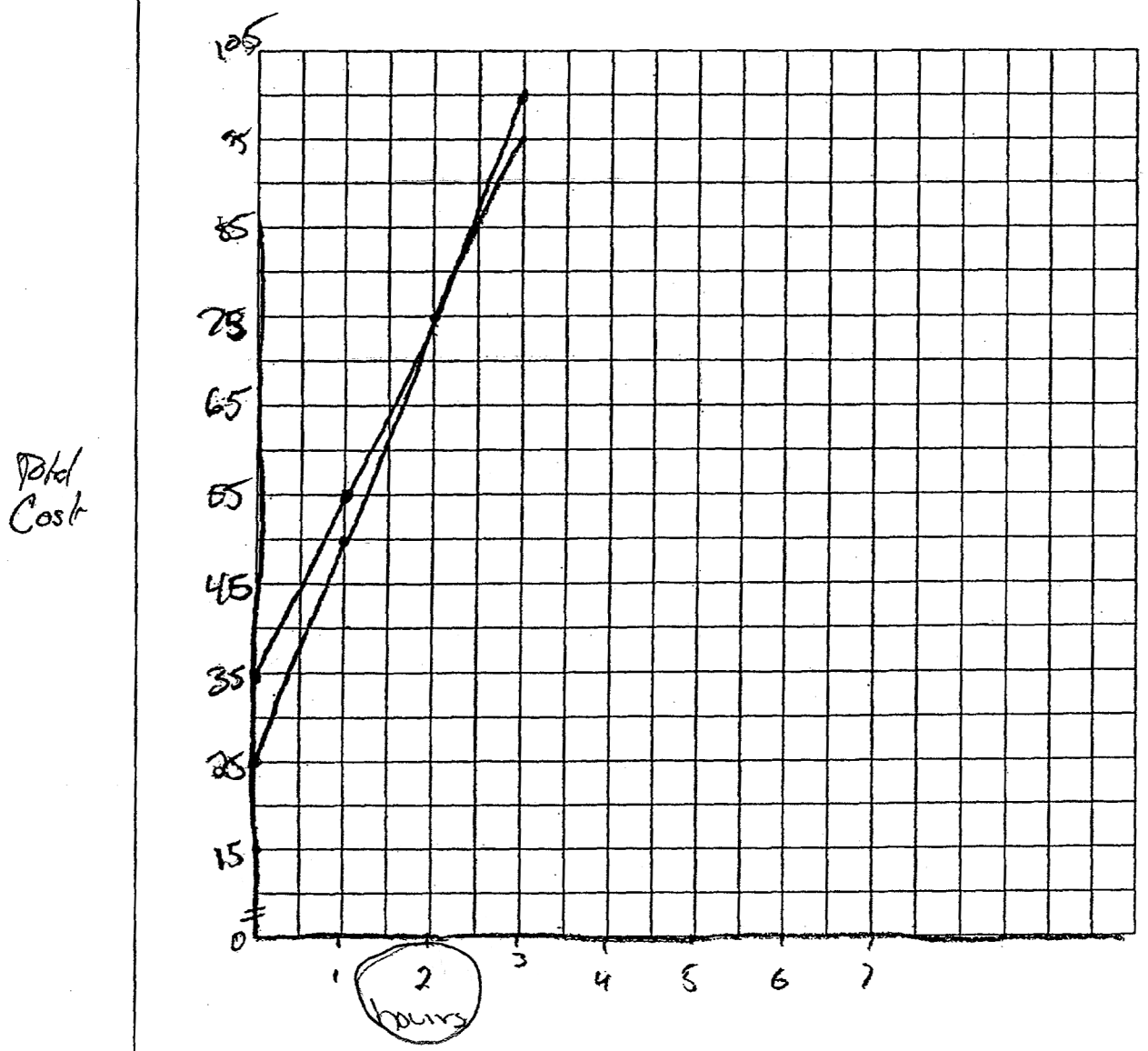
$75

35 - 55 - 75 - 95
25 - 30 - 75



SCORE POINT: 3

8 Drew's PC Fix-It Shop charges $25 per hour. Lucy's Computer Service charges a $15 service fee and then $20 per hour. At what hour of computer repair service are the prices of the two companies equal? [The use of the accompanying grid is optional.]



