The University of the State of New York

REGENTS HIGH SCHOOL EXAMINATION

ALGEBRA I

Thursday, June 15, 2023 — 1:15 to 4:15 p.m., only

MODEL RESPONSE SET

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Question 25

25 Solve the equation algebraically for x:

$$-2.4(x + 1.4) = 6.8x - 22.68$$

$-2.4x - 3.36 = 6.8x - 22.68$
$+22.68 \qquad +22.68$
$-2.4x + 19.32 = 6.8x$
$+2.4x \qquad +2.4x$
$\frac{19.32}{9.2} = \frac{9.2x}{9.2}$
$x = 2.1$

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

Question 25

25 Solve the equation algebraically for x:

$-2.4(x + 1.4) = 6.8x - 22.68$

$-2.4x - 3.36 = 6.8x - 22.68$

$-6.8x$

$-9.2x - 3.36 = -22.68$

$+3.36$

$-9.2x = -19.32$

5.75 ← answer.

Score 1: The student divided by −3.36.

Question 25

25 Solve the equation algebraically for x:

$$-2.4(x + 1.4) = 6.8x - 22.68$$

$-2.4(x+1.14) = 6.8x - 22.68$

$-2.4x - 2.736 = 6.8x - 22.68$

$-6.8x \qquad -6.8x$

$-8.2x - 2.736 = -22.68$

$-2.736 \qquad -2.736$

$\frac{-8.2x}{-8.2} = \frac{-25.416}{-8.2}$

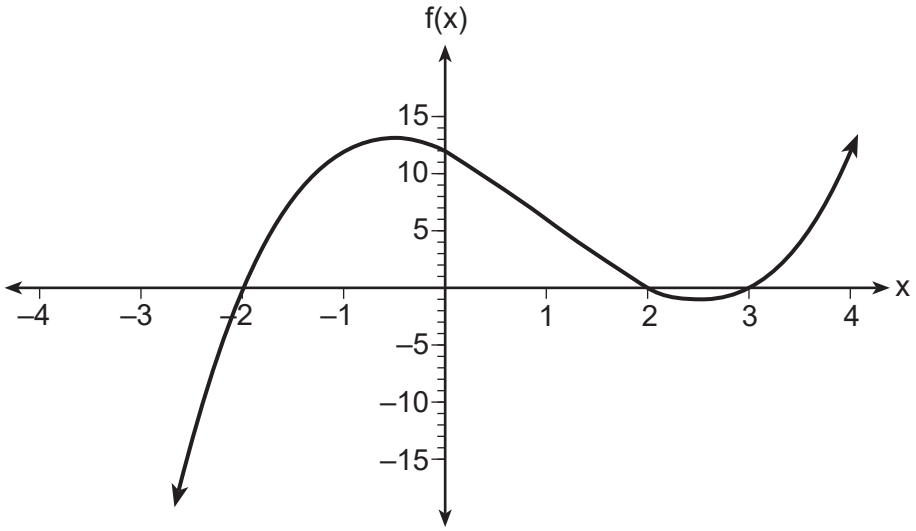
$x = 3.099512195$

$x \approx 3.1$

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

Question 26

26 The function $f(x)$ is graphed on the set of axes below.



State the zeros of $f(x)$.

{-2, 2, 3}

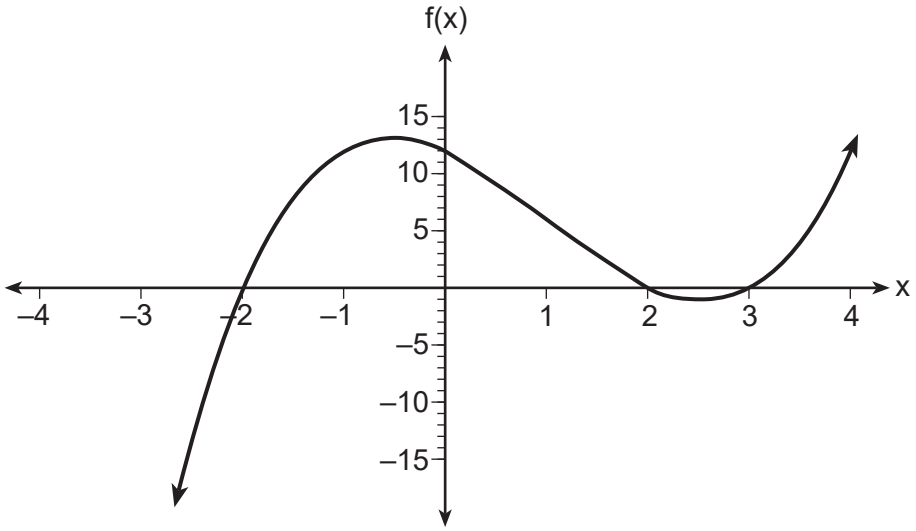
Explain your reasoning.

the zeros are the points where the graph touches the x-axis

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

Question 26

26 The function $f(x)$ is graphed on the set of axes below.



State the zeros of $f(x)$.

The zeroes are -2, 2, and 3.

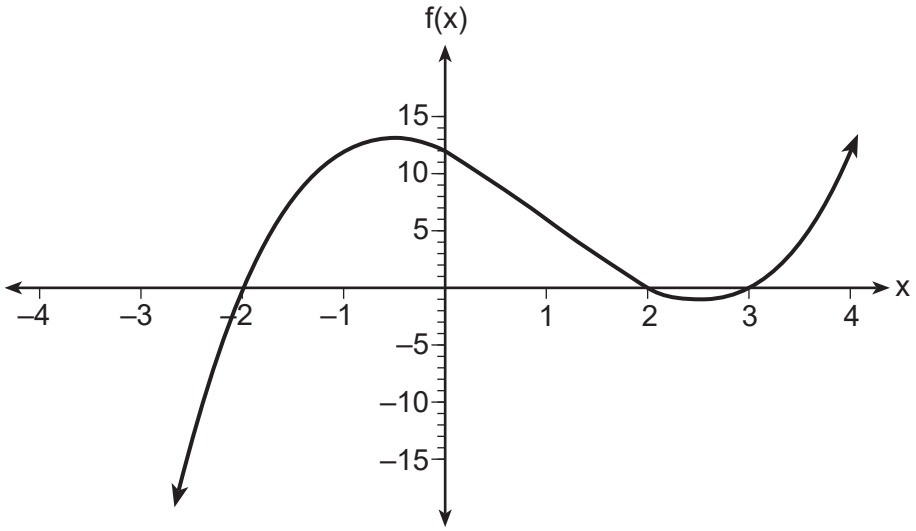
Explain your reasoning.

I know this because these are the x-intercepts (zeroes).

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

Question 26

26 The function $f(x)$ is graphed on the set of axes below.



State the zeros of $f(x)$.

