The University of the State of New York

REGENTS HIGH SCHOOL EXAMINATION

ALGEBRA I

Wednesday, June 17, 2026 — 9:15 a.m. to 12:15 p.m., only

MODEL RESPONSE SET

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Question 25

25 Express the product of $(1 - 2x)$ and $(3 - 5x)$ as a polynomial in standard form.

$(1-2x)(3-5x)$

$3-5x-6x+10x^2$

$10x^2-11x+3$

Score 2: The student gave a complete and correct response.

Question 25

25 Express the product of $(1 - 2x)$ and $(3 - 5x)$ as a polynomial in standard form.

$(-2x+1)(-5x+3)$

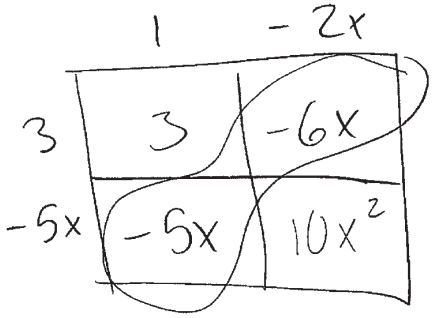
$10x^2-11x+3$

	$-2x$	1
$-5x$	$10x^2$	$-5x$
3	$-6x$	3

Score 2: The student gave a complete and correct response.

Question 25

25 Express the product of $(1 - 2x)$ and $(3 - 5x)$ as a polynomial in standard form.

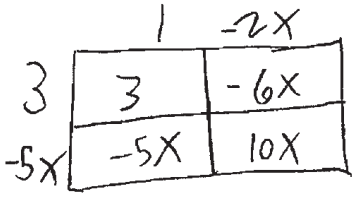


$3 - 11x + 10x^2$

Score 1: The student did not write the expression in standard form.

Question 25

25 Express the product of $(1 - 2x)$ and $(3 - 5x)$ as a polynomial in standard form.

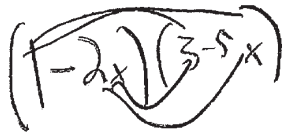


$-1x+3$

Score 1: The student made one computational error.

Question 25

25 Express the product of $(1 - 2x)$ and $(3 - 5x)$ as a polynomial in standard form.



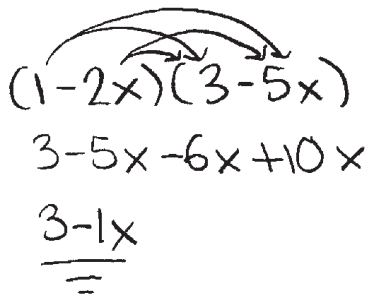
$3 - 5x + 6x - 10x^2$

$-10x^2 + x + 3$

Score 1: The student made one error by multiplying by $2x$ instead of $-2x$.

Question 25

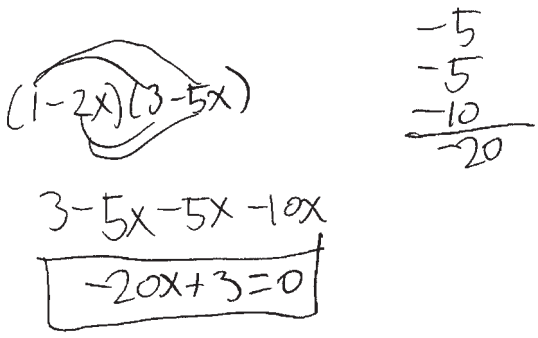
25 Express the product of $(1 - 2x)$ and $(3 - 5x)$ as a polynomial in standard form.



Score 0: The student made a computational error and did not express the polynomial in standard form.

Question 25

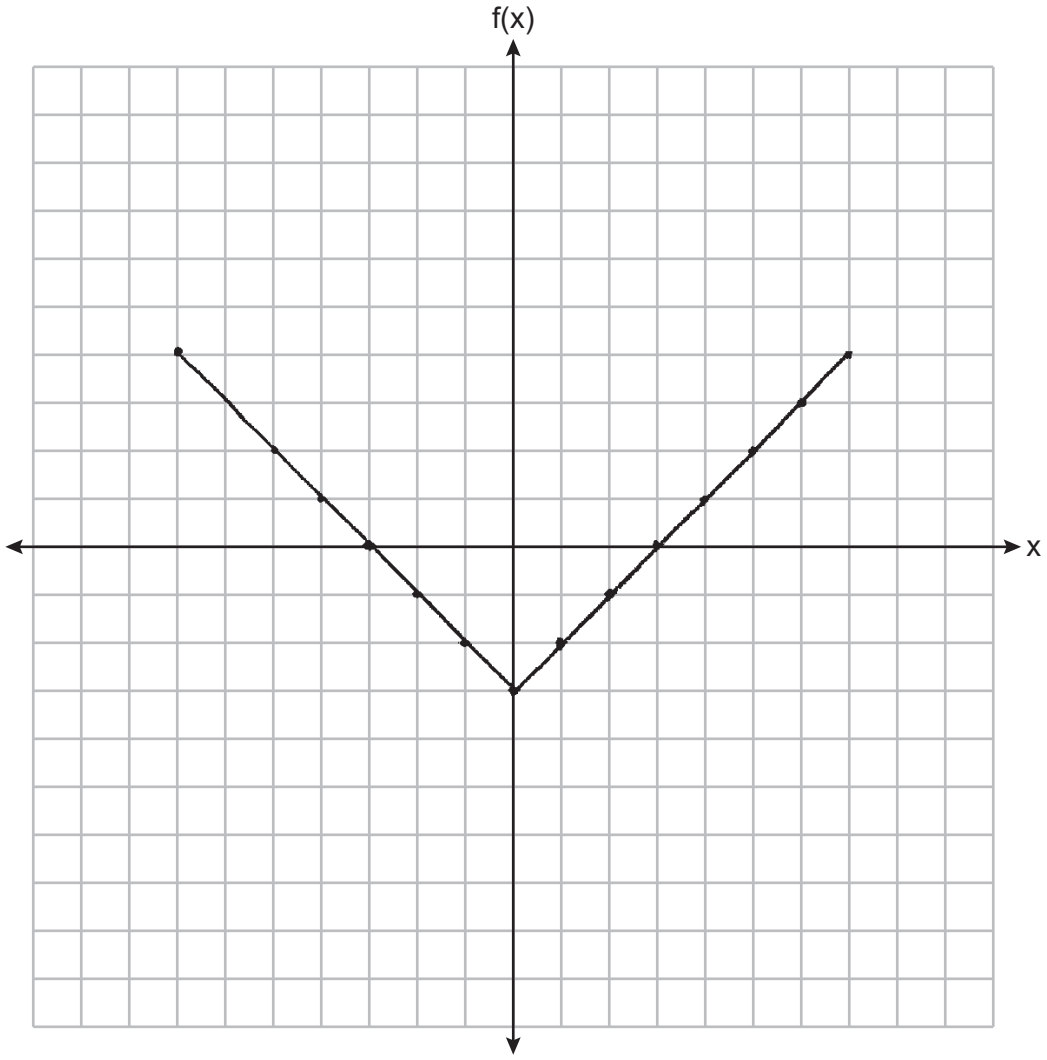
25 Express the product of $(1 - 2x)$ and $(3 - 5x)$ as a polynomial in standard form.



Score 0: The student did not show enough course-level work to receive any credit.

Question 26

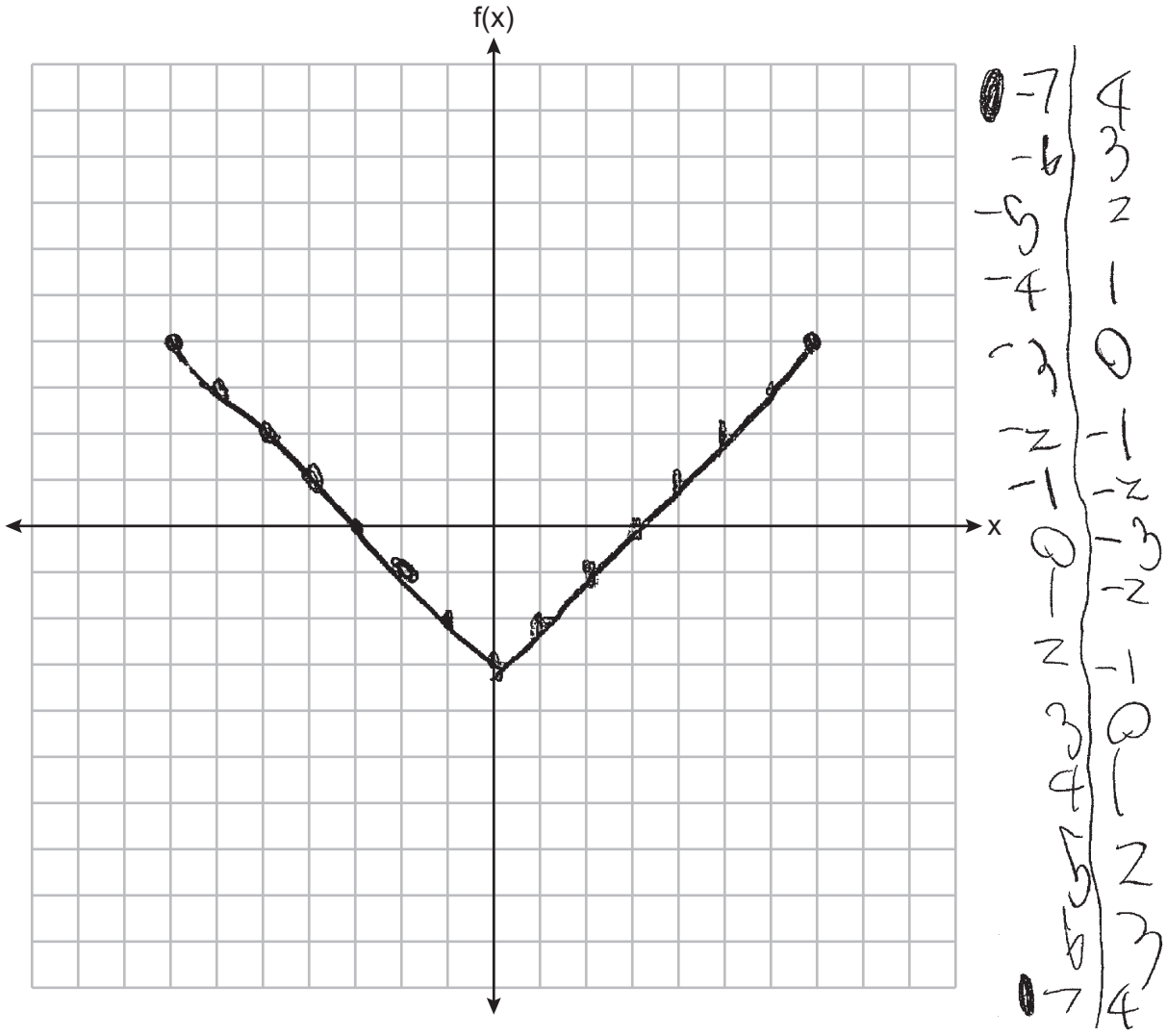
26 On the set of axes below, graph $f(x) = |x| - 3$ over the domain $-7 \leq x \leq 7$.



Score 2: The student gave a complete and correct response.

Question 26

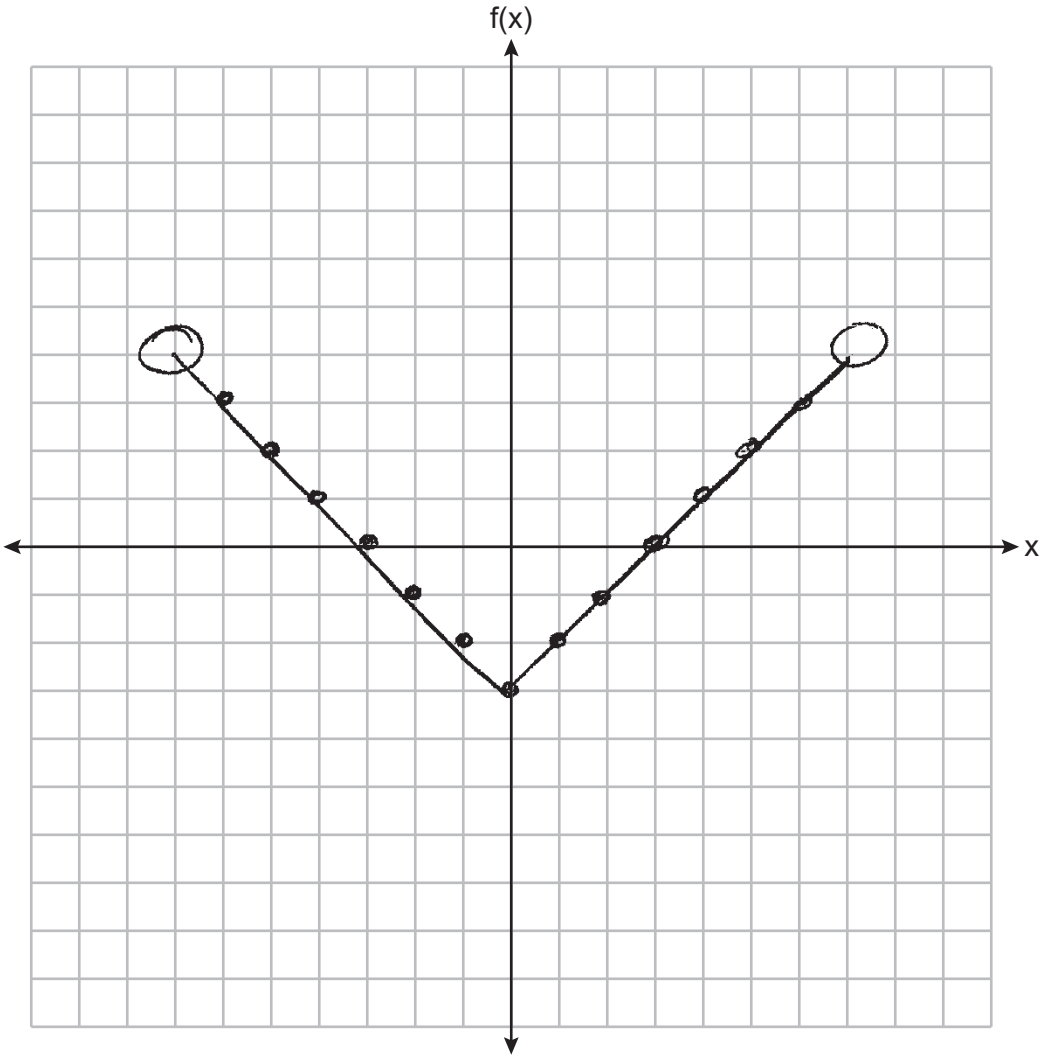
26 On the set of axes below, graph $f(x) = |x| - 3$ over the domain $-7 \leq x \leq 7$.



Score 2: The student gave a complete and correct response.

Question 26

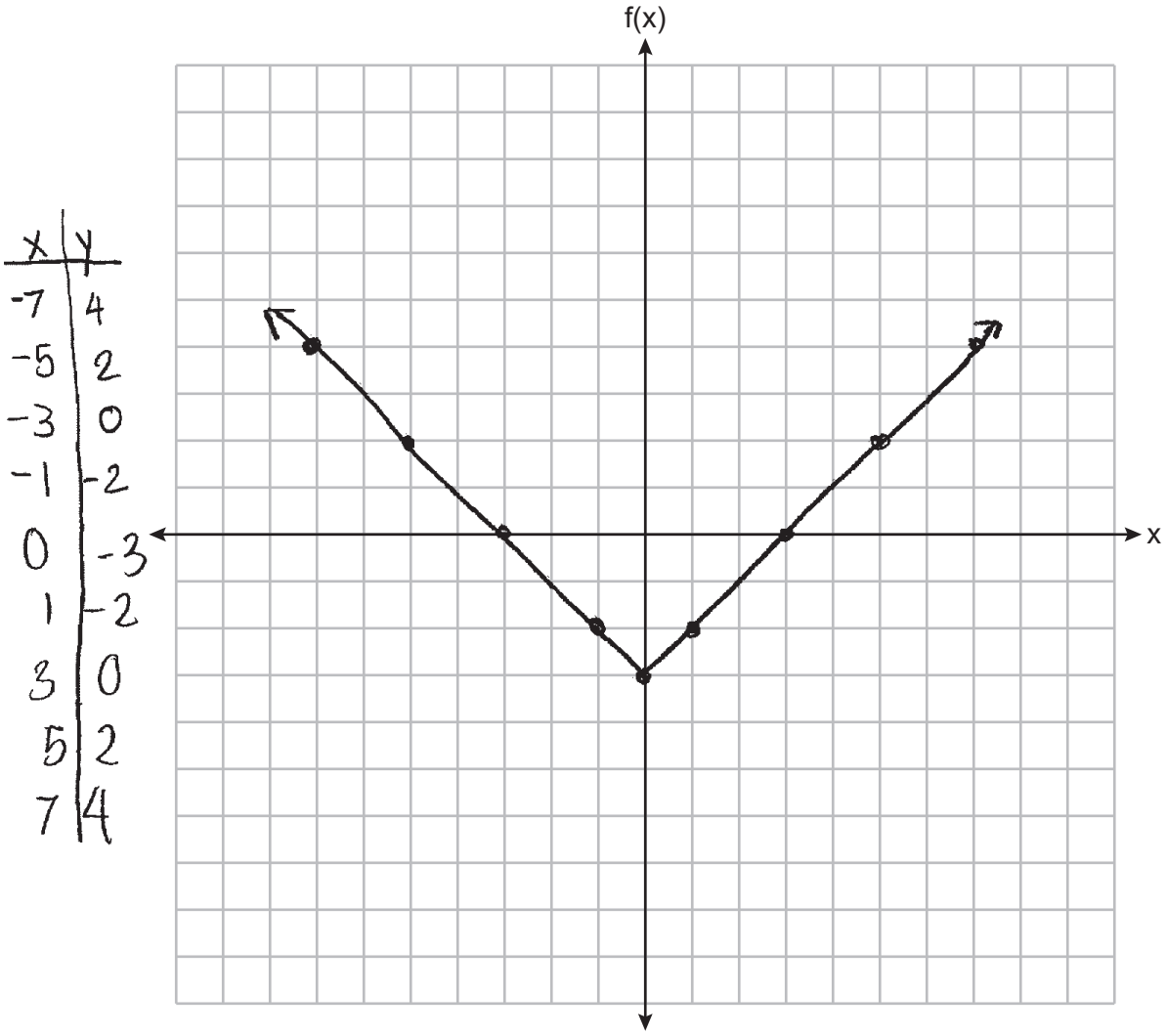
26 On the set of axes below, graph $f(x) = |x| - 3$ over the domain $-7 \leq x \leq 7$.