SCORE POINT: 2

8 Drew's PC Fix-It Shop charges $25 per hour. Lucy's Computer Service charges a $15 service fee and then $20 per hour. At what hour of computer repair service are the prices of the two companies equal? [The use of the accompanying grid is optional.]

$25 per hr

$15 service sharge

$20 pl hr

?

$45
−$15
$30

3hrs

SCORE POINT: 1

8 Drew's PC Fix-It Shop charges $25 per hour. Lucy's Computer Service charges a $15 service fee and then $20 per hour. At what hour of computer repair service are the prices of the two companies equal? [The use of the accompanying grid is optional.]

$\$25$
$+20$
$\$45$

$\frac{45}{3} = 3$

3hour that the two Companies equal

SCORE POINT: 0

(9)

Rubric

[4] An appropriate scale is indicated, all points are plotted correctly, the line is sketched correctly, and a correct equation for that line is written, such as $y = 1.8x + 32$ or $F = \frac{9}{5}C + 32$, and appropriate work is shown.

[3] No scale is indicated, but appropriate points are plotted, the line is drawn, and a correct equation is given.

or

[3] An appropriate scale is given, the points are plotted correctly, the line is drawn, and slope = 1.8 and y-intercept = 32 are indicated, but no equation is written, or an equation with an incorrect slope or y-intercept is written.

[2] An appropriate scale is indicated, all points are plotted correctly, and the line is drawn, but no equation or an incorrect equation is written.

or

[2] The equation $y = 1.8x + 32$ is written and the slope is found, but the graph is not drawn.

[1] A correct equation is written, but no graph is drawn and no work is shown.

or

[1] An incorrect scale is indicated with appropriate points plotted, and no equation or an incorrect equation is written.