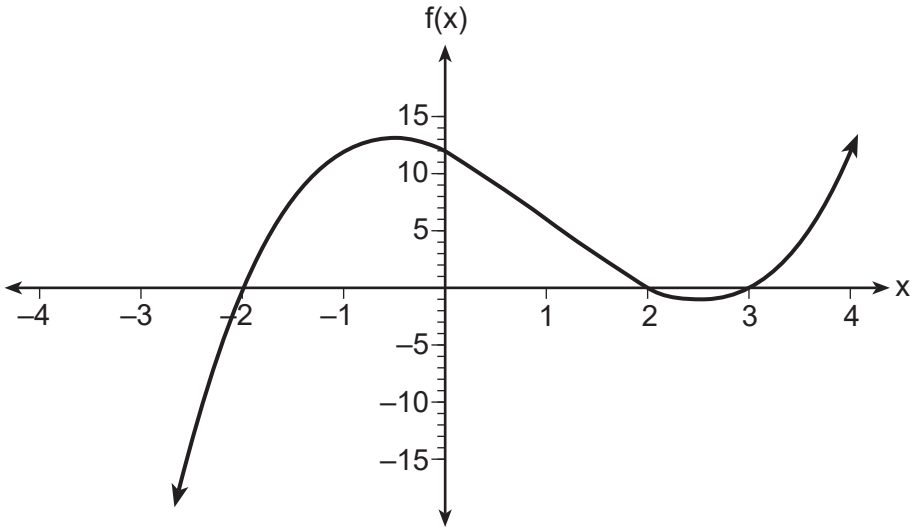
-2, 2, and 3, because they are the points crossing 0 on the x axis.

Explain your reasoning.

Score 1: The student wrote an incorrect explanation.

Question 26

26 The function $f(x)$ is graphed on the set of axes below.



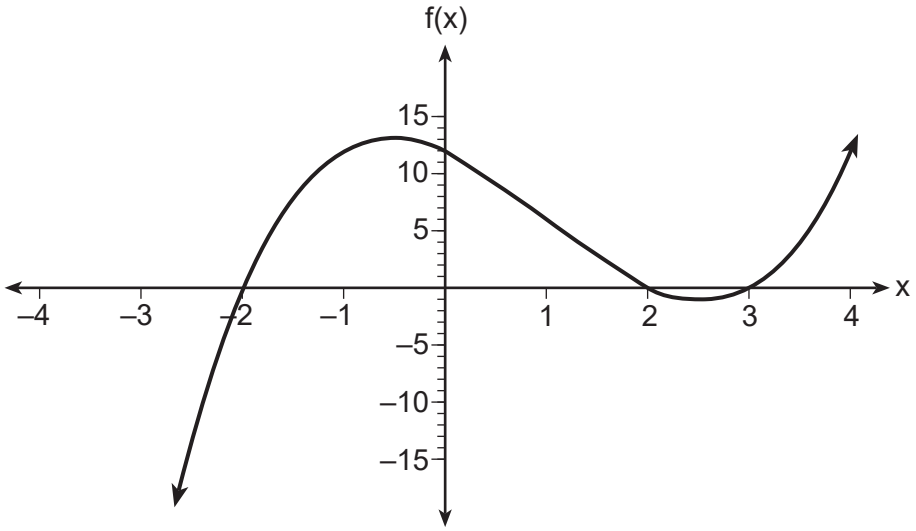
State the zeros of $f(x)$.

Explain your reasoning. The zero is 12 because it falls on the y-axis

Score 1: The student found the y-intercept.

Question 26

26 The function $f(x)$ is graphed on the set of axes below.



State the zeros of $f(x)$.

Zeros: {-2, 2}

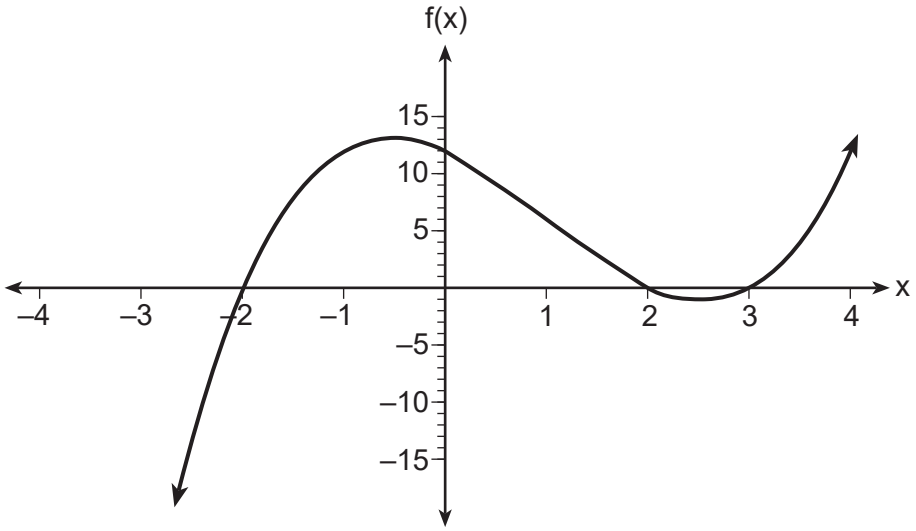
Explain your reasoning.

The zeros are when it cross the x-axis, when "y" is zero.

Score 1: The student did not include 3 when stating the zeros.

Question 26

26 The function $f(x)$ is graphed on the set of axes below.



State the zeros of $f(x)$.

(-2,0), (0,12), (2,0), (3,0)

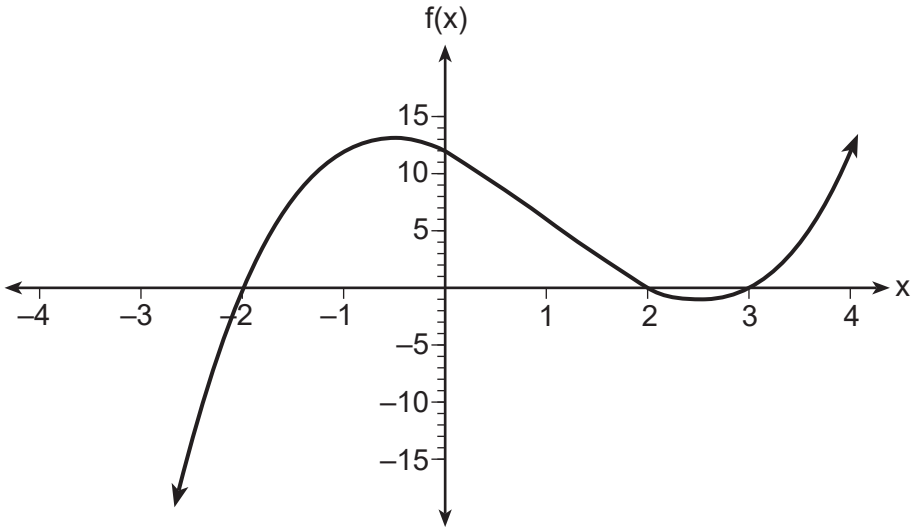
Explain your reasoning.