Score 1: The student made an error by graphing open circles.

Question 26

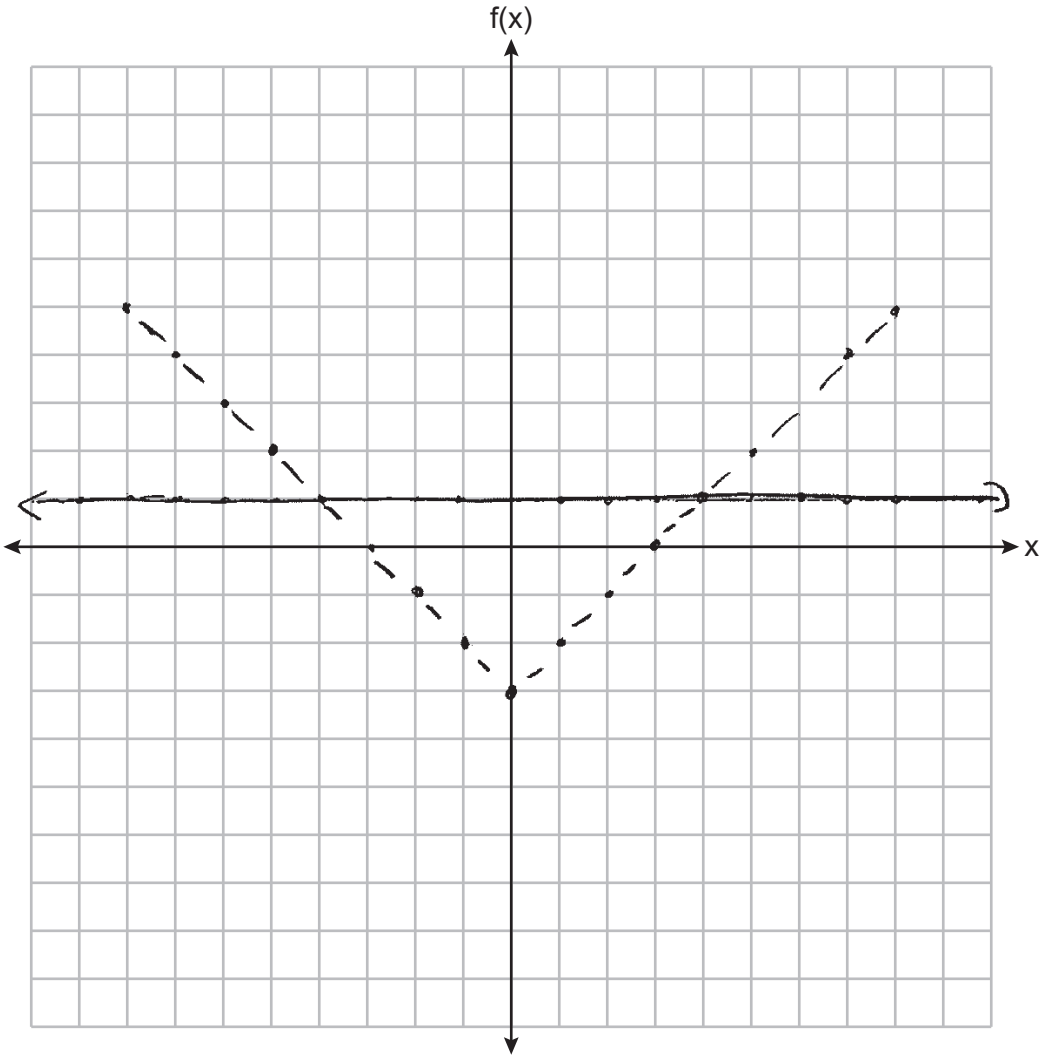
26 On the set of axes below, graph $f(x) = |x| - 3$ over the domain $-7 \leq x \leq 7$.



Score 1: The student made an error by graphing beyond the given domain.

Question 26

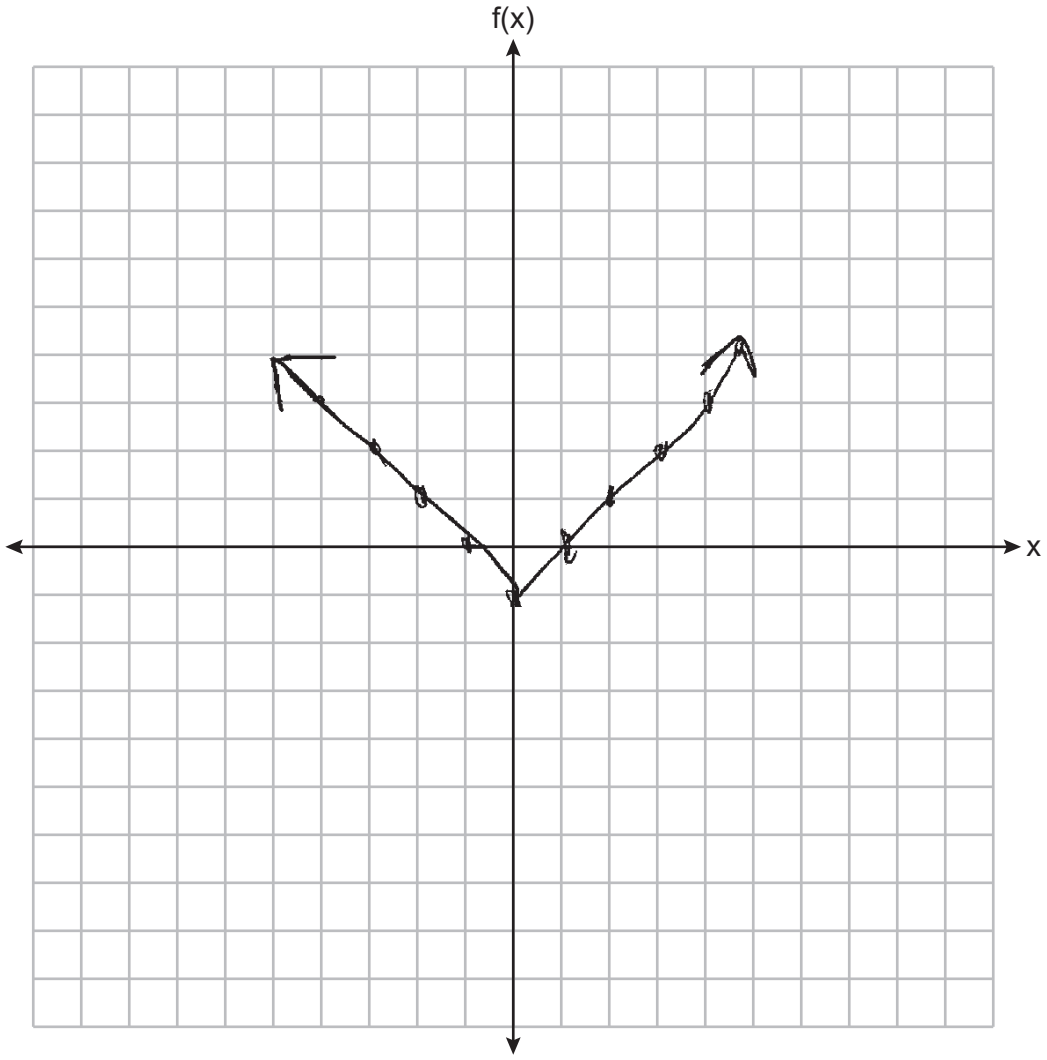
26 On the set of axes below, graph $f(x) = |x| - 3$ over the domain $-7 \leq x \leq 7$.



Score 0: The student made multiple graphing errors.

Question 26

26 On the set of axes below, graph $f(x) = |x| - 3$ over the domain $-7 \leq x \leq 7$.



Score 0: The student made multiple graphing errors.

Question 27

27 Solve the inequality algebraically:

$$-4x + 1 > 9 + 3(2x + 1) + x$$

$-4x+1>9+6x+3+x$

$-4x+1>12+7x$

$-1 \quad -1$

$-4x>11+7x$

$-7x \quad -7x$

$\frac{-11x}{-11} > \frac{11}{-11}$

$x<-1$

Score 2: The student gave a complete and correct response.

Question 27

27 Solve the inequality algebraically:

$$-4x + 1 > 9 + 3(2x + 1) + x$$

$-4x+1 > 9+3(2x+1)+x$

$-4x+1 > 9+6x+3+x$

$-4x+1 > 7x+12$

$+4x \quad +4x$

$1 > 11x+12$

$-12 \quad -12$

$\frac{-11}{11} > \frac{11x}{11}$

$-1 > x$

Score 2: The student gave a complete and correct response.

Question 27

27 Solve the inequality algebraically:

$$-4x + 1 > 9 + 3(2x + 1) + x$$

$-4x+1 > 9+6x+3+x$

$-4x+1 > 12+7x$

$-11x > 11$

$x = -1$

Score 1: The student did not use an inequality sign in their answer.

Question 27

27 Solve the inequality algebraically:

$$-4x + 1 > 9 + 3(2x + 1) + x$$

$-4x+1>9+6x+3+x$

$-4x+1>12+7x$
$-7 \quad -1$

$-4x>11+7x$
$-7x \quad -7x$

$-11x>11$

$\frac{-11x>11}{-11 \quad -11}$

$x>-1$

Score 1: The student used an incorrect inequality sign.

Question 27

27 Solve the inequality algebraically:

$$-4x + 1 > 9 + 3(2x + 1) + x$$

$-4x + 1 > 9 + 6x + 3 + x$

$-4x + 1 > 7x + 12$
$\quad -1 \qquad\quad -1$

$-4x > 7x + 11$
$-7x \quad -7y$

$\frac{-11x}{-11} > \frac{11}{-11}$

$\boxed{x > 1}$

Score 0: The student made two errors.

Question 27

27 Solve the inequality algebraically:

$$-4x + 1 > 9 + 3(2x + 1) + x$$

$-4x+1>9+6x+3+x$

$-4x+1>12+7x$

Score 0: The student did not show enough course-level work to receive any credit.

Question 28

28 Solve the formula $A = \frac{1}{2}bh$ for h in terms of A and b.

$$\frac{A}{b} = \frac{\frac{1}{2}bh}{b}$$

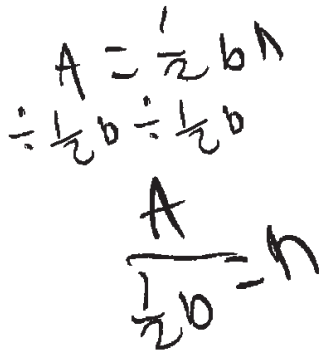
$$\frac{2}{1} \cdot \frac{A}{b} = \frac{1}{2} \cdot \frac{2}{1} h$$

$$\frac{2A}{b} = h$$

Score 2: The student gave a complete and correct response.

Question 28

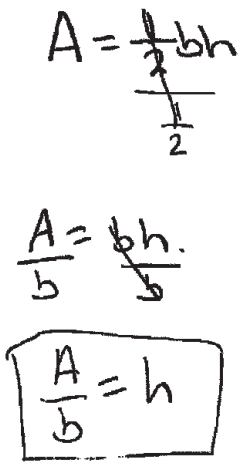
28 Solve the formula $A = \frac{1}{2}bh$ for h in terms of A and b.



Score 2: The student gave a complete and correct response.

Question 28

28 Solve the formula $A = \frac{1}{2}bh$ for h in terms of A and b.



Score 1: The student did not divide A by $\frac{1}{2}$.

Question 28

28 Solve the formula $A = \frac{1}{2}bh$ for h in terms of A and b.

$\frac{1}{2}b \quad \frac{1}{2}b$

$2b(A) = h$

Score 1: The student only divided by $\frac{1}{2}$ correctly.

Question 28

28 Solve the formula $A = \frac{1}{2}bh$ for h in terms of A and b.

$A = \frac{1}{2}bh$

$2A = hb$

$hb = 2A$

$b = \frac{2A}{h}, h \neq 0$

Score 1: The student divided by h instead of b.

Question 28

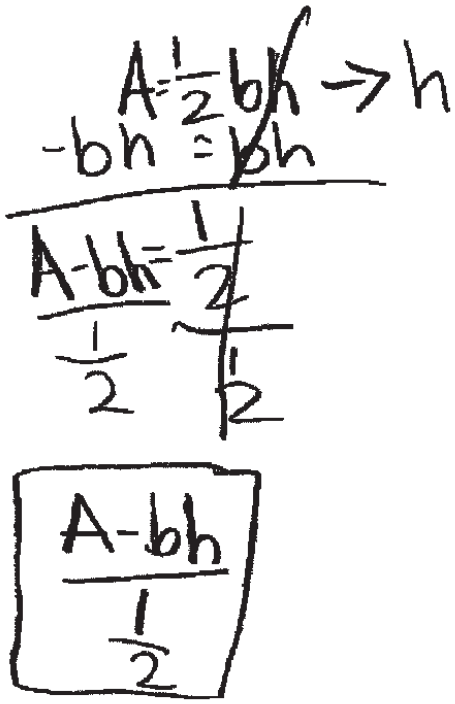
28 Solve the formula $A = \frac{1}{2}bh$ for h in terms of A and b.

$h=2(A)(b)$

Score 0: The student did not show any work and gave an incorrect response.

Question 28

28 Solve the formula $A = \frac{1}{2}bh$ for h in terms of A and b.



Score 0: The student did not show enough course-level work to receive any credit.

Question 29

29 The table below shows the population of Manhattan for the years indicated, according to the U.S. Census Bureau.

Year	Population
1970	1,539,233
1980	1,428,285
1990	1,487,536
2000	1,537,195
2010	1,585,873
2020	1,643,734

Determine the average rate of change of the population per year between the years 1980 and 2020, rounded to the *nearest integer*.

$$\frac{215449}{40} \approx 5386$$

Score 2: The student gave a complete and correct response.

Question 29

29 The table below shows the population of Manhattan for the years indicated, according to the U.S. Census Bureau.

Year	Population
1970	1,539,233
1980	1,428,285
1990	1,487,536
2000	1,537,195
2010	1,585,873
2020	1,643,734

Determine the average rate of change of the population per year between the years 1980 and 2020, rounded to the *nearest integer*.

(1980, 1,428,285) - (2020, 1,643,734)
y_1 y_2

$$\frac{215449}{40} = 5386.2$$

Score 1: The student made one rounding error.

Question 29

29 The table below shows the population of Manhattan for the years indicated, according to the U.S. Census Bureau.

	Year	Population
1	1970	1,539,233
2	1980	1,428,285
3	1990	1,487,536
4	2000	1,537,195
5	2010	1,585,873
6	2020	1,643,734

Determine the average rate of change of the population per year between the years 1980 and 2020, rounded to the *nearest integer*.

$$m = \frac{1,643,734 - 1,428,285}{6-2} = \frac{215,449}{4}$$

$$m \approx 53,862$$

Score 1: The student appropriately used an incorrect denominator.

Question 29

29 The table below shows the population of Manhattan for the years indicated, according to the U.S. Census Bureau.

Year	Population
1970	1,539,233
1980	1,428,285
1990	1,487,536
2000	1,537,195
2010	1,585,873
2020	1,643,734

Determine the average rate of change of the population per year between the years 1980 and 2020, rounded to the *nearest integer*.

$$\frac{1{,}643{,}734 - 1{,}539{,}233}{50} = \frac{104501}{50}$$

2090.02

2090 average rate of change per year

Score 1: The student found the correct rate of change for the wrong interval.

Question 29

29 The table below shows the population of Manhattan for the years indicated, according to the U.S. Census Bureau.

Year	Population
1970	1,539,233
1980	1,428,285
1990	1,487,536
2000	1,537,195
2010	1,585,873
2020	1,643,734

rate of change = rise / run

>110,948
>-59,251
>-49659
>-48678
>-57,861

9221856

Determine the average rate of change of the population per year between the years 1980 and 2020, rounded to the *nearest integer*.

The average rate between the years is 1,536,976.

$\frac{\text{add population}}{6} = \frac{9221856}{6} = 1,536,976$

Score 0: The student did not show enough course-level work to receive any credit.

Question 29

29 The table below shows the population of Manhattan for the years indicated, according to the U.S. Census Bureau.

Year	Population
~~1970~~	~~1,539,233~~
1980	1,428,285
1990	1,487,536
2000	1,537,195
2010	1,585,873
2020	1,643,734

1,643,734 − 1,428,285 = 215,449

215,449 / 5 ≈ 1,536,525

Determine the average rate of change of the population per year between the years 1980 and 2020, rounded to the *nearest integer*.

+ 1,536,525

Score 0: The student did not show enough course-level work to receive any credit.

Question 30

30 Rewrite $\frac{5}{\sqrt{3}}$ as a fraction with a rational denominator.

$$\frac{5}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{5\sqrt{3}}{3}$$

Score 2: The student gave a complete and correct response.

Question 30

30 Rewrite $\frac{5}{\sqrt{3}}$ as a fraction with a rational denominator.

$$\frac{5 \cdot \sqrt{3}}{3}$$

Score 1: The student wrote a correct answer, but no work is shown.

Question 30

30 Rewrite $\frac{5}{\sqrt{3}}$ as a fraction with a rational denominator.

Score 1: The student made a computational error.

Question 30

30 Rewrite $\frac{5}{\sqrt{3}}$ as a fraction with a rational denominator.

Score 1: The student made a conceptual error by squaring the numerator and denominator.

Question 30

30 Rewrite $\frac{5}{\sqrt{3}}$ as a fraction with a rational denominator.

Score 1: The student made a computational error.

Question 30

30 Rewrite $\frac{5}{\sqrt{3}}$ as a fraction with a rational denominator.

$\frac{5 \cdot 3}{\sqrt{3} \cdot 5}$ $\frac{15}{\sqrt{15}}$

Score 0: The student did not show enough course-level work to receive any credit.

Question 30

30 Rewrite $\frac{5}{\sqrt{3}}$ as a fraction with a rational denominator.

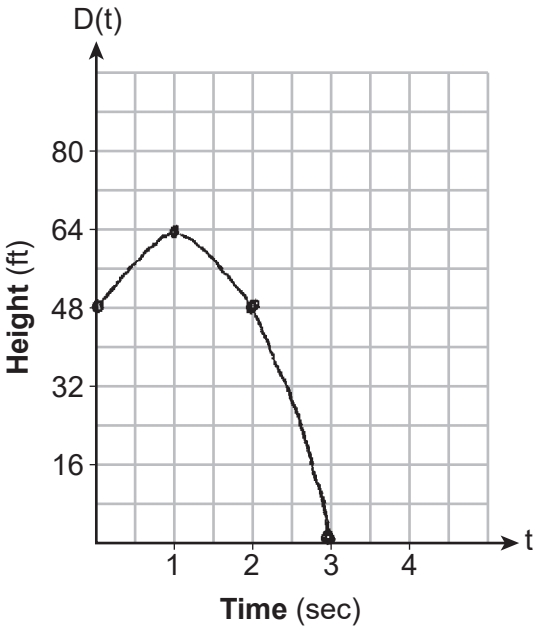
$\frac{5}{\sqrt{3}} \approx 2.886\ldots$

Score 0: The student did not show enough course-level work to receive any credit.