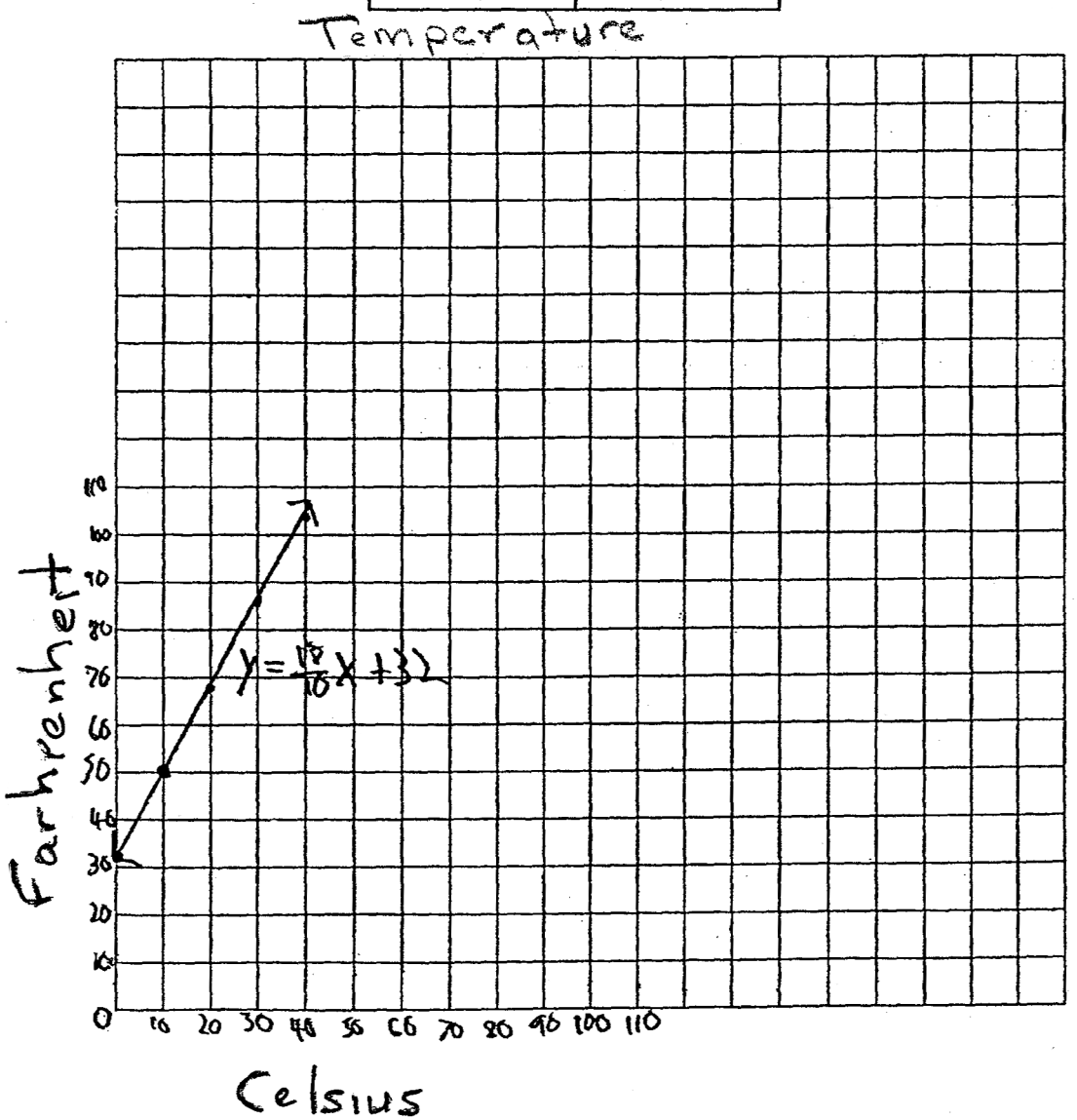
[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

9 The accompanying table shows equivalent Celsius (x) and Fahrenheit (y) temperature readings. Plot these points on the grid provided, sketch the line, and write the equation for the line.