These are all numbers that either lie on the x axis making y 0, or on the y axis making x 0,

Score 0: The student expressed the zeros as coordinates and made a conceptual error in the explanation.

Question 26

26 The function $f(x)$ is graphed on the set of axes below.



State the zeros of $f(x)$.

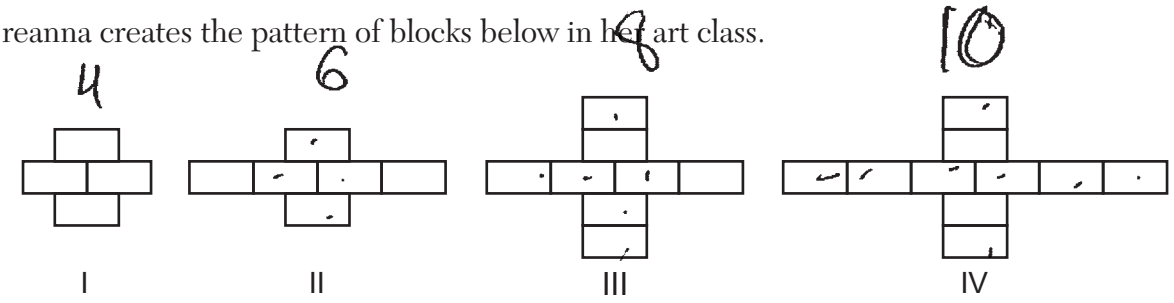
Explain your reasoning.

The zeros are
$f(x) = 2$
$f(x) = -2$

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

Question 27

27 Breanna creates the pattern of blocks below in her art class.



A friend tells her that the number of blocks in the pattern is increasing exponentially.

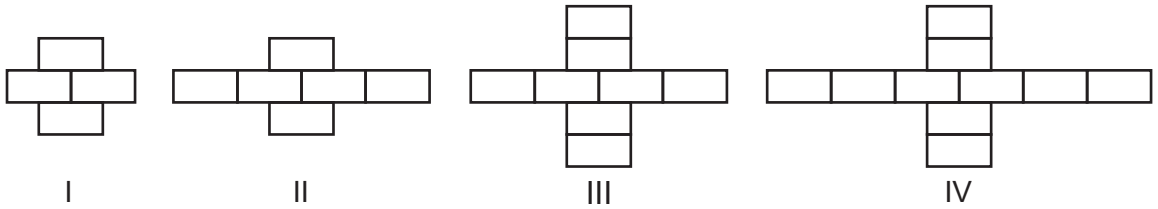
Is her friend correct?

Explain your reasoning. NO, the numbers aren't increasing by a power each time, it keeps increasing by 2, which means it is linear.

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

Question 27

27 Breanna creates the pattern of blocks below in her art class.



A friend tells her that the number of blocks in the pattern is increasing exponentially.

Is her friend correct?

The friend is not correct.

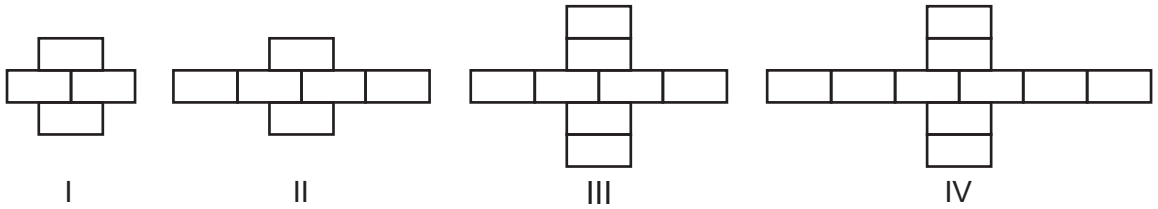
Explain your reasoning.

It is increasing by 2.

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

Question 27

27 Breanna creates the pattern of blocks below in her art class.



A friend tells her that the number of blocks in the pattern is increasing exponentially.

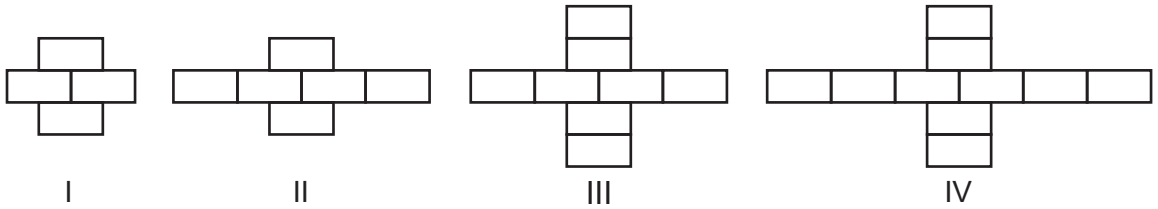
Is her friend correct?

Explain your reasoning. The friend is correct because exponential means to grow at a constant rate. the Block grows by one on each side then one on the top and bottom every other.

Score 1: The student confused linear and exponential patterns.

Question 27

27 Breanna creates the pattern of blocks below in her art class.



A friend tells her that the number of blocks in the pattern is increasing exponentially.

Is her friend correct?

Explain your reasoning.

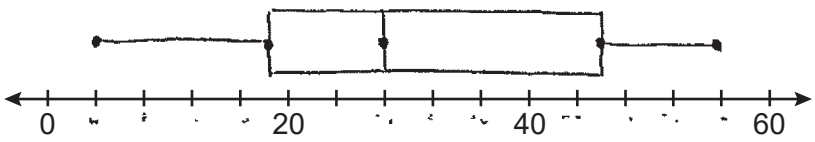
Yes, her friend is right b/c in figure two She adds on 2/4 sides. every figure goes UP by one but skips if it add the Left and Right or up and down

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

Question 28

28 The data set 20, 36, 52, 56, 24, 16, 40, 4, 28 represents the number of books purchased by nine book club members in a year.

Construct a box plot for these data on the number line below.



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

Question 28

28 The data set 20, 36, 52, 56, 24, 16, 40, 4, 28 represents the number of books purchased by nine book club members in a year.

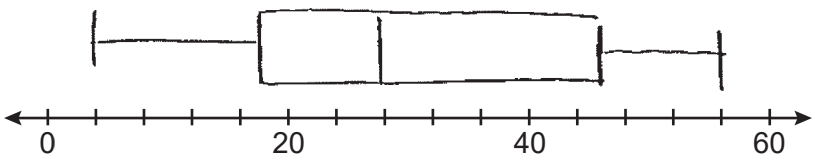
Construct a box plot for these data on the number line below.