Question 31

31 A ball is tossed up into the air from the deck of a building. The distance that the ball is above the ground t seconds after it is tossed can be modeled by the function $D(t) = -16t^2 + 32t + 48$, where the distance is measured in feet.

On the set of axes below, graph $D(t) = -16t^2 + 32t + 48$.



D(t)

x	y
-2	-80
-1	0
0	48
1	64
2	48
3	0
4	-80

State the maximum number of feet above the ground that the ball will reach.

64ft

State the number of seconds after the toss it will take the ball to hit the ground.

3 seconds

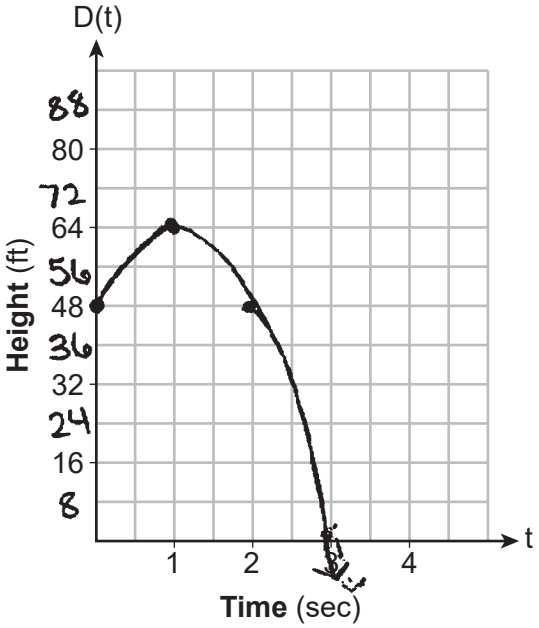
Score 4: The student gave a complete and correct response.

Question 31

31 A ball is tossed up into the air from the deck of a building. The distance that the ball is above the ground t seconds after it is tossed can be modeled by the function $D(t) = -16t^2 + 32t + 48$, where the distance is measured in feet.

On the set of axes below, graph $D(t) = -16t^2 + 32t + 48$.

X	Y
0	48
1	64
2	48
3	0



State the maximum number of feet above the ground that the ball will reach.

64 feet

State the number of seconds after the toss it will take the ball to hit the ground.

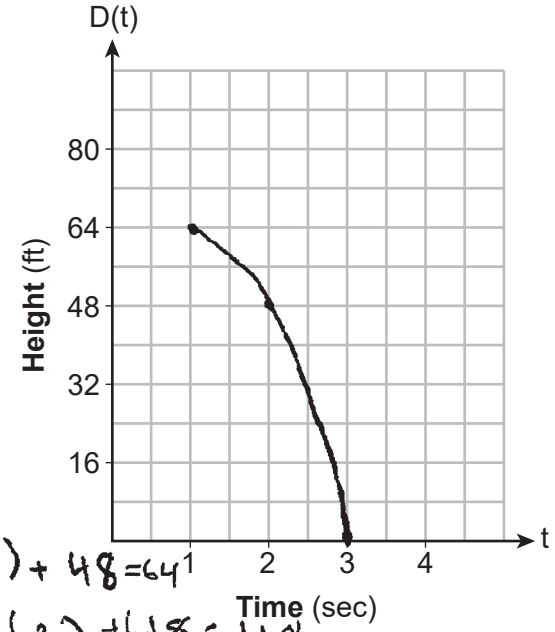
3 seconds

Score 3: The student misinterpreted the context by extending the graph beyond the axis.

Question 31

31 A ball is tossed up into the air from the deck of a building. The distance that the ball is above the ground t seconds after it is tossed can be modeled by the function $D(t) = -16t^2 + 32t + 48$, where the distance is measured in feet.

On the set of axes below, graph $D(t) = -16t^2 + 32t + 48$.



$-16(1)^2 + 32(1) + 48 = 64$
$-16(2)^2 + 32(2) + 48 = 48$
$-16(3)^2 + 32(3) + 48 = 0$

State the maximum number of feet above the ground that the ball will reach.

64 feet

State the number of seconds after the toss it will take the ball to hit the ground.

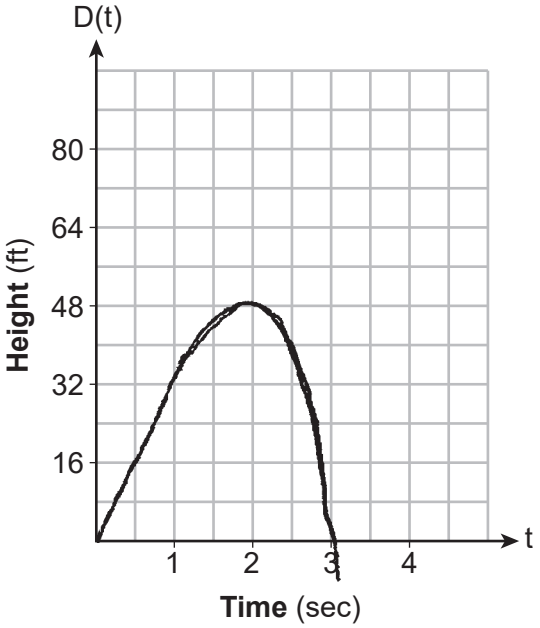
3 seconds.

Score 3: The student did not graph from 0 to 3 seconds.

Question 31

31 A ball is tossed up into the air from the deck of a building. The distance that the ball is above the ground t seconds after it is tossed can be modeled by the function $D(t) = -16t^2 + 32t + 48$, where the distance is measured in feet.

On the set of axes below, graph $D(t) = -16t^2 + 32t + 48$.



State the maximum number of feet above the ground that the ball will reach.

The maximum number of feet above the ground that the ball will reach is 48 ft

State the number of seconds after the toss it will take the ball to hit the ground.

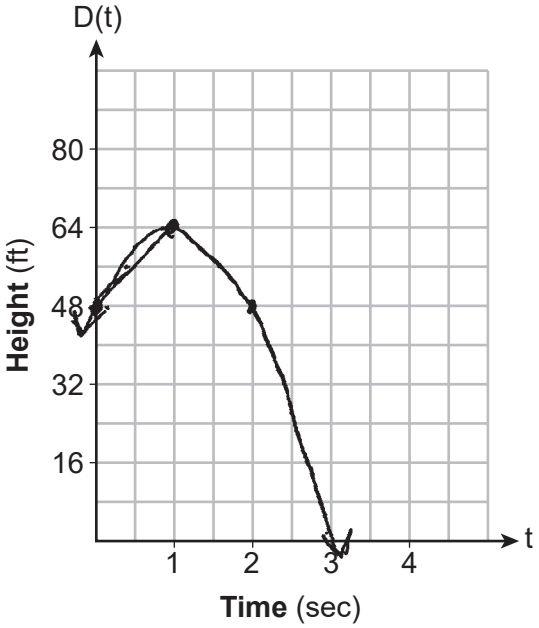
It will take the ball 3 seconds to hit the ground.

Score 2: The student gave two appropriate answers based on an incorrect graph.

Question 31

31 A ball is tossed up into the air from the deck of a building. The distance that the ball is above the ground t seconds after it is tossed can be modeled by the function $D(t) = -16t^2 + 32t + 48$, where the distance is measured in feet.

On the set of axes below, graph $D(t) = -16t^2 + 32t + 48$.



State the maximum number of feet above the ground that the ball will reach.

max = 64ft

State the number of seconds after the toss it will take the ball to hit the ground.

$0 = -16t^2 + 32t + 48$

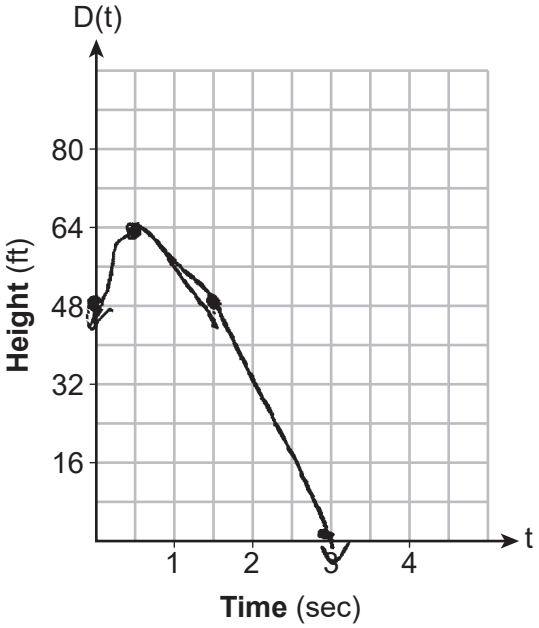
$-48 = -16t^2 + 32t$

Score 2: The student misinterpreted the context by extending the graph beyond the axes and did not state the number of seconds it will take the ball to hit the ground.

Question 31

31 A ball is tossed up into the air from the deck of a building. The distance that the ball is above the ground t seconds after it is tossed can be modeled by the function $D(t) = -16t^2 + 32t + 48$, where the distance is measured in feet.

On the set of axes below, graph $D(t) = -16t^2 + 32t + 48$.



State the maximum number of feet above the ground that the ball will reach.

64 ft above the ground

State the number of seconds after the toss it will take the ball to hit the ground.

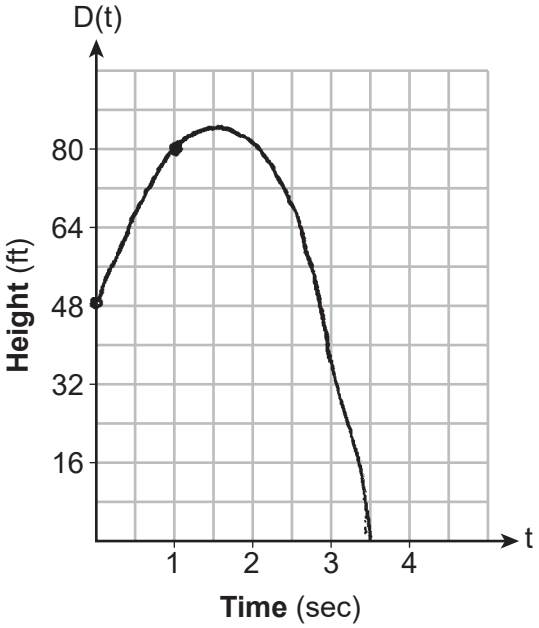
3 Seconds

Score 2: The student stated 64 and 3.

Question 31

31 A ball is tossed up into the air from the deck of a building. The distance that the ball is above the ground t seconds after it is tossed can be modeled by the function $D(t) = -16t^2 + 32t + 48$, where the distance is measured in feet.

On the set of axes below, graph $D(t) = -16t^2 + 32t + 48$.



State the maximum number of feet above the ground that the ball will reach.

it will reach a max of 80 feet

State the number of seconds after the toss it will take the ball to hit the ground.

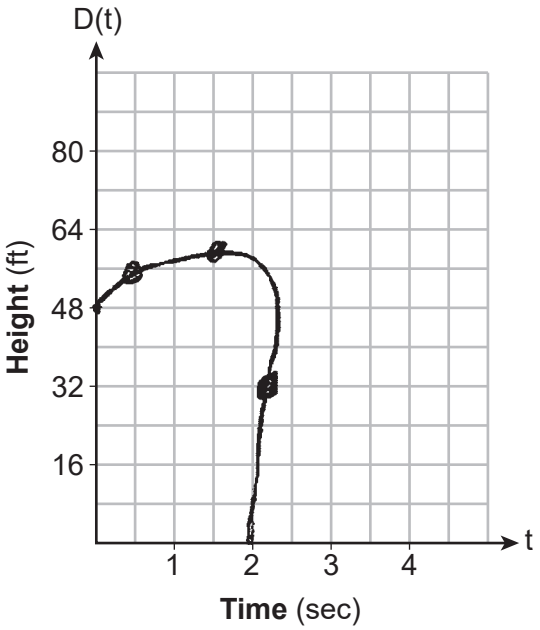
it will take 3.5 seconds for it to reach the ground

Score 1: The student stated 3.5 based on an incorrect graph.

Question 31

31 A ball is tossed up into the air from the deck of a building. The distance that the ball is above the ground t seconds after it is tossed can be modeled by the function $D(t) = -16t^2 + 32t + 48$, where the distance is measured in feet.

On the set of axes below, graph $D(t) = -16t^2 + 32t + 48$.



State the maximum number of feet above the ground that the ball will reach.

64 is the maximum number

State the number of seconds after the toss it will take the ball to hit the ground.

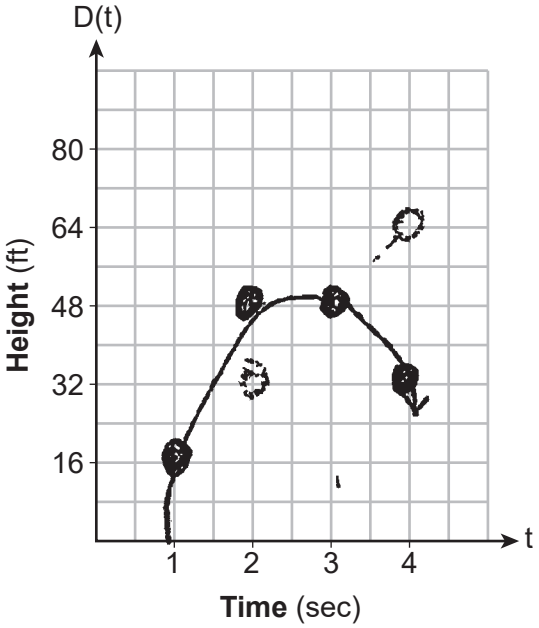
It took 1 second because

Score 1: The student stated 64.

Question 31

31 A ball is tossed up into the air from the deck of a building. The distance that the ball is above the ground t seconds after it is tossed can be modeled by the function $D(t) = -16t^2 + 32t + 48$, where the distance is measured in feet.

On the set of axes below, graph $D(t) = -16t^2 + 32t + 48$.



State the maximum number of feet above the ground that the ball will reach.

it will hit it 32 Feet

State the number of seconds after the toss it will take the ball to hit the ground.

4 seconds

Score 0: The student did not show enough course-level work to receive any credit.

Question 31

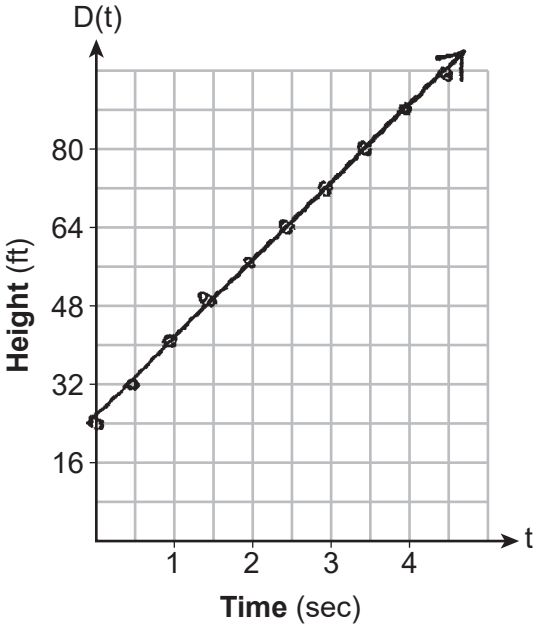
31 A ball is tossed up into the air from the deck of a building. The distance that the ball is above the ground t seconds after it is tossed can be modeled by the function $D(t) = -16t^2 + 32t + 48$, where the distance is measured in feet.

On the set of axes below, graph $D(t) = -16t^2 + 32t + 48$.

$\frac{-16t^2}{2} + \frac{32t}{2} + \frac{48}{2}$

$-16t + 16t + 24$

1



State the maximum number of feet above the ground that the ball will reach.

80 feet

State the number of seconds after the toss it will take the ball to hit the ground.

4 Seconds

Score 0: The student did not show enough course-level work to receive any credit.

Question 32

32 Solve the following system of equations algebraically for all values of x and y.

$$y = -2x + 3$$
$$y = x^2 - 5x + 3$$

$x^2 - 5x + 3 = -2x + 3$
$+2x - 3 \quad +2x - 3$

$x^2 - 3x = 0$

$(x - 3)(x + 0)$

$x - 3 = 0 \mid x + 0 = 0$
$+3 \quad +3 \mid x = 0$
$x = 3 \mid$

$y = -2x + 3$
$y = -2(3) + 3$
$y = -6 + 3$
$y = -3$

$(3, -3)$

$y = -2x + 3$
$y = -2(0) + 3$
$y = 3$

$(0, 3)$

$y = x^2 - 5x + 3$
$-3 = 3^2 - 5(3) + 3$
$-3 = 9 - 15 + 3$
$-3 = -6 + 3$
$-3 = -3$ ✓

$y = x^2 - 5x + 3$
$3 = 0^2 - 5(0) + 3$
$3 = 3$ ✓

Score 4: The student gave a complete and correct response.

Question 32

32 Solve the following system of equations algebraically for all values of x and y.

$$y = -2x + 3$$
$$y = x^2 - 5x + 3$$

$-2x+3 = x^2-5x+3$
$+2x \quad -3 \quad +2x \quad -3$

$x^2 - 3x = 0$
$\sqrt{(x-1.5)^2} = \sqrt{2.25}$
$x = 1.5 \pm 1.5$
$\{0, 3\}$

$y = -2(0)+3$
$y = 3$
$y = -2(3)+3$
$y = -6+3$
$y = -3$

$(0,3)$
$(3,-3)$

Score 4: The student gave a complete and correct response.

Question 32

32 Solve the following system of equations algebraically for all values of x and y.

$y = -2x + 3$
$y = x^2 - 5x + 3$

$a=1 \quad b=-3$
$c=0$

$-2x + 3 = x^2 - 5x + 3$
$+3 \qquad\qquad -3$

$-2x = x^2 - 5x$
$+2x \qquad +2x$

$0 = x^2 - 3x$

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

$x = \frac{3 \pm \sqrt{9}}{2}$

$x = \frac{3+3}{2} \qquad x = \frac{3-3}{2}$

$x = 3 \qquad x = 0$

Score 3: The student did not solve for the y-values.

Question 32

32 Solve the following system of equations algebraically for all values of x and y.

$$y = -2x + 3$$
$$y = x^2 - 5x + 3$$

$x^2 - 5x + 3 = -2x + 3$
$-3 + 2x \quad +2x - 3$
$x^2 - 3x = 0$

$x = 3$

$y = -2(3) + 3$
$-6 + 3$
$y = -3$

Score 3: The student only wrote one correct solution.