Celsius (x)	Fahrenheit (y)
0	32
10	50
20	68
30	86
40	104

$y = \frac{18}{10}x + 32$

$\frac{50-32}{10-0}$ $\frac{18}{10}$



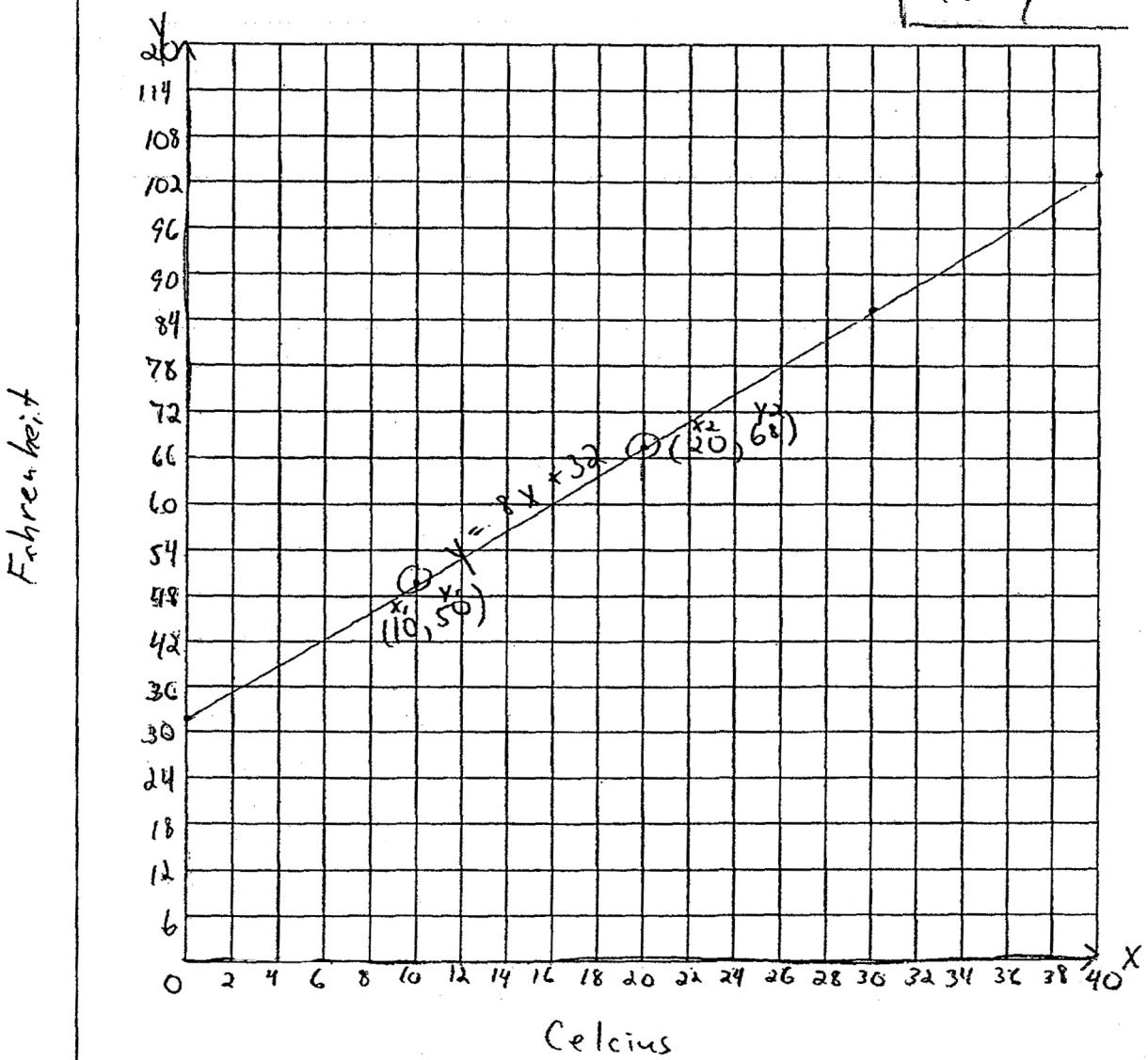
SCORE POINT: 4

9 The accompanying table shows equivalent Celsius (x) and Fahrenheit (y) temperature readings. Plot these points on the grid provided, sketch the line, and write the equation for the line.