4, 16, 20, 24, 28, 36, 40, 52, 56

Median: 28

Q_1: 18

Q_3: 46



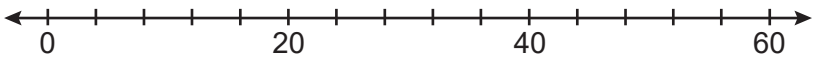
Score 2: The student gave a complete and correct response.

Question 28

4, 16, 20, 24, 28, 36, 40, 52, 56

28 The data set 20, 36, 52, 56, 24, 16, 40, 4, 28 represents the number of books purchased by nine book club members in a year.

Construct a box plot for these data on the number line below.

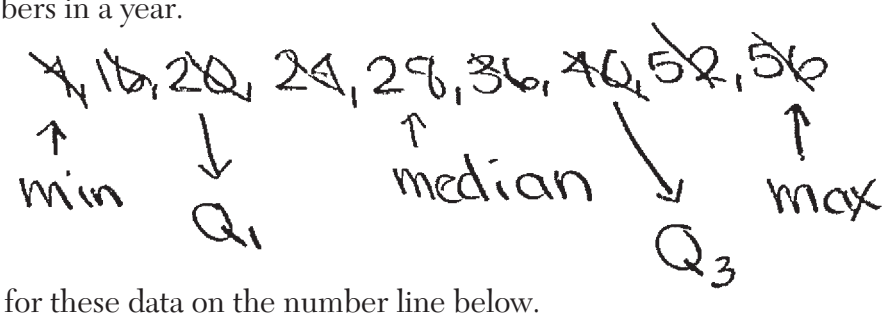


Min: 4
Q1: 18
Q2: 28
Q3: 46
Max: 56

Score 1: The student did not construct a box plot.

Question 28

28 The data set 20, 36, 52, 56, 24, 16, 40, 4, 28 represents the number of books purchased by nine book club members in a year.



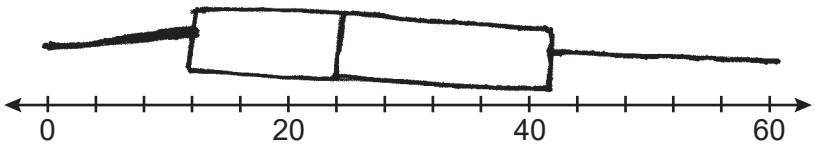
Construct a box plot for these data on the number line below.

Score 1: The student made the same error twice when finding Q_1 and Q_3.

Question 28

28 The data set 20, 36, 52, 56, 24, 16, 40, 4, 28 represents the number of books purchased by nine book club members in a year.

Construct a box plot for these data on the number line below.



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

Question 29

29 Given:

$$A = x + 5$$
$$B = x^2 - 18$$

Express $A^2 + B$ in standard form.

$(x+5)^2 + x^2 - 18$
$(x^2 + 10x + 25) + x^2 - 18$
$2x^2 + 10x + 7$

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

Question 29

29 Given:

$$A = x + 5$$
$$B = x^2 - 18$$

Express $A^2 + B$ in standard form.

$(x+5)^2 + x^2 - 18$

	x	5
x	x^2	$5x$
5	$5x$	25

$x^2 + 10x + 25$

$2x^2 + 10x + 7$

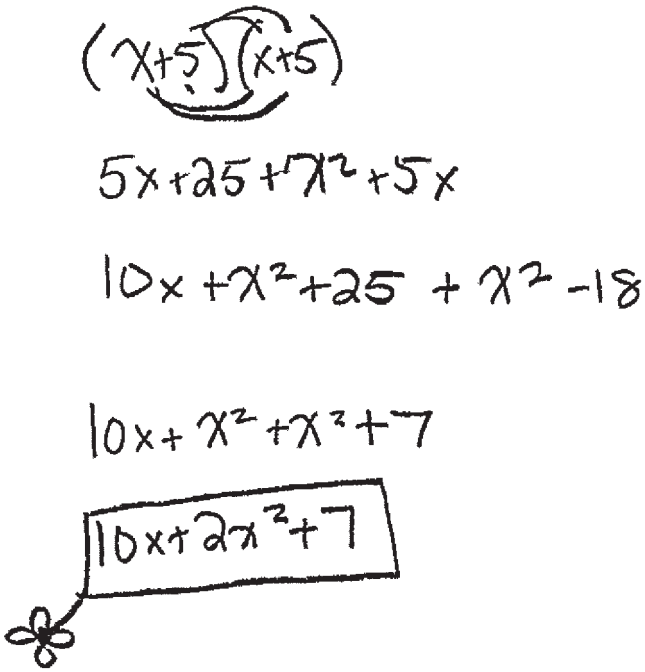
Score 2: The student gave a complete and correct response.

Question 29

29 Given:

$$A = x + 5$$
$$B = x^2 - 18$$

Express $A^2 + B$ in standard form.



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

Question 29

29 Given:

$$A = x + 5$$
$$B = x^2 - 18$$

Express $A^2 + B$ in standard form.

$(x+5)^2 + x^2 - 18$

$x^2 + 10x + 25 + x^2 - 18$

$x^4 + 10x + 7$

Score 1: The student did not combine like terms correctly.

Question 29

29 Given:

$$A = x + 5$$
$$B = x^2 - 18$$

Express $A^2 + B$ in standard form.

$(x+5)^2+(x^2-18)$

$(x+5)+(x+5)+(x^2-18)$

$2x+10+x^2-18$

x^2+2x-8

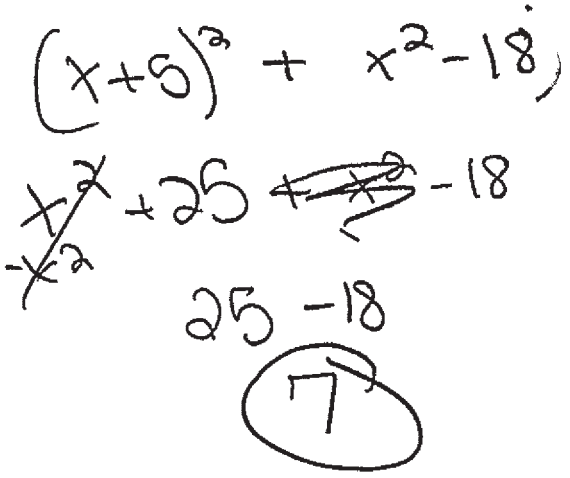
Score 1: The student squared $x + 5$ incorrectly.

Question 29

29 Given:

$$A = x + 5$$
$$B = x^2 - 18$$

Express $A^2 + B$ in standard form.