Question 32

32 Solve the following system of equations algebraically for all values of x and y.

$$y = -2x + 3$$
$$y = x^2 - 5x + 3$$

$-2x + 3 = x^2 - 5x + 3$
$+2x - 3 \qquad +2x - 3$
$0 = x^2 - 3x + 0$

$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

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

$x = \frac{3 \pm \sqrt{9}}{2}$

$x = 1$
$y = -3$
$c = 0$

Score 2: The student made a correct substitution into the quadratic formula.

Question 32

32 Solve the following system of equations algebraically for all values of x and y.

$$y = -2x + 3$$
$$y = x^2 - 5x + 3$$

$-2x+3=x^2-5x+3$
$-3 \quad\quad -3$
$-2x = x^2-5x$
$+5x \quad\quad +5x$
$\frac{3x}{x} = \frac{x^2}{x}$
$3 = x$

$Y = -2(3)+3$
$Y = -3$

$3^2-5(3)+3=-3$

$x=3$
$y=-3$

Score 2: The student used an incorrect method to find only one solution.

Question 32

32 Solve the following system of equations algebraically for all values of x and y.

$y = -2x + 3$

$-1(y = x^2 - 5x + 3)$

$y = -2x + 3$

$-y = -x^2 + 5x - 3$

$0 = -x^2 + 3x$

$\sqrt{-1} \quad \sqrt{-1}$

$\sqrt{0} = \sqrt{x^2 + 3x}$

$0 = x + 3x$

$0 = x + 3x$

$0 = 4x$

$/4 \quad /4$

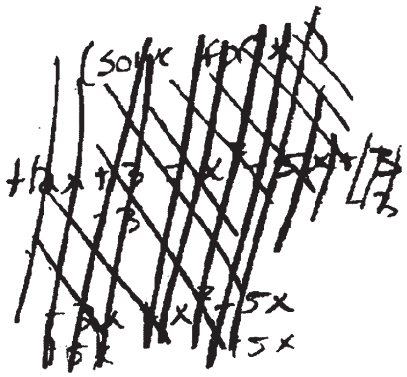
$0 = x$

Score 1: The student wrote a correct quadratic equation set equal to zero.

Question 32

32 Solve the following system of equations algebraically for all values of x and y.

$$y = -2x + 3$$
$$y = x^2 - 5x + 3$$



$-2x+3 = x^2-5x+3$
$+5x \qquad\qquad +5x$

$3x+3 = x^2+3$
$\quad -3 \quad\; -3$

$3x = x^2$

$\sqrt{x^2} = \sqrt{3x}$

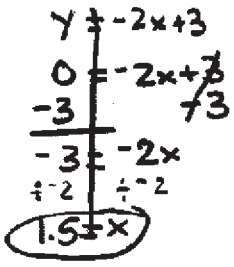
$x =$

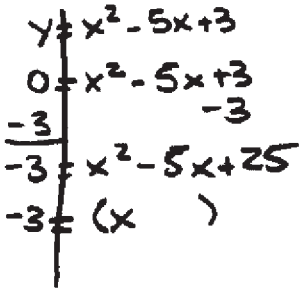
Score 0: The student did not show enough correct work to receive any credit.

Question 32

32 Solve the following system of equations algebraically for all values of x and y.

$y = -2x + 3$ (linear Equation)
$y = x^2 - 5x + 3$ (quadratic equation)





B = -5
B² = 25

Score 0: The student did not show enough correct work to receive any credit.

Question 33

33 The table below shows the number of years of experience, x, working as a salesperson and their corresponding salaries, y, in thousands of dollars.

Number of Years of Experience (x)	Salary in Thousands of Dollars (y)
2	15
3	28
5	42
9	54
13	64
16	90

State the linear regression equation for these data. Round all values to the *nearest hundredth*.

$y = ax + b$
$a = 4.6125$
$b = 11.93333333$

$y = 4.61x + 11.93$

State the correlation coefficient for this data set, to the *nearest hundredth*.

$r = 0.98$

State what the correlation coefficient indicates about the linear fit of the data.

The correlation coefficient indicates that the linear fit of data is almost perfect

Score 4: The student gave a complete and correct response.

Question 33

33 The table below shows the number of years of experience, x, working as a salesperson and their corresponding salaries, y, in thousands of dollars.

Number of Years of Experience (x)	Salary in Thousands of Dollars (y)
2	15
3	28
5	42
9	54
13	64
16	90

State the linear regression equation for these data. Round all values to the *nearest hundredth*.

$y = 4.61x + 11.93$

State the correlation coefficient for this data set, to the *nearest hundredth*.

$r = .98$

State what the correlation coefficient indicates about the linear fit of the data.

The relationship will be strong because the value of r is close to 1

Score 4: The student gave a complete and correct response.

Question 33

33 The table below shows the number of years of experience, x, working as a salesperson and their corresponding salaries, y, in thousands of dollars.

Number of Years of Experience (x)	Salary in Thousands of Dollars (y)
2	15
3	28
5	42
9	54
13	64
16	90

State the linear regression equation for these data. Round all values to the *nearest hundredth*.

$y = 4.6125x + 11.9333$

$y = 4.6x + 11.9$

State the correlation coefficient for this data set, to the *nearest hundredth*.

$r = 0.975544$

$r = 0.98$

State what the correlation coefficient indicates about the linear fit of the data.

There is a strong correlation coefficient between number of years of Experience and Salary in Thousands of Dollars.

Score 3: The student made one rounding error.

Question 33

33 The table below shows the number of years of experience, x, working as a salesperson and their corresponding salaries, y, in thousands of dollars.

Number of Years of Experience (x)	Salary in Thousands of Dollars (y)
2	15
3	28
5	42
9	54
13	64
16	90

State the linear regression equation for these data. Round all values to the *nearest hundredth*.

$y = 11.93 + 4.61x$

State the correlation coefficient for this data set, to the *nearest hundredth*.

$r^2 = 0.95$

State what the correlation coefficient indicates about the linear fit of the data.

The correlation coefficient indicates a strong linear fit of the data.

Score 3: The student wrote an incorrect correlation coefficient.

33 The table below shows the number of years of experience, x, working as a salesperson and their corresponding salaries, y, in thousands of dollars.

Number of Years of Experience (x)	Salary in Thousands of Dollars (y)
2	15
3	28
5	42
9	54
13	64
16	90

State the linear regression equation for these data. Round all values to the *nearest hundredth*.

$y = 4.61x + 11.93$

State the correlation coefficient for this data set, to the *nearest hundredth*.

0.97

State what the correlation coefficient indicates about the linear fit of the data.

This correlation coefficient indicates that the salary is more linear than not.

Score 2: The student wrote a correct equation.

Question 33

33 The table below shows the number of years of experience, x, working as a salesperson and their corresponding salaries, y, in thousands of dollars.

Number of Years of Experience (x)	Salary in Thousands of Dollars (y)
2	15
3	28
5	42
9	54
13	64
16	90

State the linear regression equation for these data. Round all values to the *nearest hundredth*.

$y = mx + b$

$y = 4.6x + 11.93$

$m = 4.6125$

$b = 11.9333$

State the correlation coefficient for this data set, to the *nearest hundredth*.

$r = 0.975544$

$r = .96$

State what the correlation coefficient indicates about the linear fit of the data.

The correlation between Number of years and Salary in thousands of dollars is a strong positive.

Score 2: The student made two different rounding errors.

Question 33

33 The table below shows the number of years of experience, x, working as a salesperson and their corresponding salaries, y, in thousands of dollars.

Number of Years of Experience (x)	Salary in Thousands of Dollars (y)
2	15
3	28
5	42
9	54
13	64
16	90

State the linear regression equation for these data. Round all values to the *nearest hundredth*.

$y = 4.6x + 11.9$

State the correlation coefficient for this data set, to the *nearest hundredth*.

5.7

State what the correlation coefficient indicates about the linear fit of the data.

its positive but weak.

Score 1: The student wrote an appropriate equation with one rounding error.

Question 33

33 The table below shows the number of years of experience, x, working as a salesperson and their corresponding salaries, y, in thousands of dollars.

Number of Years of Experience (x)	Salary in Thousands of Dollars (y)
2	15
3	28
5	42
9	54
13	64
16	90

State the linear regression equation for these data. Round all values to the *nearest hundredth*.

0.98=4.61+11.93

State the correlation coefficient for this data set, to the *nearest hundredth*.

r=0.98

State what the correlation coefficient indicates about the linear fit of the data.

it's weak or strong and it's negative or positive

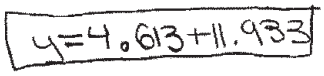
Score 1: The student wrote the correct correlation coefficient.

Question 33

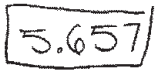
33 The table below shows the number of years of experience, x, working as a salesperson and their corresponding salaries, y, in thousands of dollars.

Number of Years of Experience (x)	Salary in Thousands of Dollars (y)
2	15
3	28
5	42
9	54
13	64
16	90

State the linear regression equation for these data. Round all values to the *nearest hundredth*.



State the correlation coefficient for this data set, to the *nearest hundredth*.



State what the correlation coefficient indicates about the linear fit of the data.

Score 0: The student made multiple errors.

Question 33

33 The table below shows the number of years of experience, x, working as a salesperson and their corresponding salaries, y, in thousands of dollars.

Number of Years of Experience (x)	Salary in Thousands of Dollars (y)
2	15
3	28
5	42
9	54
13	64
16	90

State the linear regression equation for these data. Round all values to the *nearest hundredth*.

$\frac{\Delta y}{\Delta x}$ $\frac{y_2 - y_1}{x_2 - x_1}$ $\frac{64,000 - 54,000}{9-5}$ $\frac{10,000}{4}$ = $12,500

$Y = mx + b$

State the correlation coefficient for this data set, to the *nearest hundredth*.

Correlation Coefficient: 5

$\frac{\sum x}{5} = \frac{42,000}{5}$

$\bar{X} = \$8,400$

State what the correlation coefficient indicates about the linear fit of the data.

The correlation coefficient indicates the money that was earned those 5 years.

Score 0: The student did not show enough course-level work to receive any credit.

Question 34

34 Graph the system of inequalities on the set of axes below.

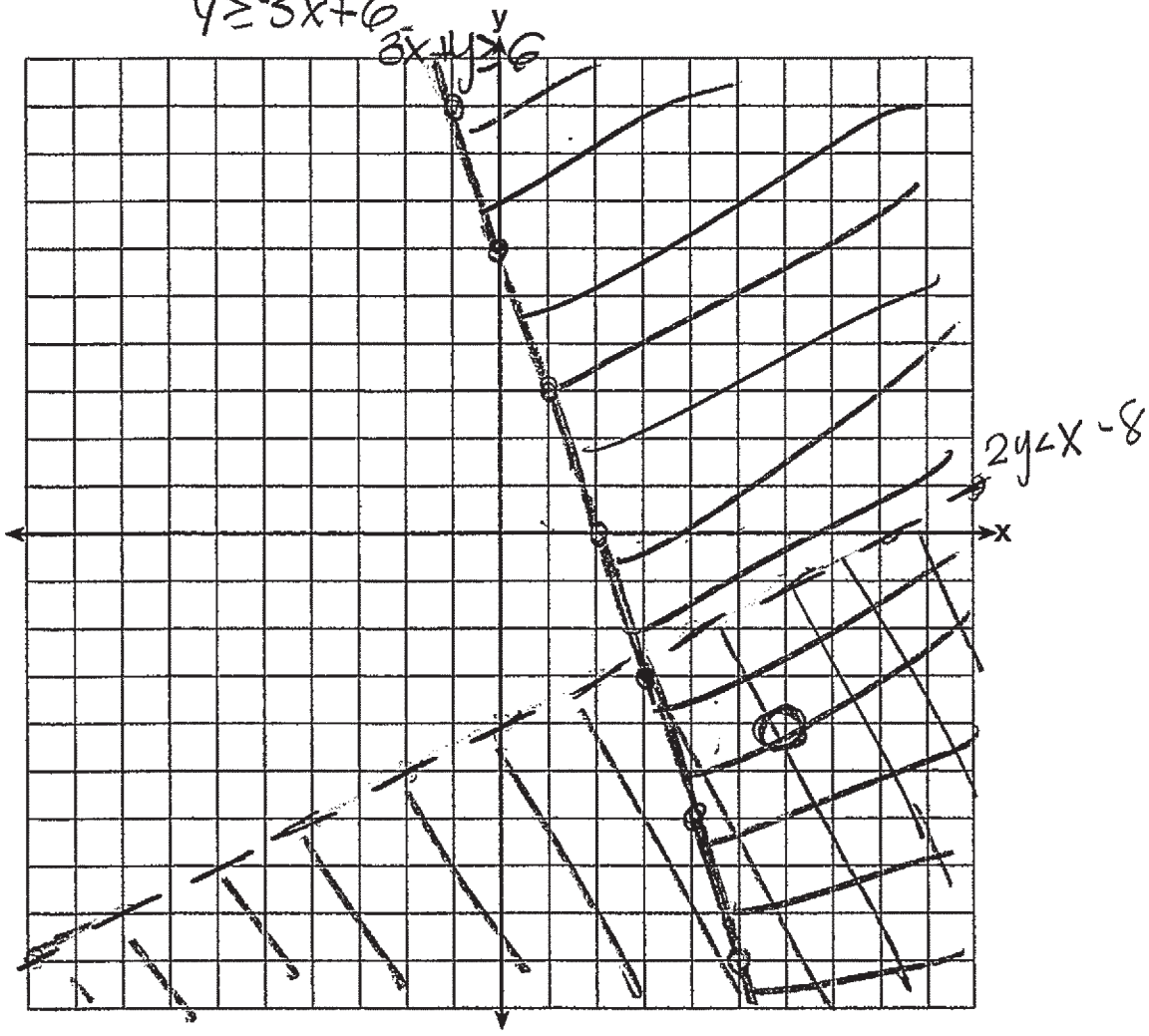
$\frac{2y}{2} < \frac{x}{2} - \frac{8}{2}$

$3x + y \geq 6$

$-3x \quad -3x$

$y \geq -3x + 6$

$3x + y \geq 6$



State the coordinates of a point that satisfies both inequalities. Justify your answer.

(6, -4), it's in the part that is shaded twice.

Score 4: The student gave a complete and correct response.

Question 34

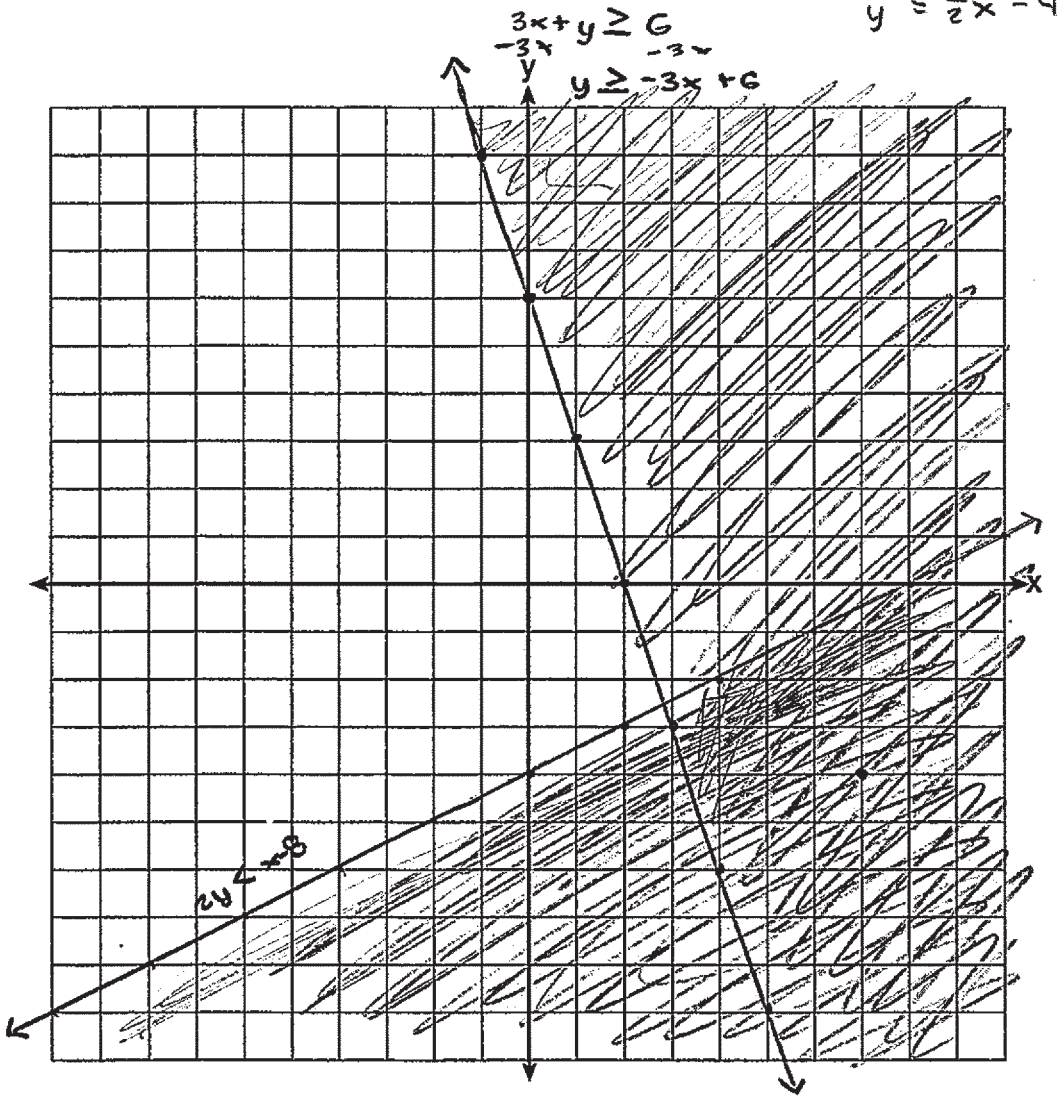
34 Graph the system of inequalities on the set of axes below.

$2y < x - 8$

$3x + y \geq 6$

$\frac{2y}{2} < \frac{x-8}{2}$

$y = \frac{1}{2}x - 4$



State the coordinates of a point that satisfies both inequalities. Justify your answer.

The point (7,-4) satisfies both inequalities because the point lies in the shaded area that both inequalities share.

Score 3: The student made an error, in graphing $2y < x - 8$.