Celsius (x)	Fahrenheit (y)
0	32
10	50
20	68
30	86
40	104

$\frac{\Delta y}{\Delta x} = \frac{68-50}{20-10} = 1.8$

The equation for the line is $y = 8x + 32$



SCORE POINT: 3

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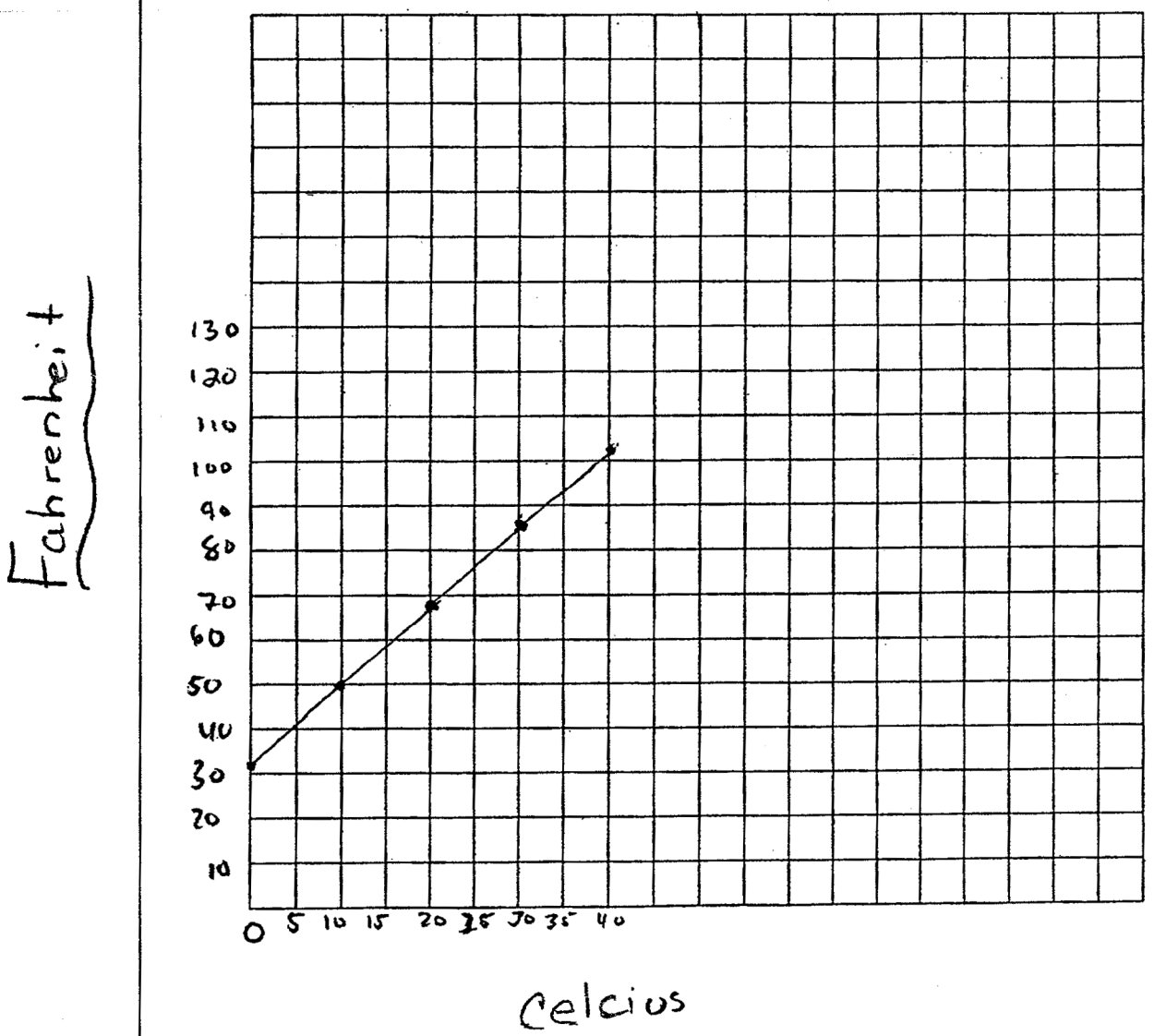
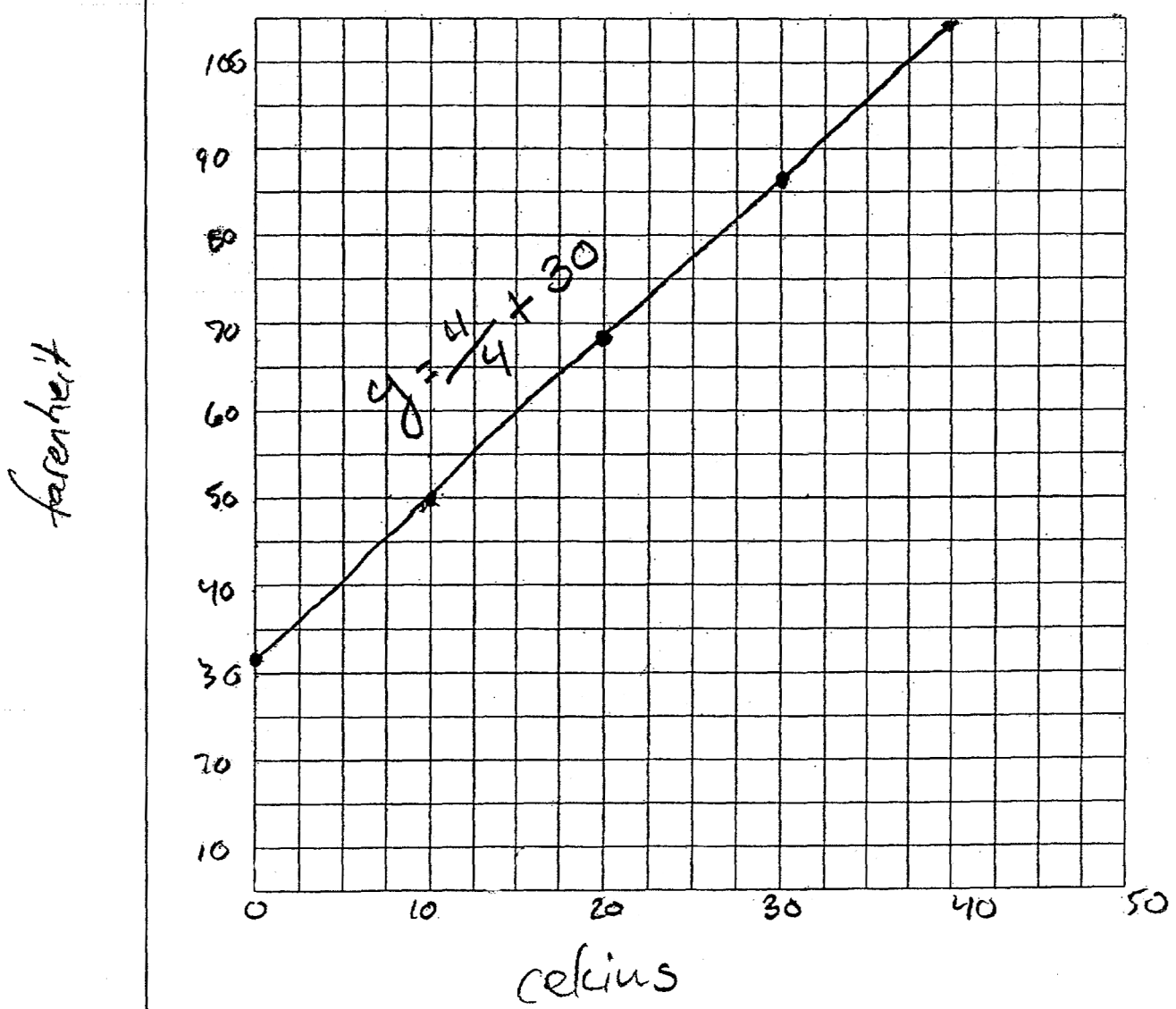
Celsius (x)	Fahrenheit (y)
0	32
10	50
20	68
30	86
40	104