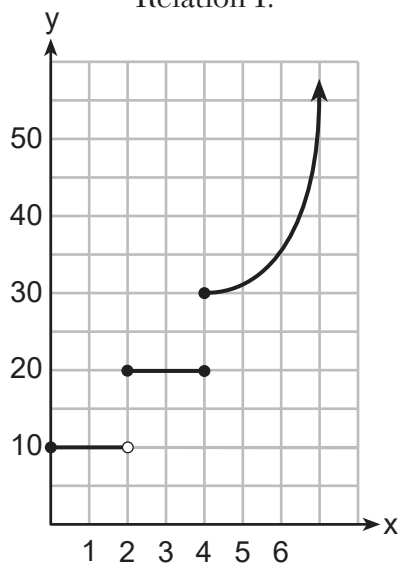


Score 0: The student did not show enough correct work to receive any credit.

Question 30

30 The two relations shown below are *not* functions.

Relation I:



Relation II:

{(−5,−2), (−4,0), (−2,1), (−1,3), (−4,4)}

Explain how you could change each relation so that they each become a function.

For Relation I, change the closed dot at (4,20) to ~~an~~ an open circle.

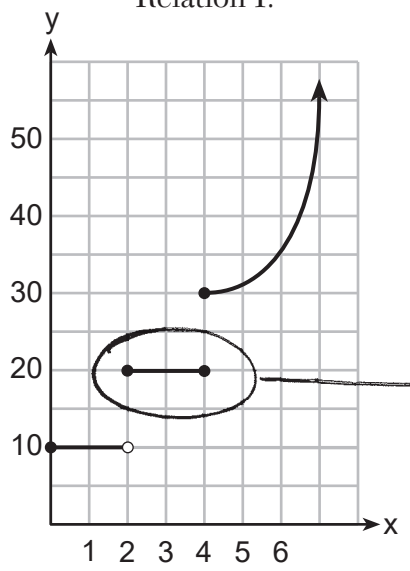
For Relation II, remove (-4,4)

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

Question 30

30 The two relations shown below are *not* functions.

Relation I:



Relation II:

{(−5,−2), (−4,0), (−2,1), (−1,3), (−4,4)}

Remove this point.

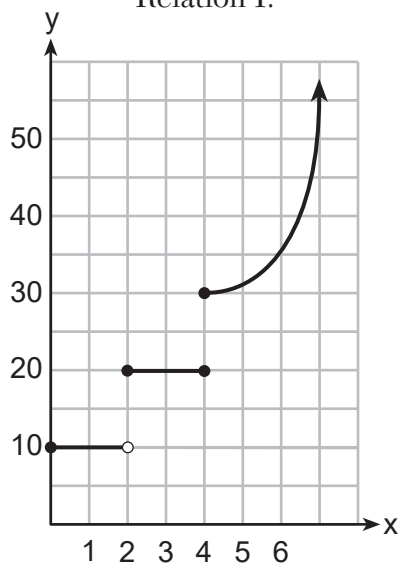
Explain how you could change each relation so that they each become a function.

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

Question 30

30 The two relations shown below are *not* functions.

Relation I:



Relation II:

$\{(-5,-2), (-4,0), (-2,1), (-1,3), (-4,4)\}$

Explain how you could change each relation so that they each become a function.

Relation 1: they can't be on the same vertical line. You would have to move (4,20) over to (3,20)

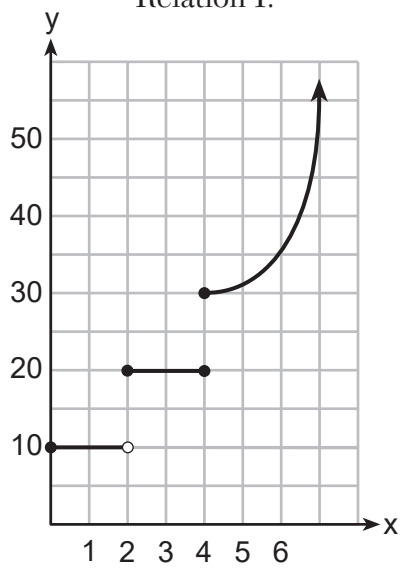
Relation 2: You can't have repeating x-values You would have to change one of the (-4)

Score 1: The student wrote an incomplete explanation for Relation II.

Question 30

30 The two relations shown below are *not* functions.

Relation I:



Relation II:

$\{(-5,-2), (-4,0), (-2,1), (-1,3), (-4,4)\}$

Explain how you could change each relation so that they each become a function.

For relation I you could make the white dot filled in and for relation II you could make (-5, -2) just (-5, 2).

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

Question 31

31 Factor $2x^2 + 16x - 18$ completely.

$2x^2+16x-18$

$2(x^2+8x-9)$

$2(x+9)(x-1)$

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

Question 31

31 Factor $2x^2 + 16x - 18$ completely.

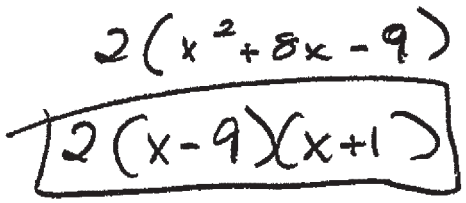
$2x^2 + 16x - 18$

$(2x - 2)(x + 9)$

Score 1: The student did not factor out the greatest common factor.