Question 34

34 Graph the system of inequalities on the set of axes below.

$3x + y \geq 6$

$-3x \quad -3x$

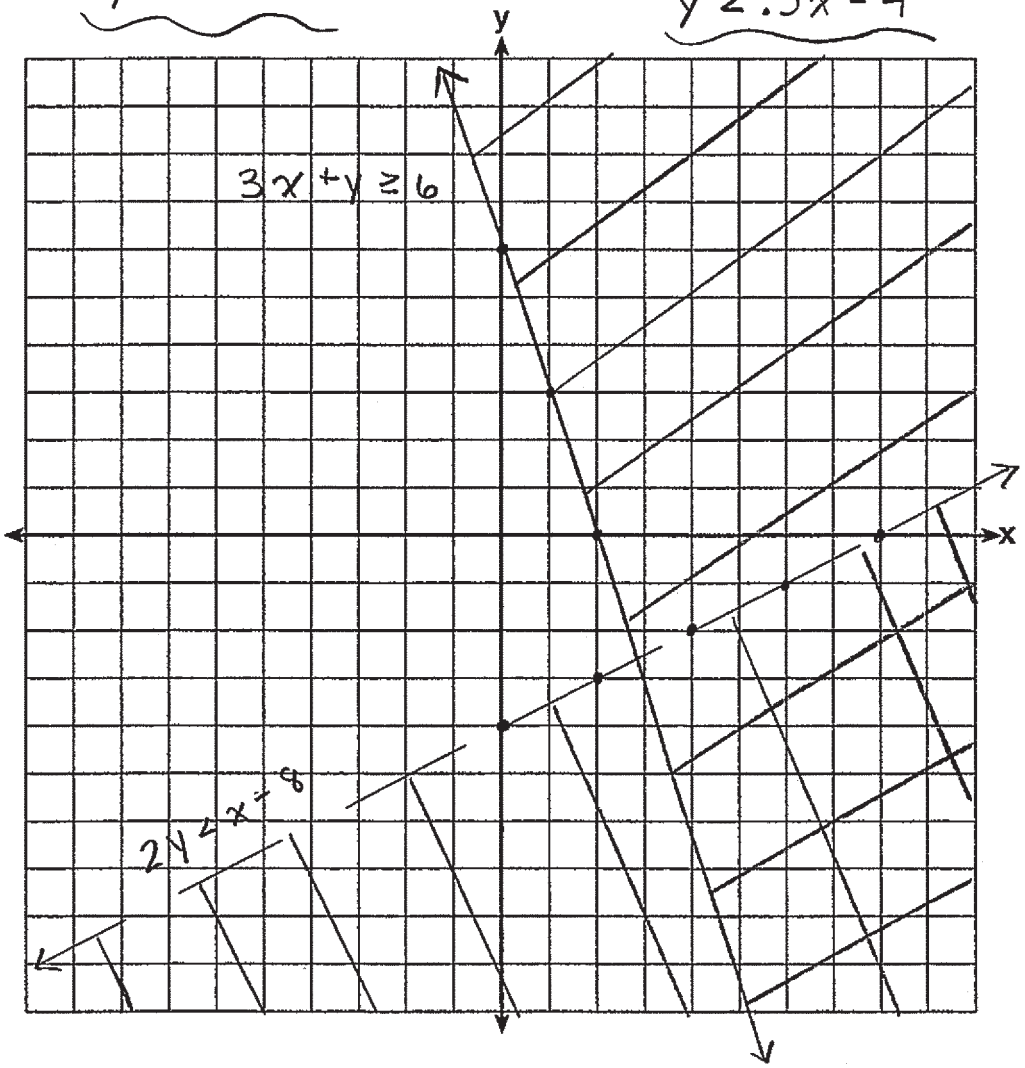
$y \geq -3x + 6$

$2y < x - 8$

$3x + y \geq 6$

$\frac{2y}{2} < \frac{x - 8}{2}$

$y < .5x - 4$



State the coordinates of a point that satisfies both inequalities. Justify your answer.

(6, -3)

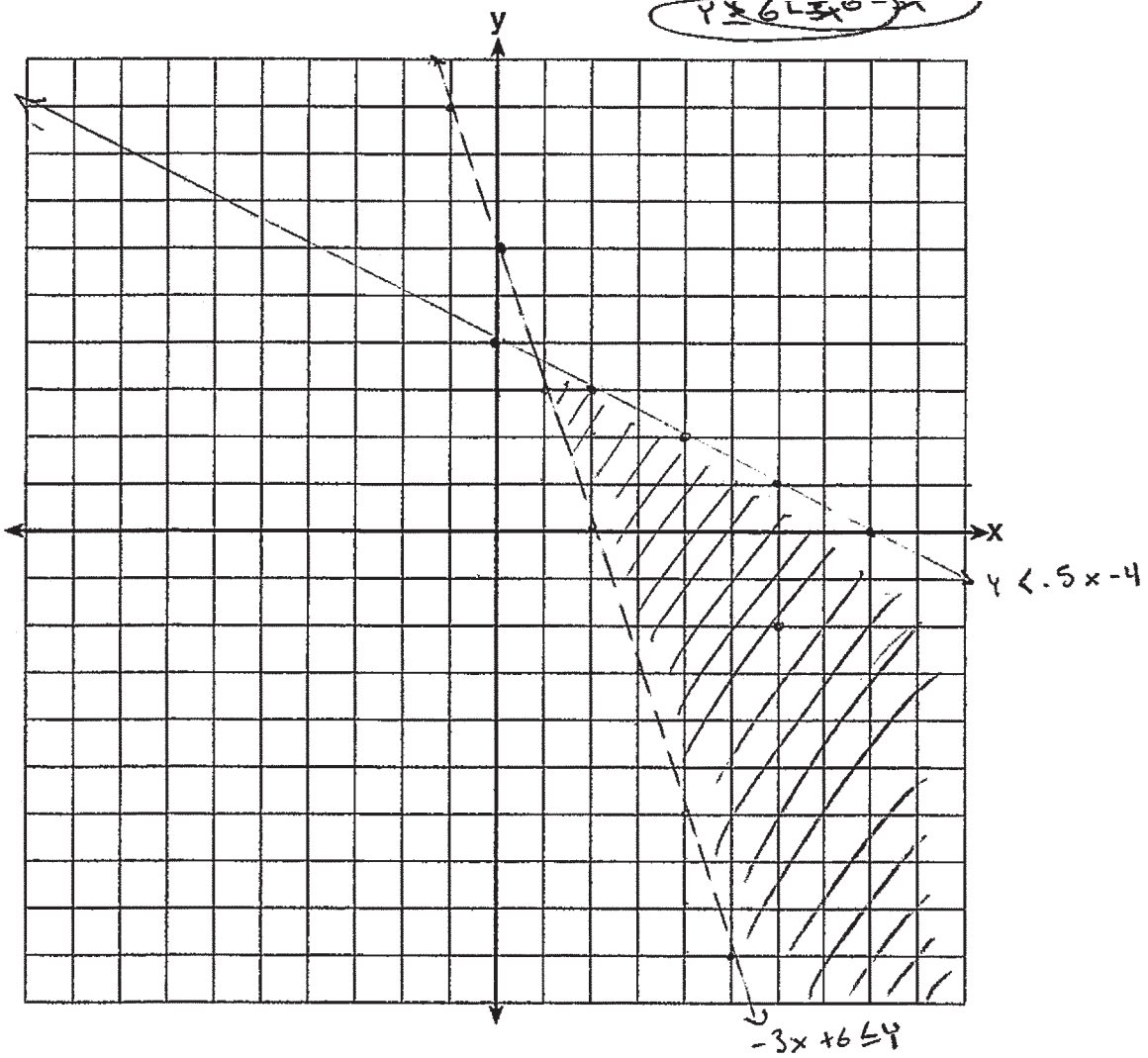
Score 3: The student did not give a justification.

Question 34

34 Graph the system of inequalities on the set of axes below.

$2y < x - 8$

$3x + y \geq 6$



State the coordinates of a point that satisfies both inequalities. Justify your answer.

(6, -2)

JUSTIFY

$-3(6) + 6 \leq -2$

$-18 + 6 \leq -2$

$-12 \leq -2$ ✓

$-2 < .5(6) - 4$

$-2 < 3 - 4$

$-2 < -1$ ✓

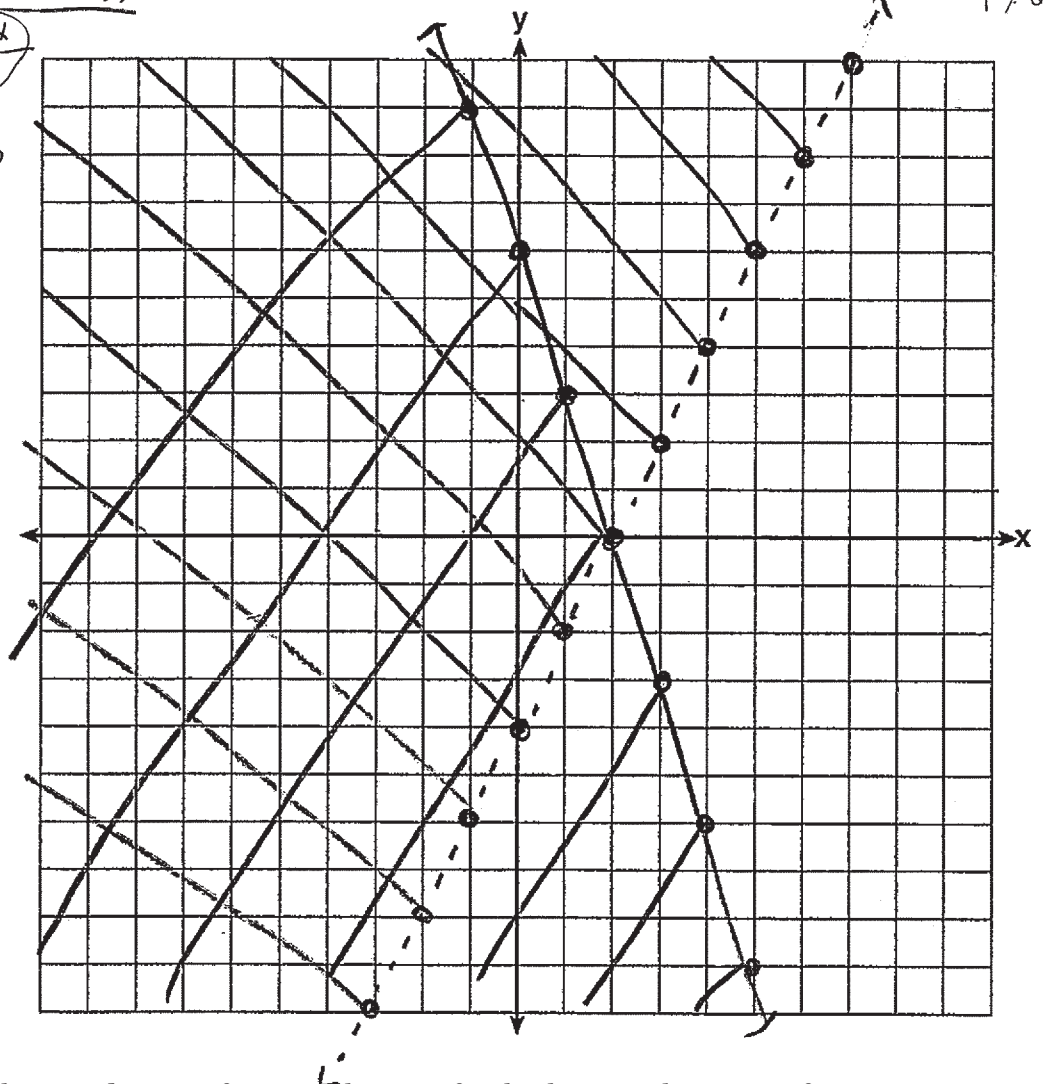
Score 2: The student stated a correct point and gave a correct justification.

Question 34

34 Graph the system of inequalities on the set of axes below.

$2y < x - 8$

$3x + y \geq 6$



State the coordinates of a point that satisfies both inequalities. Justify your answer.

The coordinate (-4, 1) satisfies both inequalities because if you were to plot that point on the graph it would be in the double shaded area.

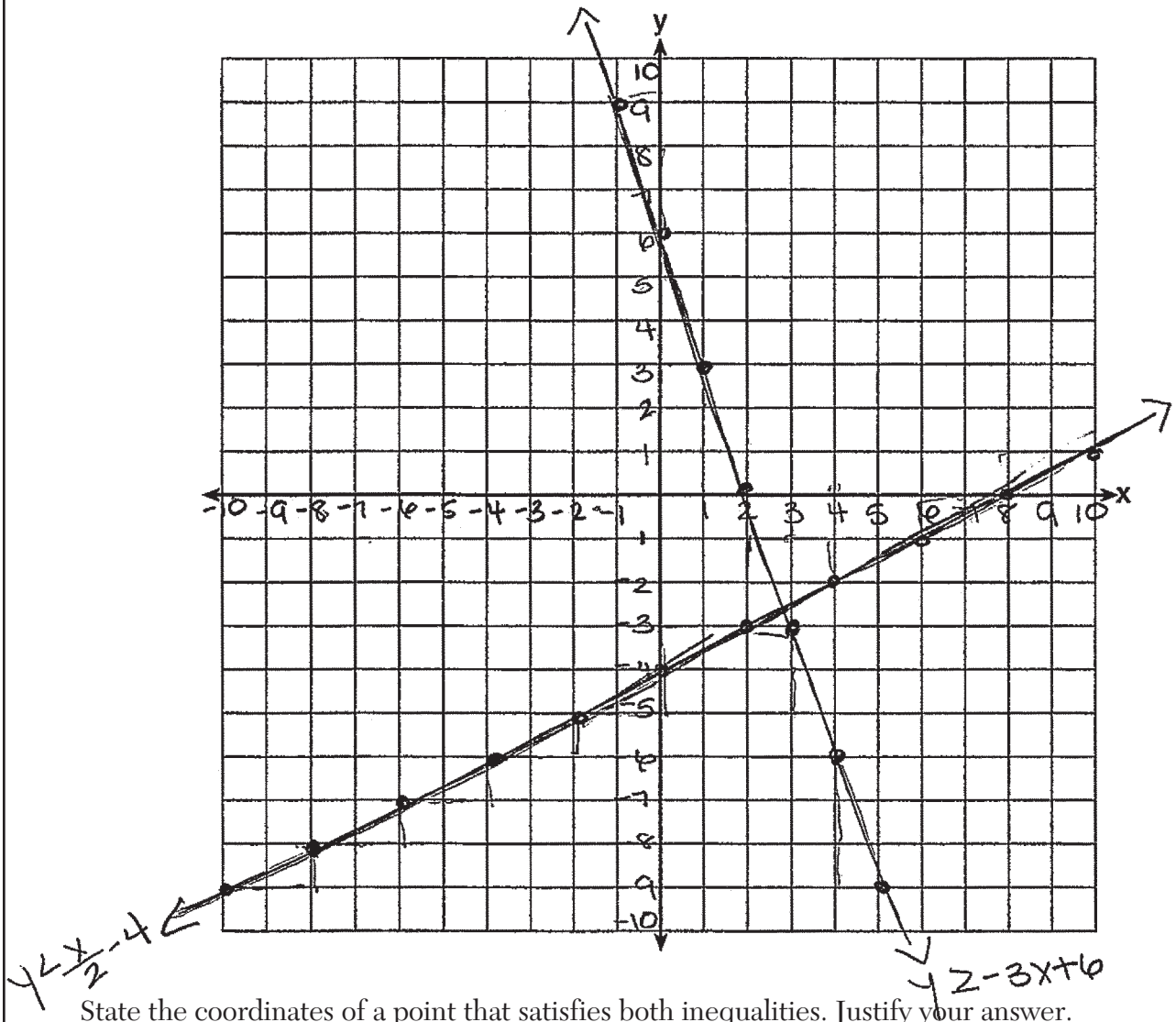
Score 2: The student stated an appropriate point and gave a correct explanation based on an incorrect graph.

Question 34

34 Graph the system of inequalities on the set of axes below.

$2y < x - 8$

$3x + y \geq 6$



State the coordinates of a point that satisfies both inequalities. Justify your answer.

$\frac{2y}{2} < \frac{x}{2} - \frac{8}{2}$

$y < \frac{x}{2} - 4$

m: $\frac{1 \text{ up}}{2 \text{ right}}$

b: -4

$3x + y \geq 6$

$-3x \quad -3x$

$y \geq -3x + 6$

m: $\frac{-3 \text{ down}}{1 \text{ right}}$

b: 6

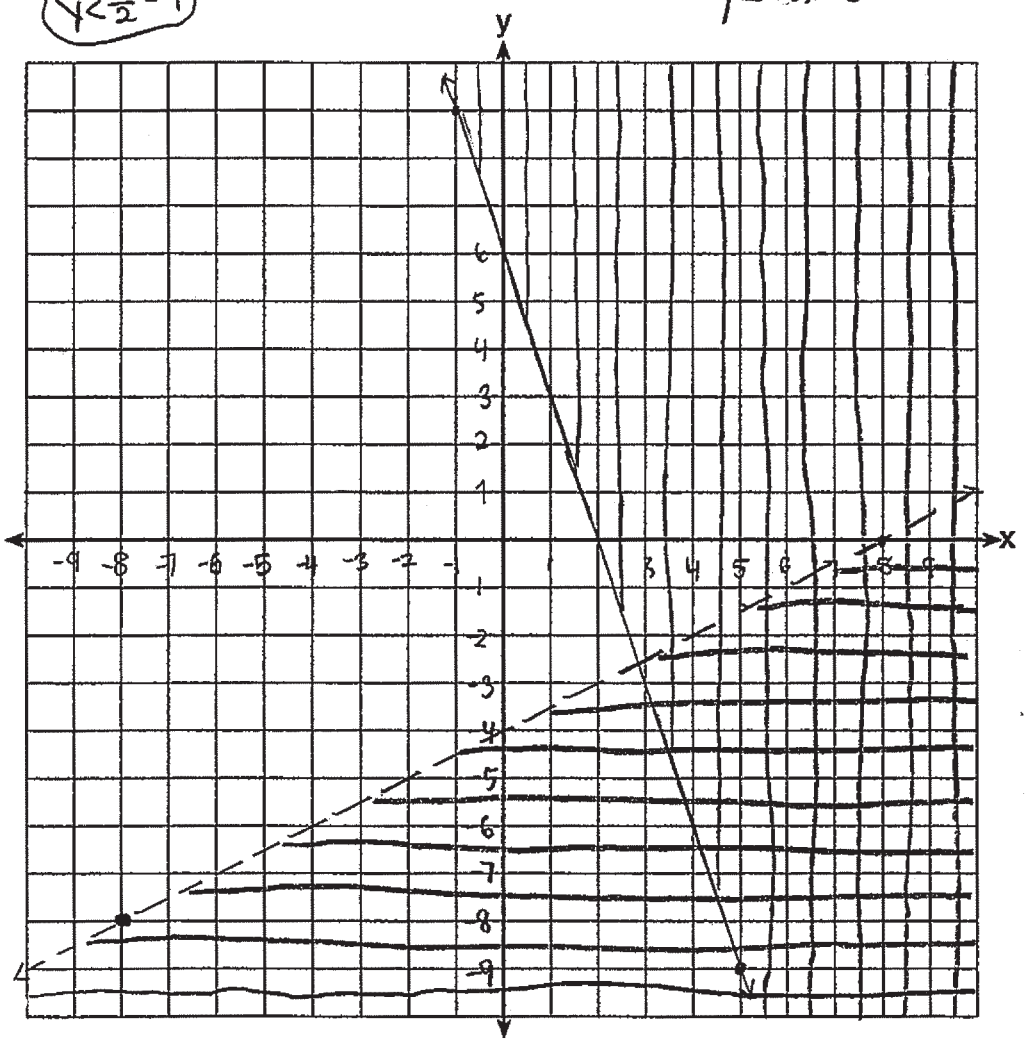
Score 1: The student graphed $2y = x - 8$ and $3x + y = 6$ correctly.