SCORE POINT: 2

9 The accompanying table shows equivalent Celsius (x) and Fahrenheit (y) temperature readings. Plot these points on the grid provided, sketch the line, and write the equation for the line.

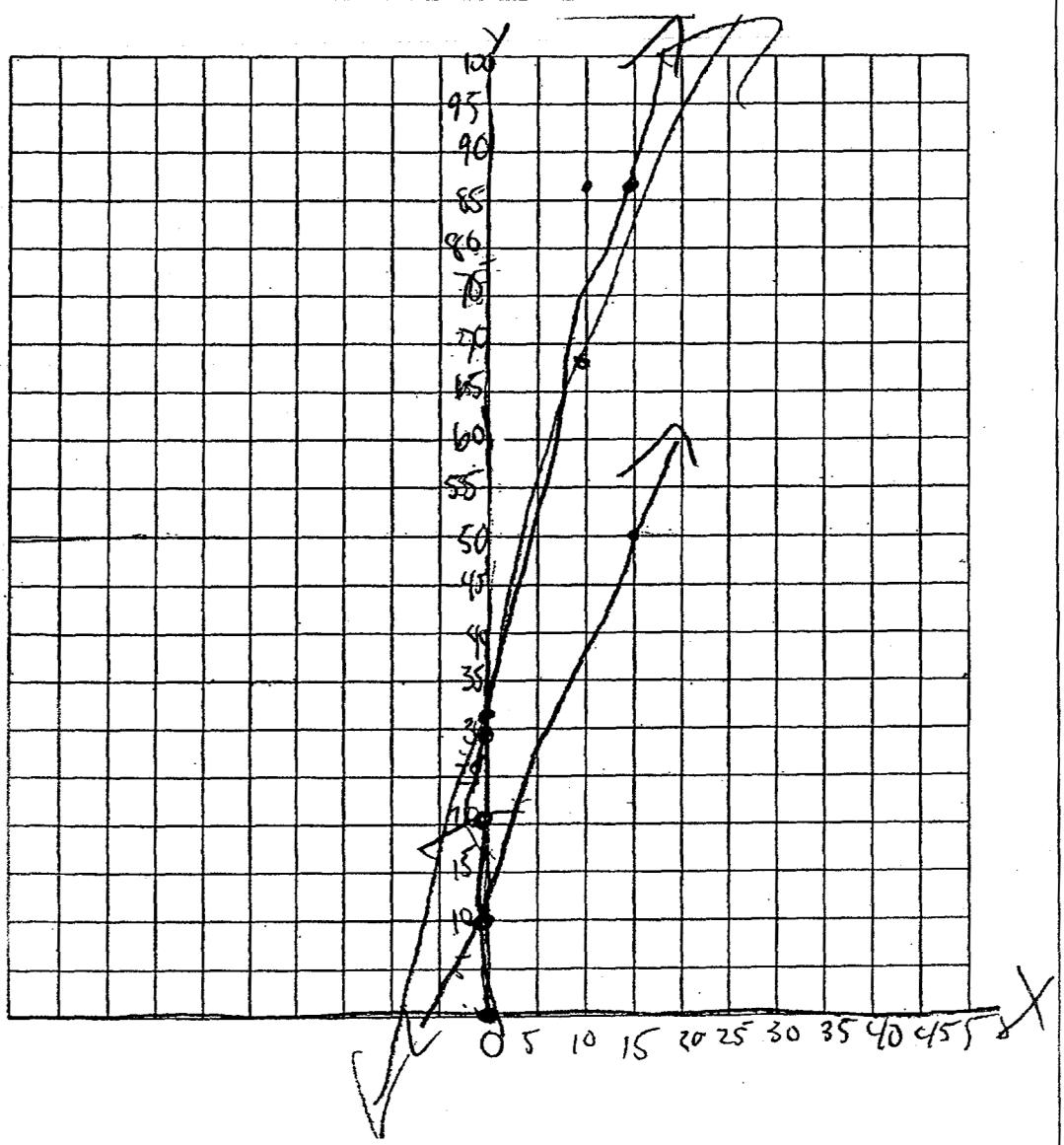
Celsius (x)	Fahrenheit (y)
0	32
10	50
20	68
30	86
40	104



SCORE POINT: 1

9 The accompanying table shows equivalent Celsius (x) and Fahrenheit (y) temperature readings. Plot these points on the grid provided, sketch the line, and write the equation for the line.

Celsius (x)	Fahrenheit (y)
0	32
10	50
20	68
30	86
40	104



SCORE POINT: 0