Question 31

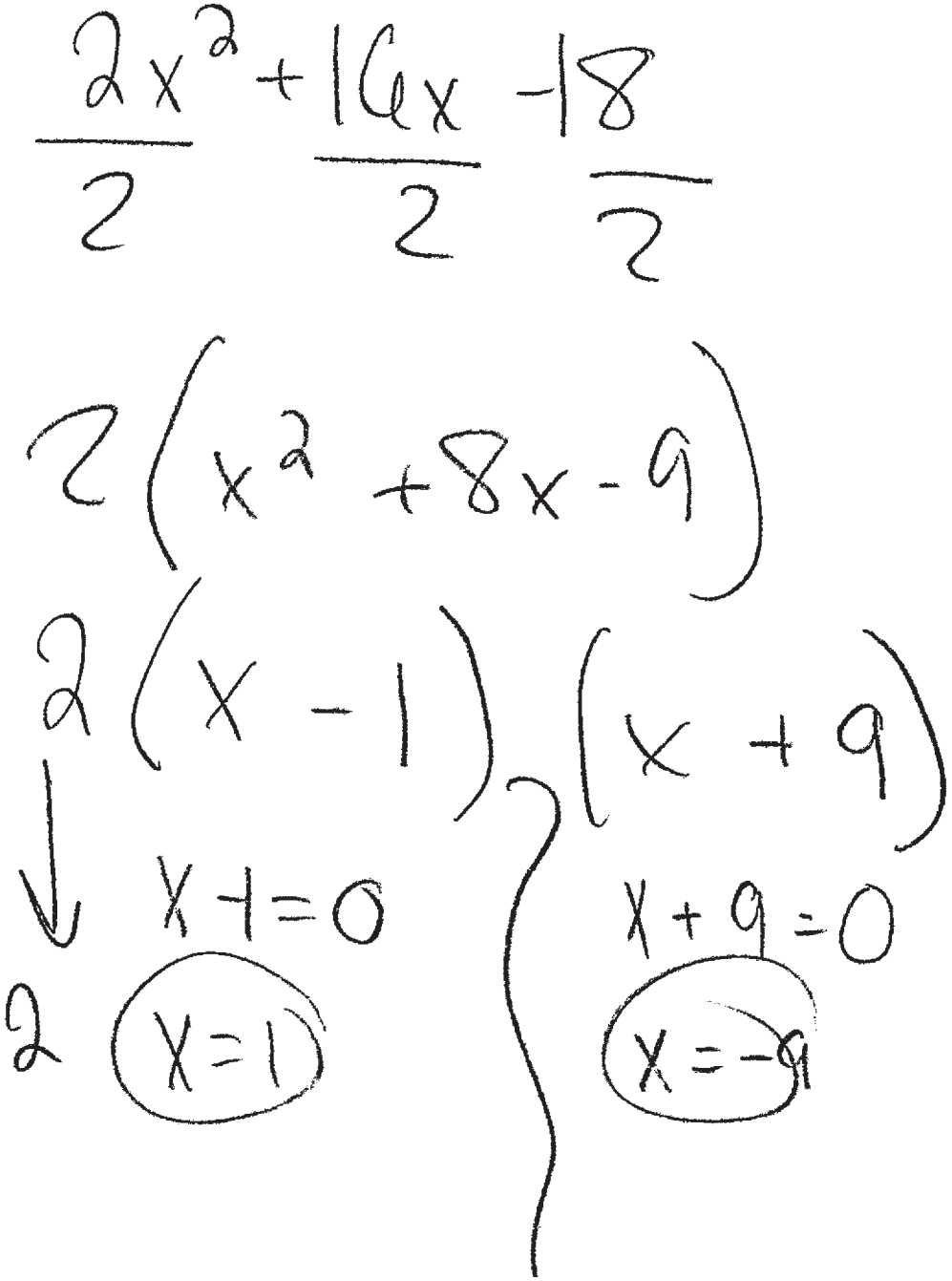
31 Factor $2x^2 + 16x - 18$ completely.



Score 1: The student wrote incorrect signs on 9 and 1.

Question 31

31 Factor $2x^2 + 16x - 18$ completely.



Score 1: The student wrote $2(x - 1)(x + 9)$ correctly, but wrote further incorrect work and circled it.

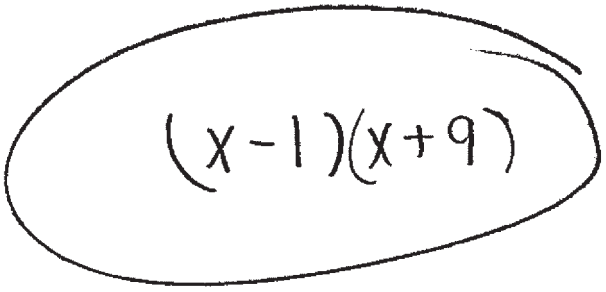
Question 31

31 Factor $2x^2 + 16x - 18$ completely.

$\frac{2x^2 + 16x - 18}{2}$

x^2+8x-9 $\quad -9+1$, $9-1$

$(x-1)(x+9)$



Score 1: The student did not write the greatest common factor in their final answer.

Question 31

31 Factor $2x^2 + 16x - 18$ completely.

$2(x^2 + 8x - 9)$

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

Question 32

32 Solve $3d^2 - 8d + 3 = 0$ algebraically for all values of d, rounding to the *nearest tenth*.

$3d^2 - 8d + 3 = 0$

$$\frac{8 \pm \sqrt{(-8)^2 - 4(3)(3)}}{2(3)}$$

$d = 2.215250437, 0.4514162296$

$d = 0.5, 2.2$

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

Question 32

32 Solve $3d^2 - 8d + 3 = 0$ algebraically for all values of d, rounding to the *nearest tenth*.

$3d^2 - 8d + 3 = 0$

$d = 8.9$ or $d = 7.1$

$X = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ $a=3$ $b=-8$ $c=3$

$X = \frac{8 \pm \sqrt{(-8)^2 - 4(3)(3)}}{2(3)}$

$X = \frac{8 \pm \sqrt{28}}{6}$

$X = \frac{8 + \sqrt{28}}{6}$ $X = \frac{8 - \sqrt{28}}{6}$

$X = 8.881917104$ $X = 7.118082896$

$x = 8.9$ $x = 7.1$

Score 1: The student calculated $8 \pm \sqrt{28} \div 6$.

Question 32

32 Solve $3d^2 - 8d + 3 = 0$ algebraically for all values of d, rounding to the *nearest tenth*.

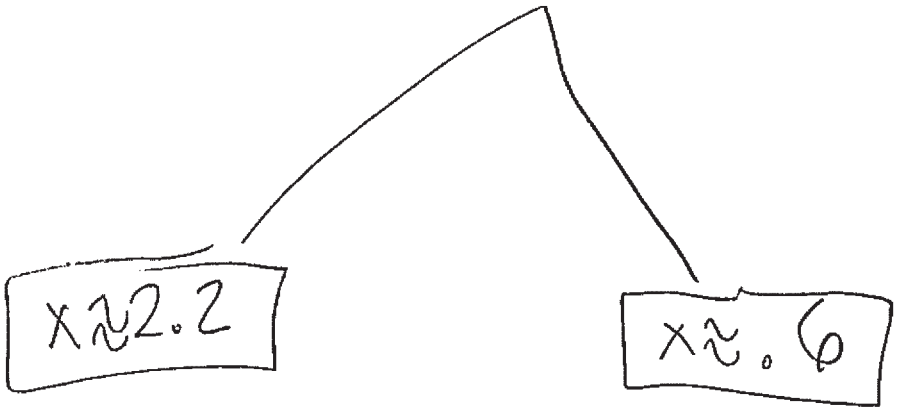
$x = \frac{-b \pm \sqrt{b^2-4ac}}{2a}$ $3d^2-8d+3=0$

$a = 3$

$B = -8$

$C = 3$

$x = \frac{-(-8) \pm \sqrt{(-8)^2-4(3)(3)}}{2(3)}$



Score 1: The student only gave one correct answer.