Question 34

34 Graph the system of inequalities on the set of axes below.

$2y < x - 8$

$3x + y \geq 6$



State the coordinates of a point that satisfies both inequalities. Justify your answer.

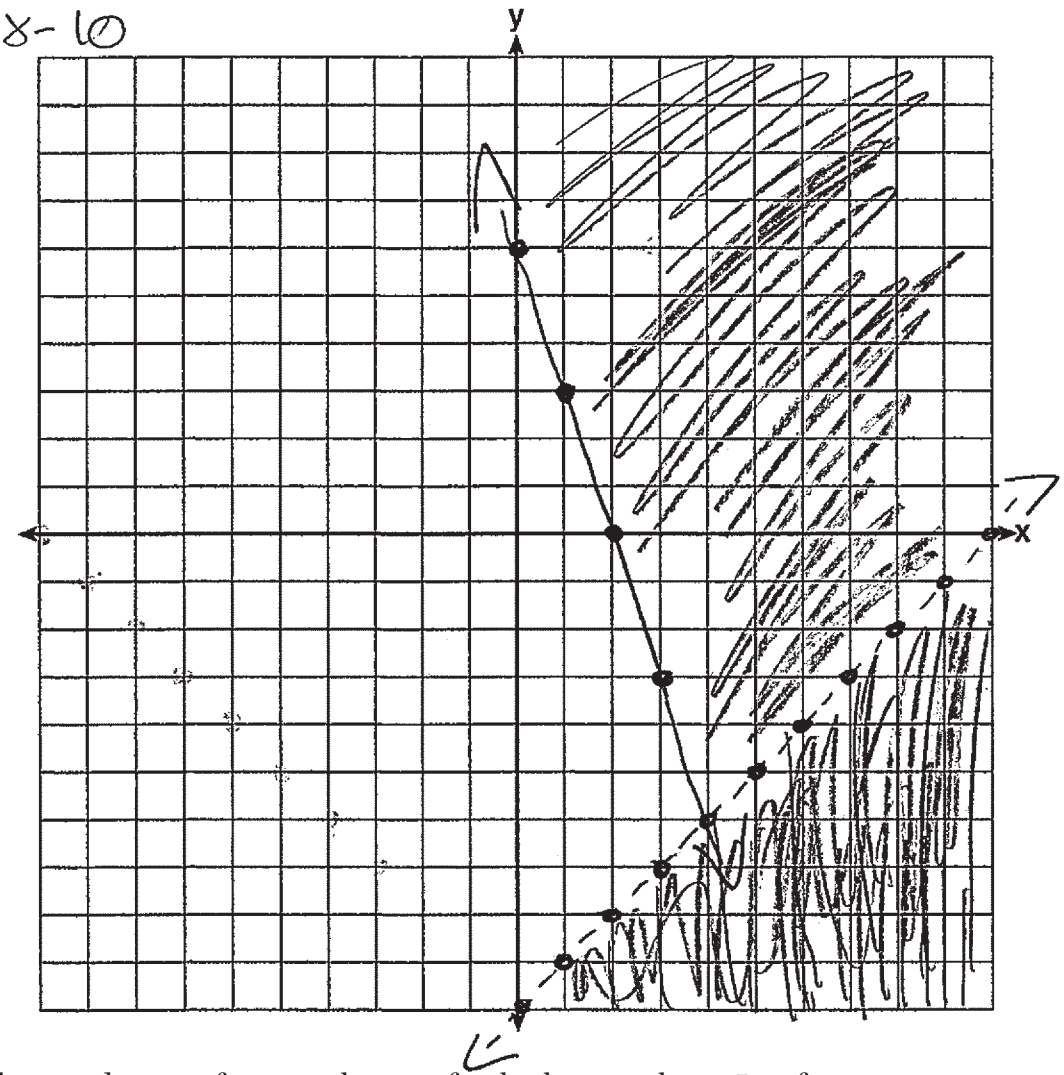
Score 1: The student made one labeling error and the point and justification are missing.

Question 34

34 Graph the system of inequalities on the set of axes below.

$2y < x - 8$

$3x + y \geq 6$



State the coordinates of a point that satisfies both inequalities. Justify your answer.

Score 0: The student did not show enough correct work to receive any credit.

Question 35

35 At a department store in a tax-free state, Jane can either buy three tank tops and two sweatshirts for $52 or two tank tops and one sweatshirt for $30.

If x represents the price of one tank top and y represents the cost of one sweatshirt, write a system of equations that could be used to model this situation.

$3x + 2y = 52$ $\quad$ $2x + y = 30$

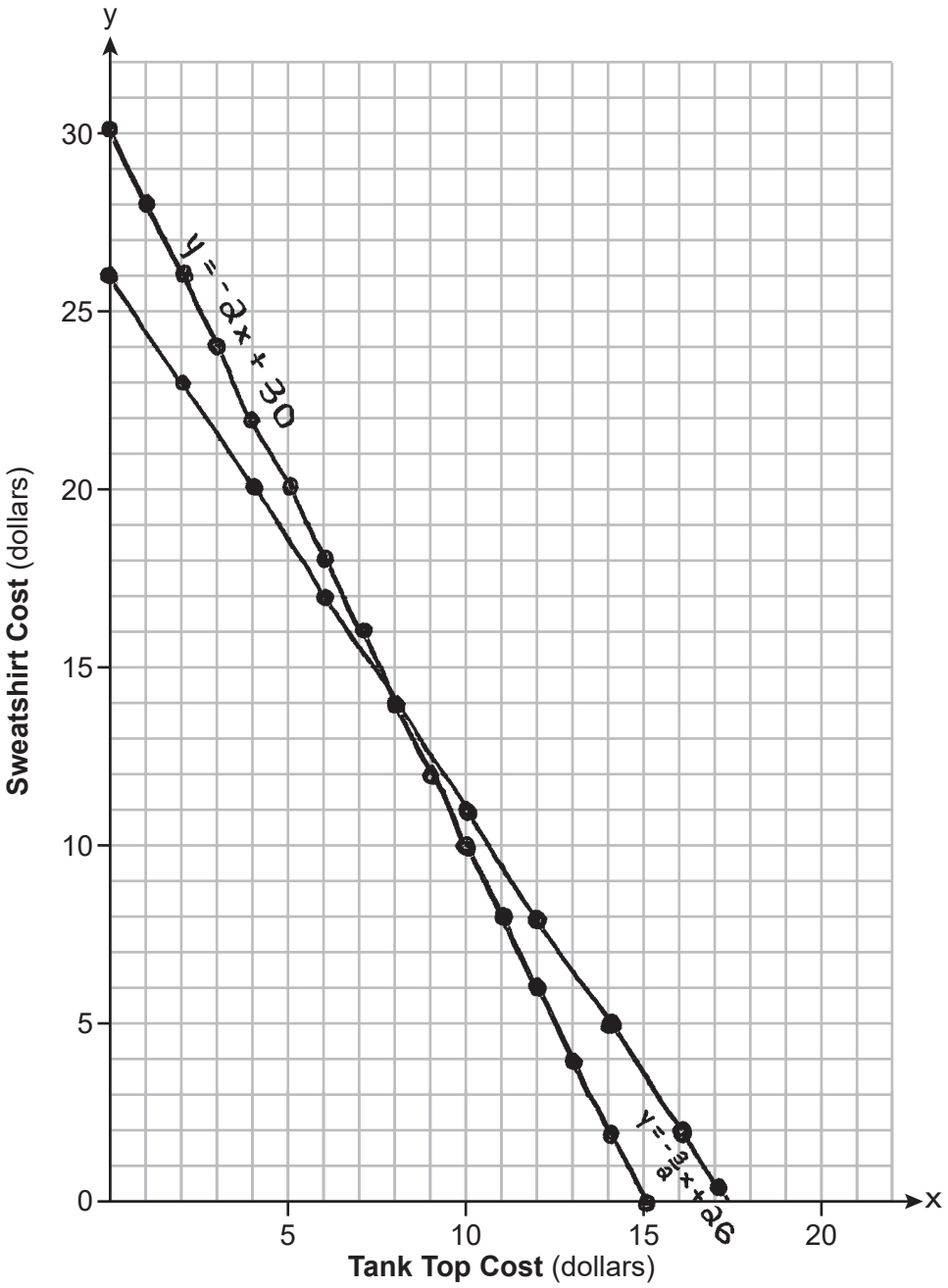
$y = -\frac{3}{2}x + 26$ $\quad$ $y = -2x + 30$

Question 35 is continued on the next page.

Score 6: The student gave a complete and correct response.

Question 35 continued

On the set of axes below, graph the system of equations.



State the coordinates of the point of intersection of your lines.

(8, 14)

Explain what each coordinate of the point of intersection means in the context of the problem.

the x-coordinate means the cost of the one tank top. and the y-coordinate means the cost of the one sweatshirt.

Question 35

35 At a department store in a tax-free state, Jane can either buy three tank tops and two sweatshirts for $52 or two tank tops and one sweatshirt for $30.

If x represents the price of one tank top and y represents the cost of one sweatshirt, write a system of equations that could be used to model this situation.

$3x + 2y = 52$
$2x + y = 30$

$2x + y = 30$
$-2x \quad -2x$
$y = -2x + 30$
$3x + 2(-2x + 30) = 52$
$3x - 4x + 60 = 52$
$-x + 60 = 52$
$-60 \quad -60$
$\frac{-x}{-1} = \frac{-8}{-1}$
$x = 8$

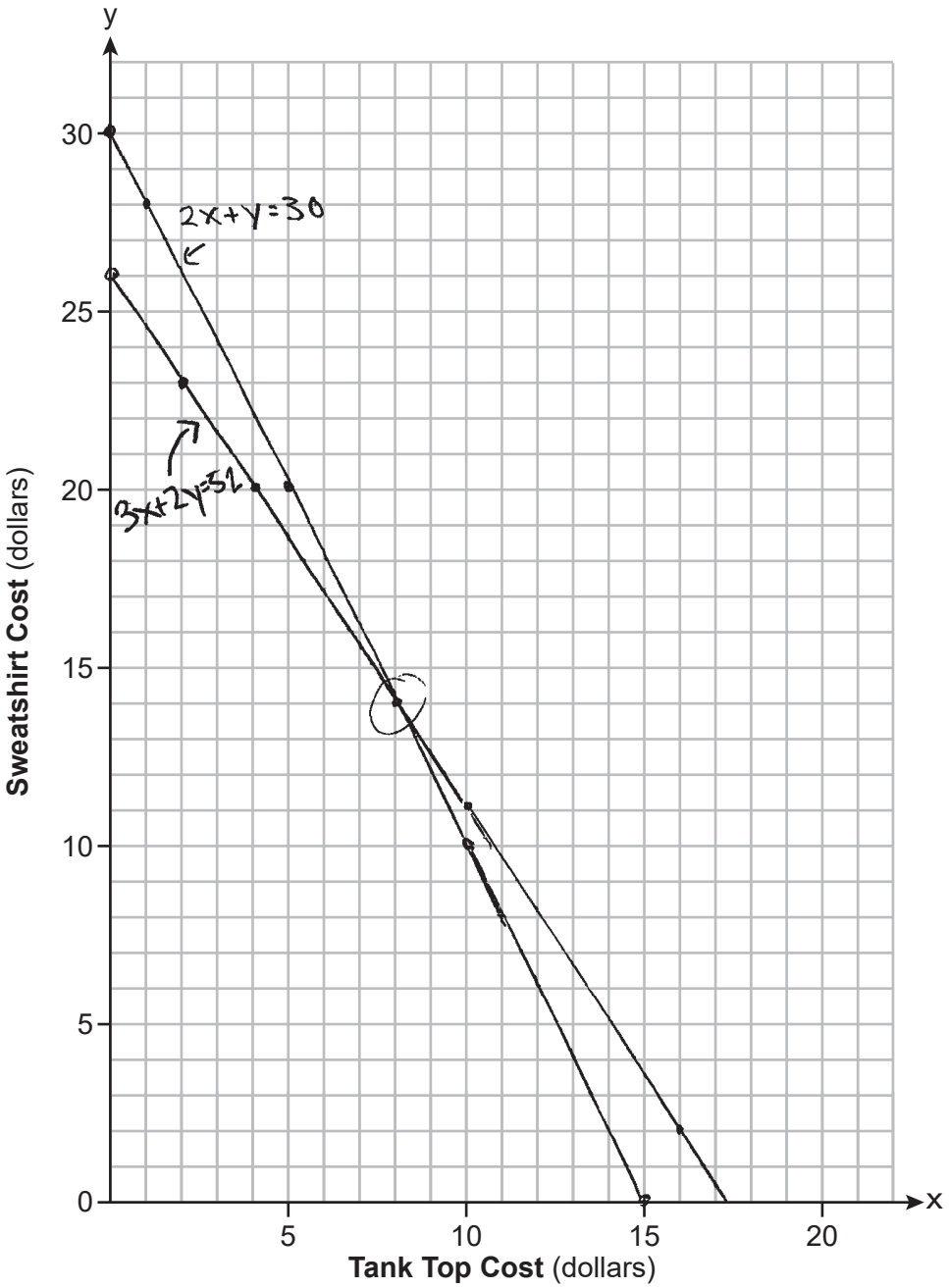
$3x + 2y = 52$
$-3x \quad -3x$
$\frac{2y}{2} = \frac{-3x + 52}{2}$
$y = -\frac{3}{2}x + 26$

Question 35 is continued on the next page.

Score 6: The student gave a complete and correct response.

Question 35 continued

On the set of axes below, graph the system of equations.



State the coordinates of the point of intersection of your lines.

(8, 14)

Explain what each coordinate of the point of intersection means in the context of the problem.

In the context of the problem, the point of intersection is (8,14), this means that one tank top costs $8 and one sweatshirt costs $14.

Question 35

35 At a department store in a tax-free state, Jane can either buy three tank tops and two sweatshirts for $52 or two tank tops and one sweatshirt for $30.

If x represents the price of one tank top and y represents the cost of one sweatshirt, write a system of equations that could be used to model this situation.

$3x + 2y = 52$ $\quad$ $2x + 1y = 30$

$\frac{2y = -3x + 52}{2}$ $\quad$ $1y = -2x + 30$

$y = -\frac{3}{2}x + 26$ $\quad$ $y = -2x + 30$

$3x + 2y = 52$

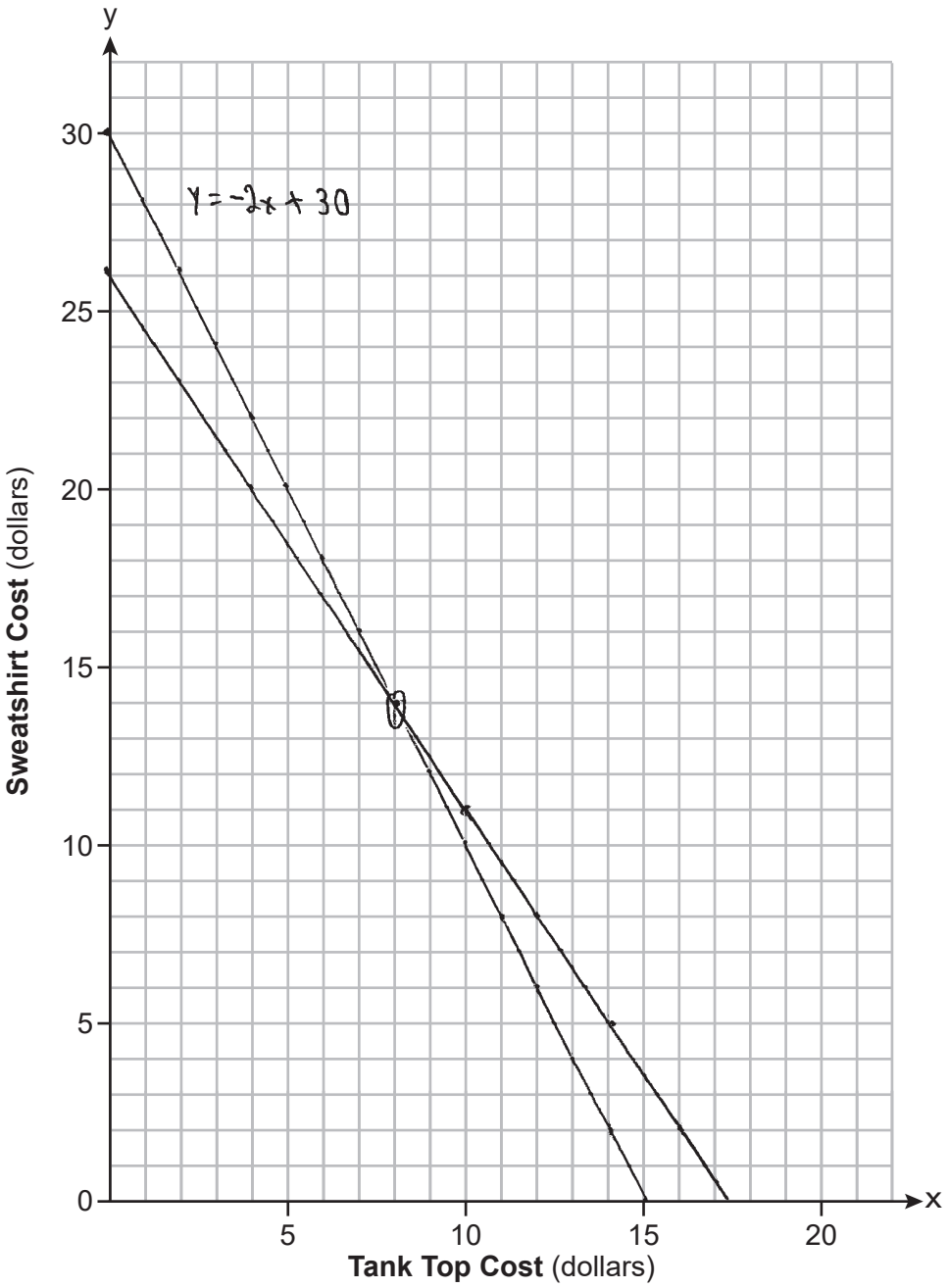
$2x + 1y = 30$

Question 35 is continued on the next page.

Score 5: The student wrote an incorrect explanation.

Question 35 continued

On the set of axes below, graph the system of equations.



State the coordinates of the point of intersection of your lines.

(8, 14)

Explain what each coordinate of the point of intersection means in the context of the problem.

The coordinate means when the amount of tank tops and sweatshirts equal the same amount

Question 35

35 At a department store in a tax-free state, Jane can either buy three tank tops and two sweatshirts for \$52 or two tank tops and one sweatshirt for \$30.

If x represents the price of one tank top and y represents the cost of one sweatshirt, write a system of equations that could be used to model this situation.

$3x+2y=52$

$2x+y=30$

$y=-2x+30$

$2y=-3x+52$

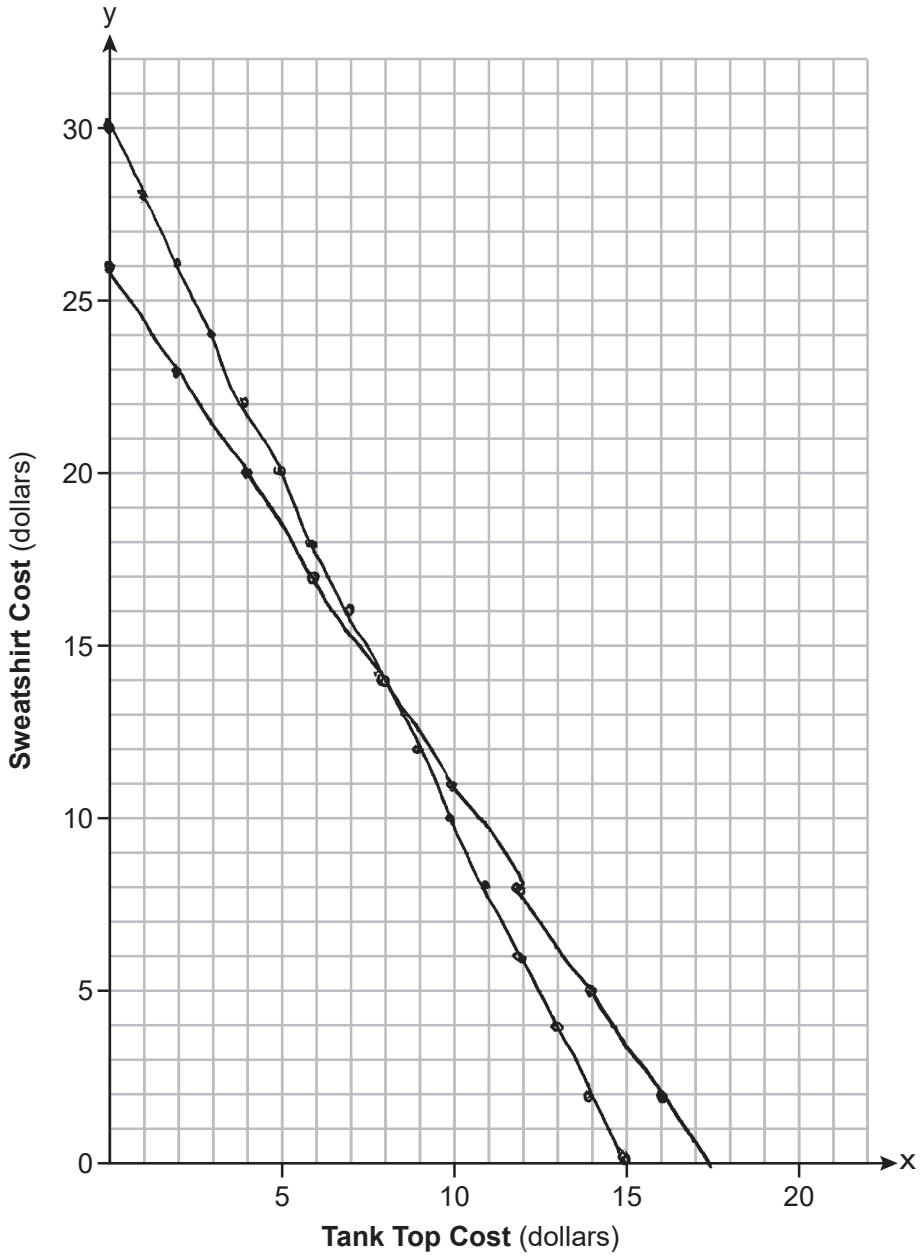
$y=-\frac{3}{2}x+26$

Question 35 is continued on the next page.

Score 5: The student made one labeling error.

Question 35 continued

On the set of axes below, graph the system of equations.



State the coordinates of the point of intersection of your lines.

(8, 14)

Explain what each coordinate of the point of intersection means in the context of the problem.

Each coordinate shows the potential dollar amount for the tank top and sweatshirt. For example, a coordinate in the $2x+y=30$ line is (15, 0). $2(15)+(0)=30$. Another coordinate is (14, 2). $2(14)+1(2)=30$. However, the intersection coordinate shows the correct price. ($8 per tank top and $14 per sweatshirt)

Question 35

35 At a department store in a tax-free state, Jane can either buy three tank tops and two sweatshirts for \$52 or two tank tops and one sweatshirt for \$30.

If x represents the price of one tank top and y represents the cost of one sweatshirt, write a system of equations that could be used to model this situation.

$3x + 2y = 52$

$2x + 1y = 30$

$3x+2y=52$

$-3x \quad -3x$

$\frac{2y}{2} = \frac{52-3x}{2}$

$y = 26 - \frac{3}{2}x$

$2x + 1y = 30$

$-2x \quad -2x$

$1y = 30 - 2x$

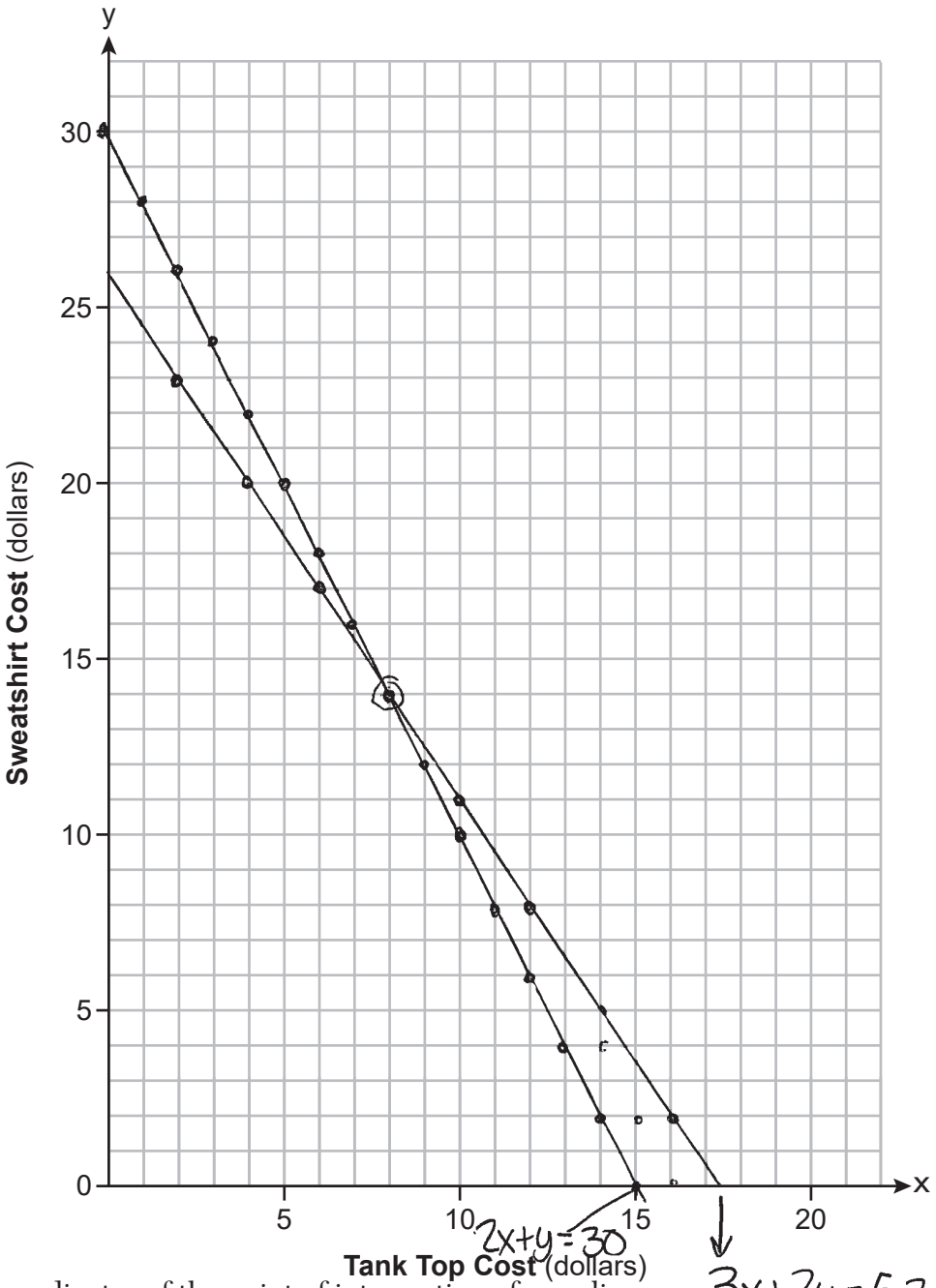
$y = -2x + 30$

Question 35 is continued on the next page.

Score 4: The student stated an incorrect point and wrote an incorrect explanation.

Question 35 continued

On the set of axes below, graph the system of equations.



State the coordinates of the point of intersection of your lines.

(7, 14)

Explain what each coordinate of the point of intersection means in the context of the problem.

The cost of 7 tank tops is equal to the cost of 14 sweatshirts

Question 35

35 At a department store in a tax-free state, Jane can either buy three tank tops and two sweatshirts for $52 or two tank tops and one sweatshirt for $30.

If x represents the price of one tank top and y represents the cost of one sweatshirt, write a system of equations that could be used to model this situation.

$3x + 2y = 52$ $\quad 2x + y = 30$ $\rightarrow$ $2y = -3x + 52$

$y = -\frac{3}{2}x + 26$

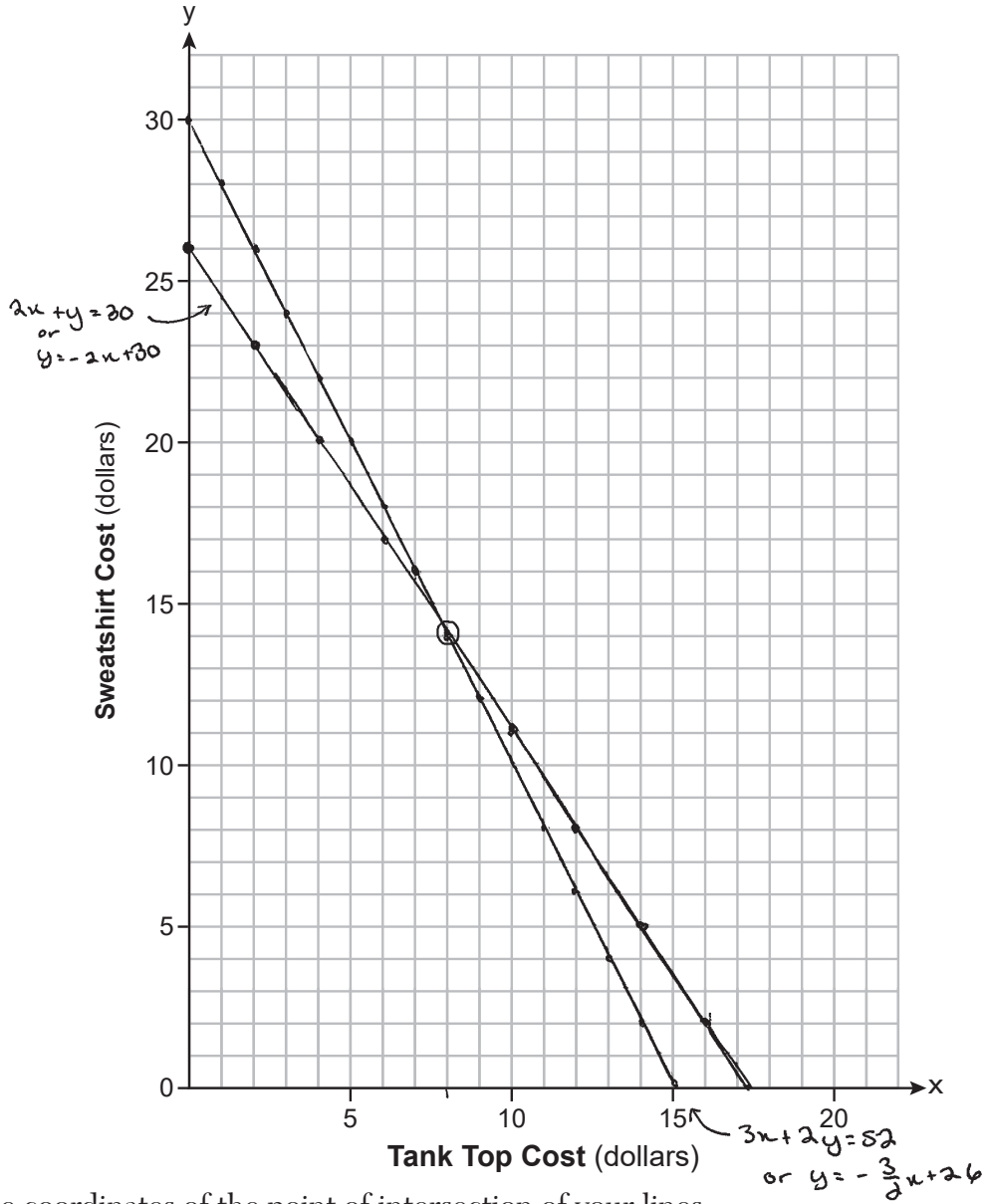
$y = -2x + 30$

Question 35 is continued on the next page.

Score 4: The student labeled the lines incorrectly and wrote an incorrect explanation.

Question 35 continued

On the set of axes below, graph the system of equations.



State the coordinates of the point of intersection of your lines.

(8, 14)

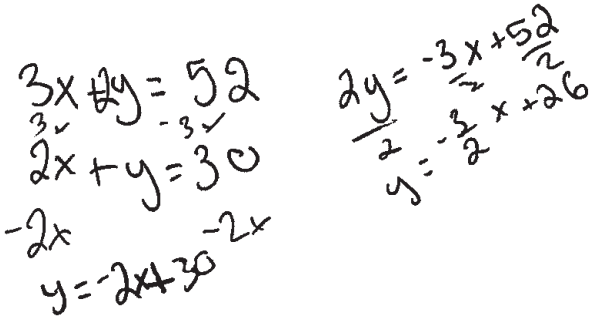
Explain what each coordinate of the point of intersection means in the context of the problem.

If you buy 2 tank tops and 1 sweatshirt for $30.00, 2 tank tops cost $8.00 in total and $14.00 for the sweatshirt.
If you buy 3 tank tops and 2 sweatshirts for $52.00, 3 tank tops will cost $8.00 in total and 2 sweatshirts will cost $14 in total.

Question 35

35 At a department store in a tax-free state, Jane can either buy three tank tops and two sweatshirts for \$52 or two tank tops and one sweatshirt for \$30.

If x represents the price of one tank top and y represents the cost of one sweatshirt, write a system of equations that could be used to model this situation.

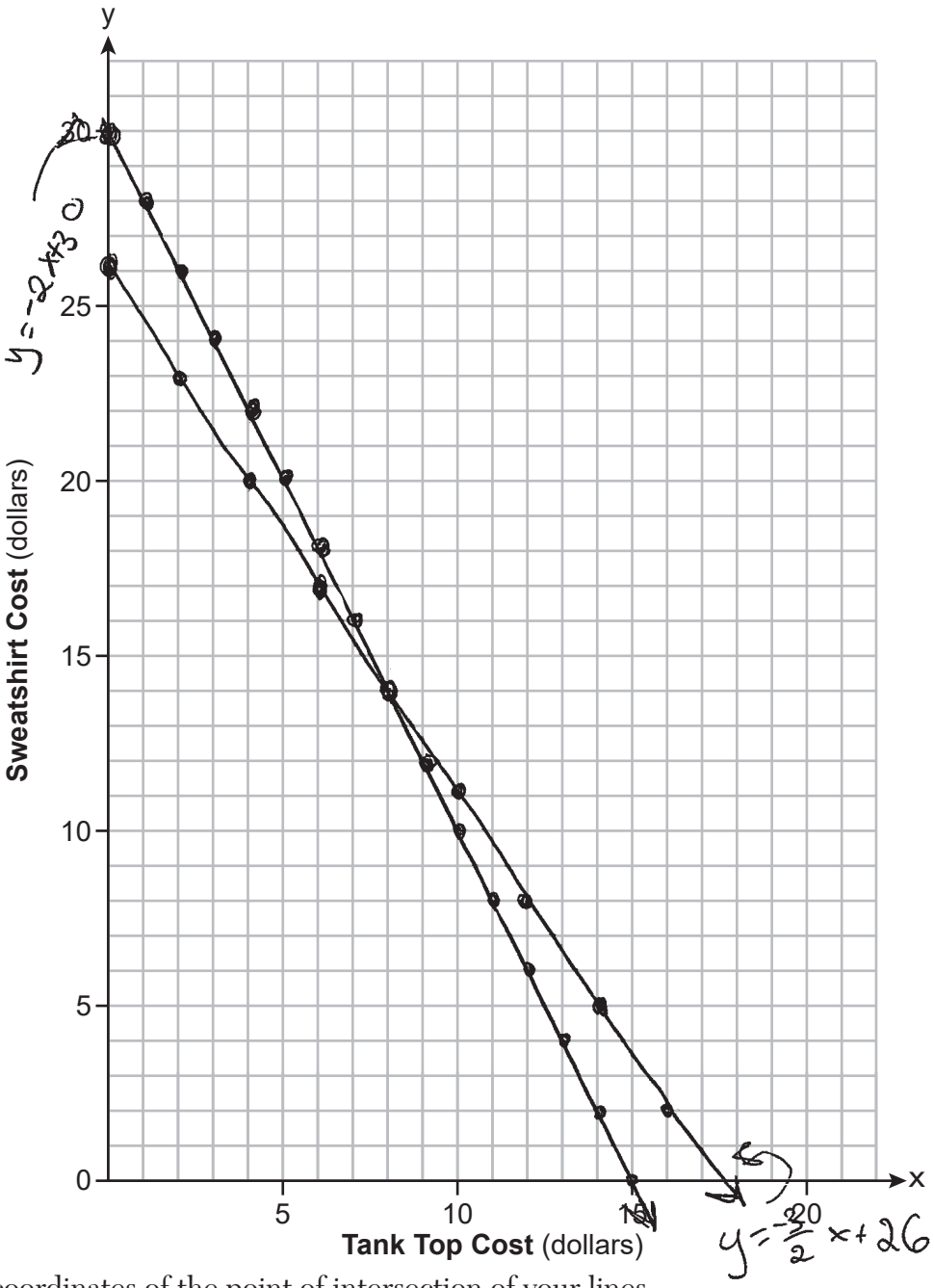


Question 35 is continued on the next page.