Question 32

32 Solve $3d^2 - 8d + 3 = 0$ algebraically for all values of d, rounding to the *nearest tenth*.

$d = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ $\quad a = 3 \quad b = -8 \quad c = 3$

$d = \dfrac{-(-8) \pm \sqrt{-8^2 - 4(3)(3)}}{2(3)}$

$d = \dfrac{8 \pm \sqrt{-100}}{6}$

no real roots

Score 1: The student made one computational error.

Question 32

32 Solve $3d^2 - 8d + 3 = 0$ algebraically for all values of d, rounding to the *nearest tenth*.

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

$$d = \frac{-(-8) \pm \sqrt{(-8)^2 - 4(3)(3)}}{2(3)}$$

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

Question 32

32 Solve $3d^2 - 8d + 3 = 0$ algebraically for all values of d, rounding to the *nearest tenth*.

$3d^2 - 8d + 3 = 0$

$\llcorner 9d^2 \lrcorner$

$3(d^2 - 8d + 3 = \frac{9}{3}$

$d = \frac{8 \pm \sqrt{(-8)^2 + 4(3)(3)}}{2(3)}$

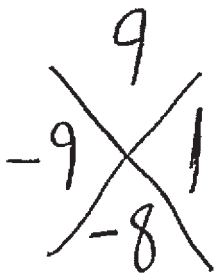
$d = \frac{8 \pm 10}{6}$ / $d = 3$

\ $d = -\frac{1}{3}$

Score 0: The student wrote an incorrect operation in the formula and did not express the answer to the nearest tenth.

Question 32

32 Solve $3d^2 - 8d + 3 = 0$ algebraically for all values of d, rounding to the *nearest tenth*.



$(3d^2 - 9d)(+1d + 3)$

$3d(d - 3) \quad -1(d - 3)$

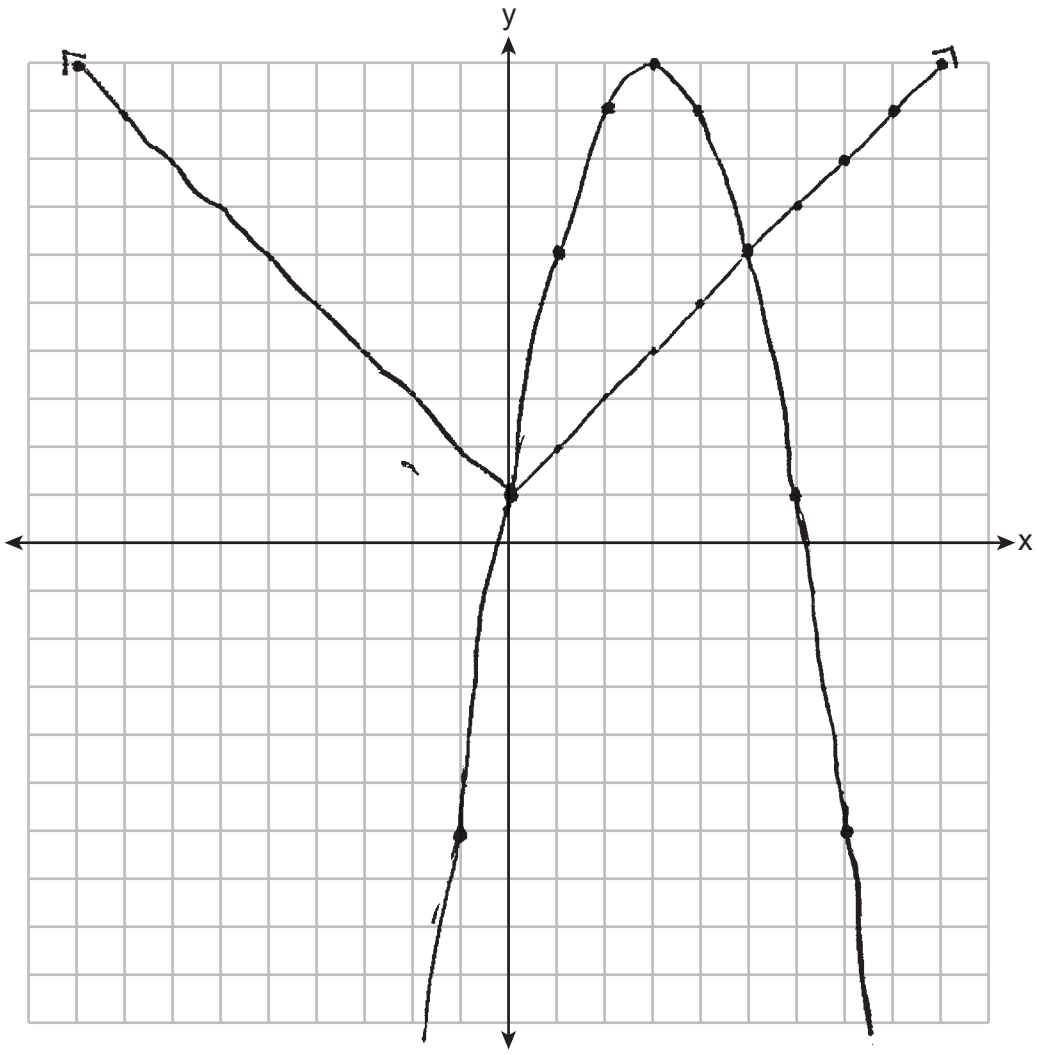
$(d - 3)(3d - 1) = 0$

$d = 3 \quad d = \frac{1}{3}$

Score 0: The student factored incorrectly and did not express the answer to the nearest tenth.