Score 3: The student wrote a correct system of equations, but misinterpreted the context by extending the graph beyond the axis and an incorrect point and explanation are written.

Question 35 continued

On the set of axes below, graph the system of equations.



State the coordinates of the point of intersection of your lines.

(7, 14)

Explain what each coordinate of the point of intersection means in the context of the problem.

As the price increases, the less tank tops and sweatshirts Jane can buy.

Question 35

35 At a department store in a tax-free state, Jane can either buy three tank tops and two sweatshirts for $52 or two tank tops and one sweatshirt for $30.

If x represents the price of one tank top and y represents the cost of one sweatshirt, write a system of equations that could be used to model this situation.

$3x+2y=52$

$3x+2y=52$

$\frac{-2y}{-2}=\frac{3x-52}{-2}$

$y=-1\frac{1}{2}x+26$

$2x+1y=30$

$2x+1y=30$

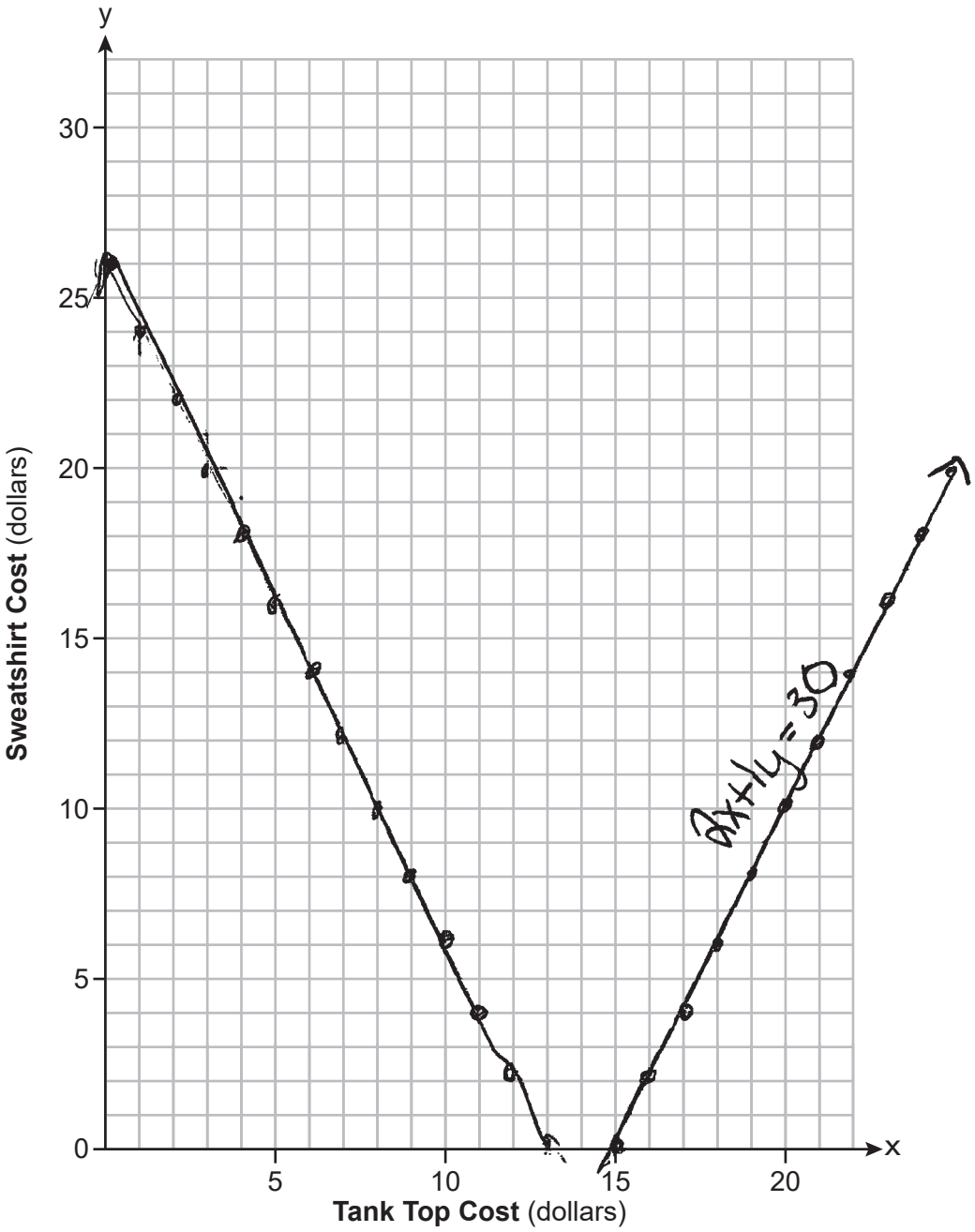
$y=-2x+30$

Question 35 is continued on the next page.

Score 2: The student wrote a correct system of equations.

Question 35 continued

On the set of axes below, graph the system of equations.



State the coordinates of the point of intersection of your lines.

(14, -1)

Explain what each coordinate of the point of intersection means in the context of the problem.

Each point is the cost of the number of tank tops vs. the cost of the number of sweatshirts

Question 35

35 At a department store in a tax-free state, Jane can either buy three tank tops and two sweatshirts for $52 or two tank tops and one sweatshirt for $30.

If x represents the price of one tank top and y represents the cost of one sweatshirt, write a system of equations that could be used to model this situation.

$2x + 2y = 52$

or

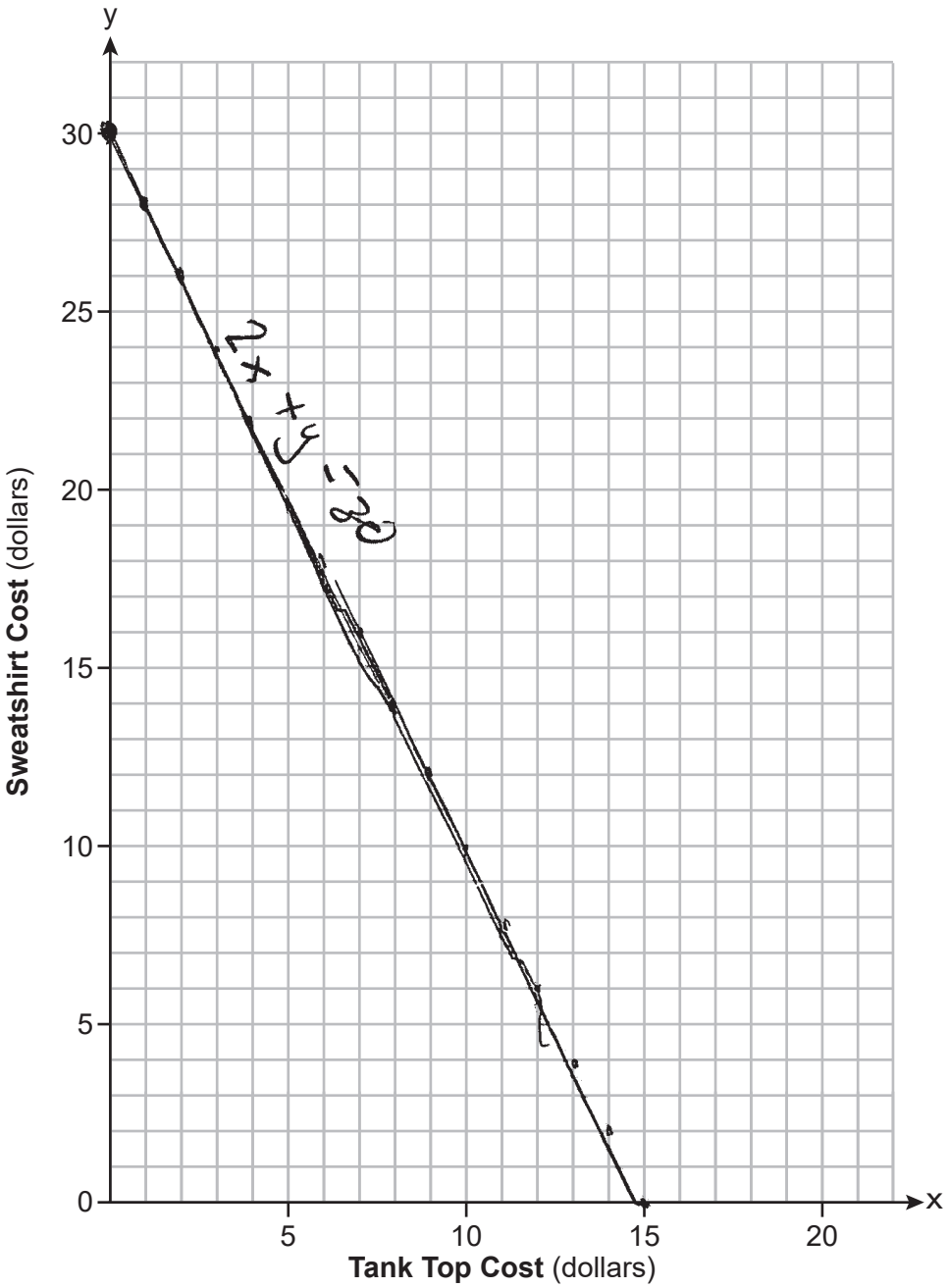
$2x + y = 30$

Question 35 is continued on the next page.

Score 2: The student wrote and graphed one equation correctly.

Question 35 continued

On the set of axes below, graph the system of equations.



State the coordinates of the point of intersection of your lines.

Explain what each coordinate of the point of intersection means in the context of the problem.

Question 35

35 At a department store in a tax-free state, Jane can either buy three tank tops and two sweatshirts for $52 or two tank tops and one sweatshirt for $30.

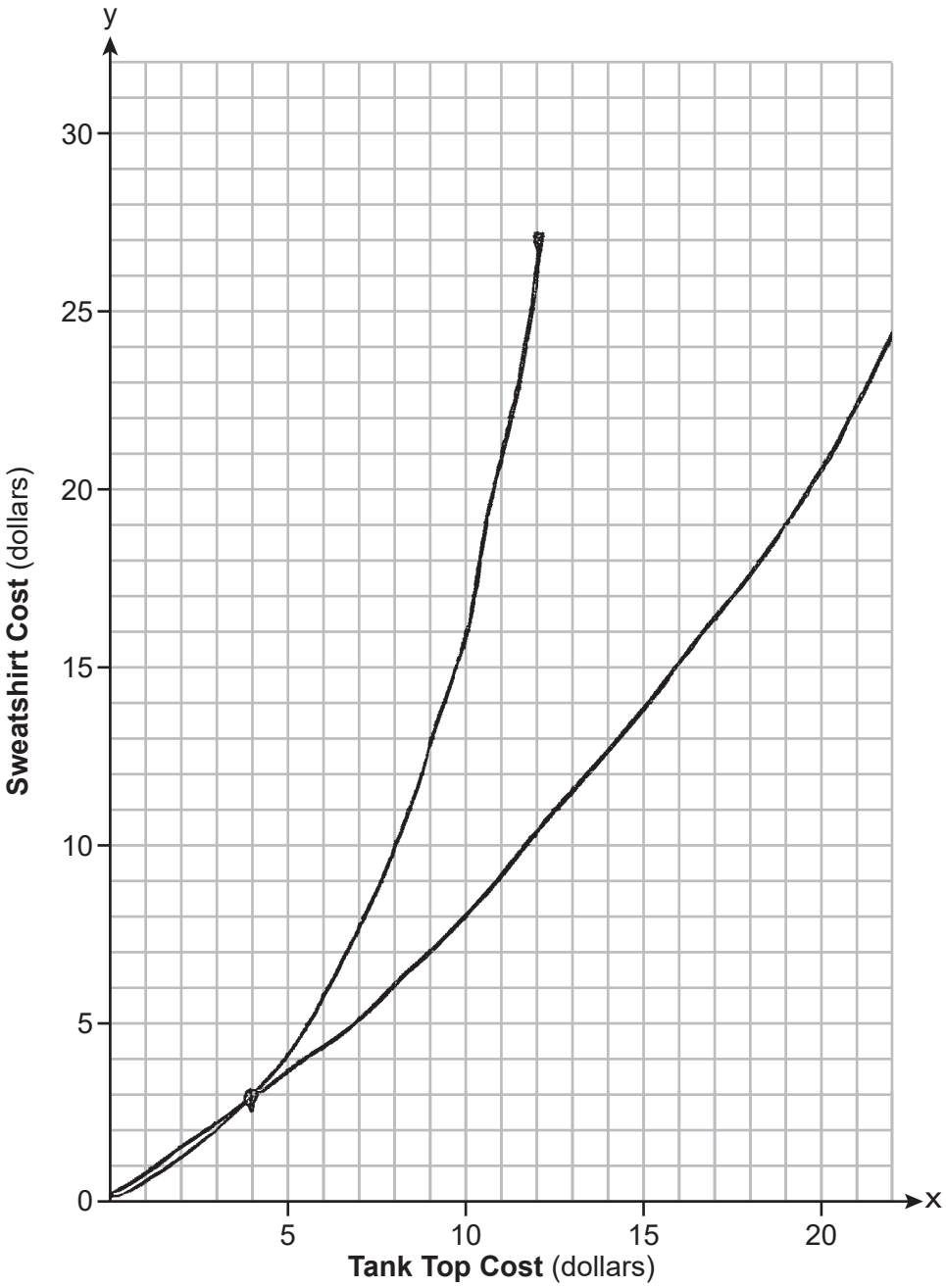
If x represents the price of one tank top and y represents the cost of one sweatshirt, write a system of equations that could be used to model this situation.

Question 35 is continued on the next page.

Score 1: The student wrote an appropriate point based on an incorrect graph.

Question 35 continued

On the set of axes below, graph the system of equations.



State the coordinates of the point of intersection of your lines.

(4, 3)

Explain what each coordinate of the point of intersection means in the context of the problem.

I think it means the price of each item

Question 35

35 At a department store in a tax-free state, Jane can either buy three tank tops and two sweatshirts for $52 or two tank tops and one sweatshirt for $30.

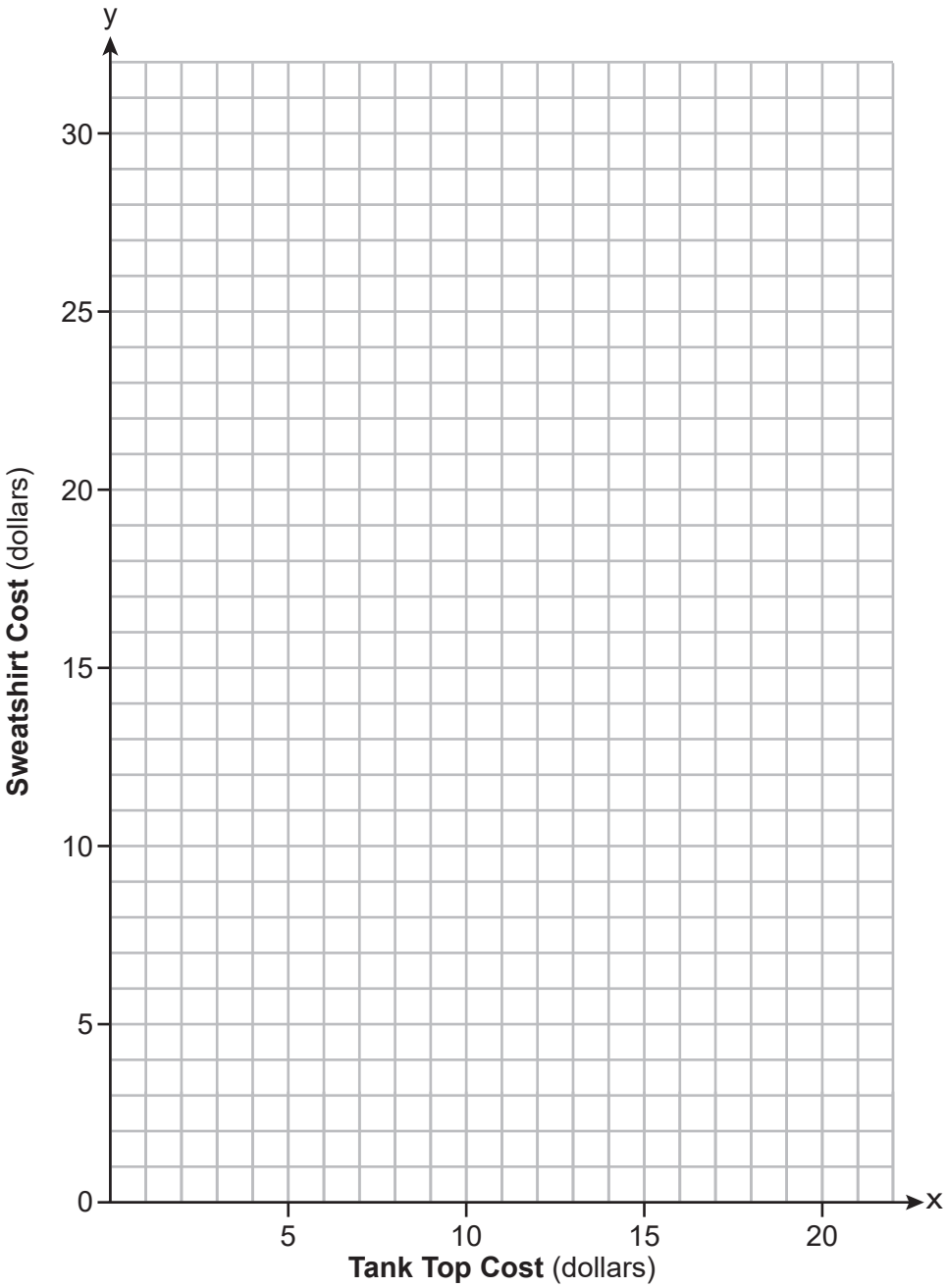
If x represents the price of one tank top and y represents the cost of one sweatshirt, write a system of equations that could be used to model this situation.

Question 35 is continued on the next page.

Score 0: The student did not show enough correct work to receive any credit.

Question 35 continued

On the set of axes below, graph the system of equations.



State the coordinates of the point of intersection of your lines.

(0,0)

Explain what each coordinate of the point of intersection means in the context of the problem.

Coordinates is the Sweatshirt cost in Dollars, and Tank top cost in Dollars.