Question 33

33 Graph $f(x) = |x| + 1$ and $g(x) = -x^2 + 6x + 1$ on the set of axes below.



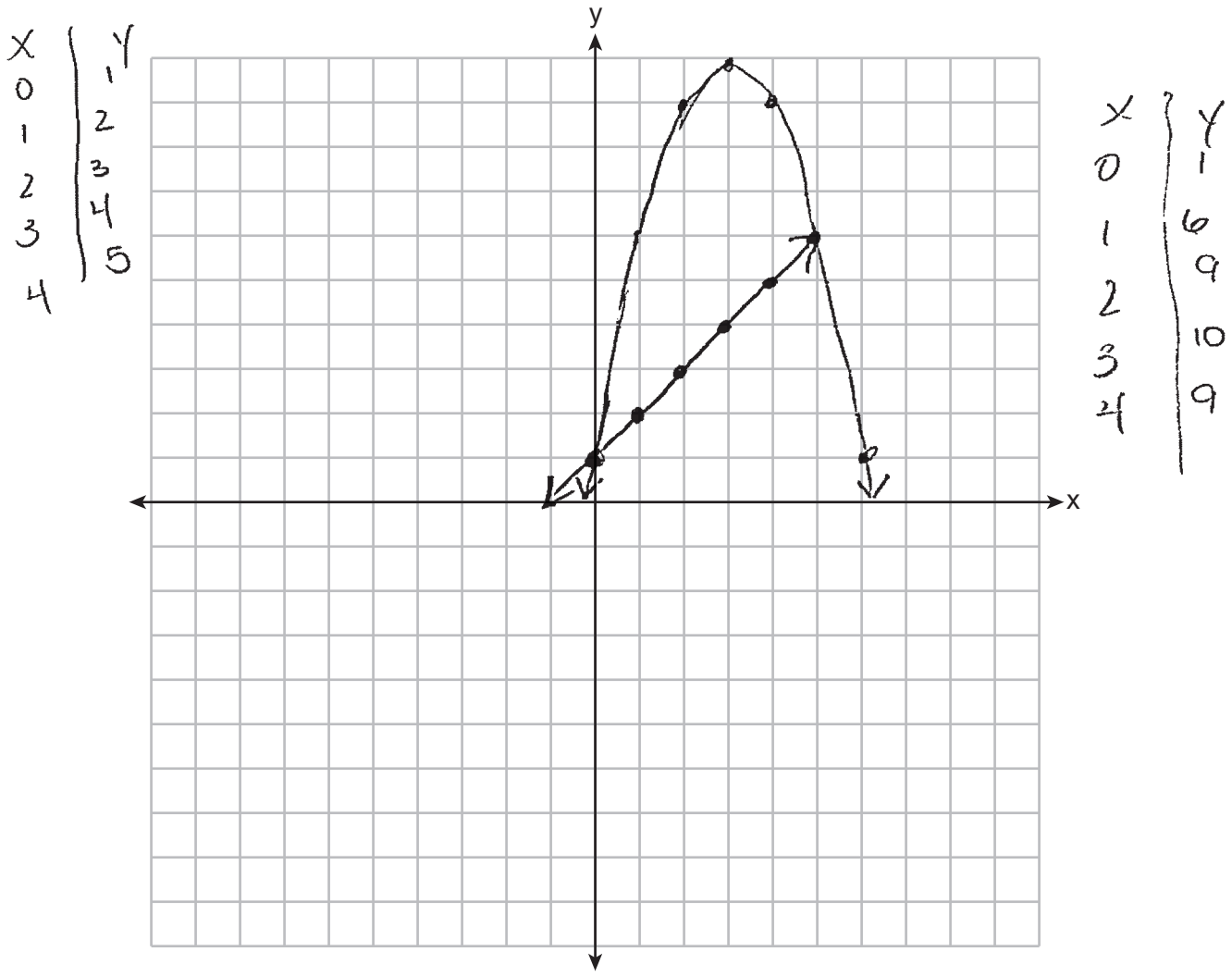
Based on your graph, determine all values of x for which $f(x) = g(x)$.

$x = 0$, $x = 5$

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

Question 33

33 Graph $f(x) = |x| + 1$ and $g(x) = -x^2 + 6x + 1$ on the set of axes below.



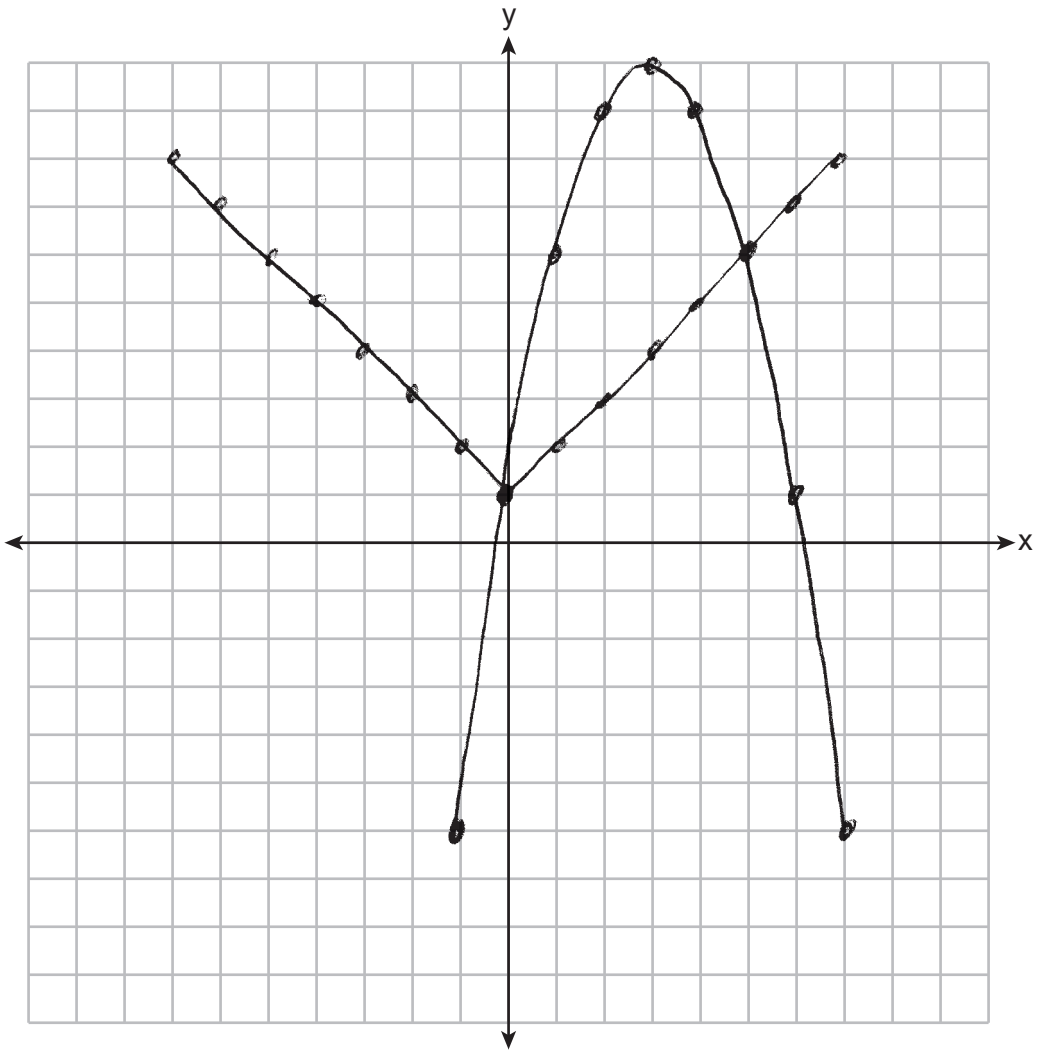
Based on your graph, determine all values of x for which $f(x) = g(x)$.

0, 5

Score 3: The student graphed $f(x)$ incorrectly.

Question 33

33 Graph $f(x) = |x| + 1$ and $g(x) = -x^2 + 6x + 1$ on the set of axes below.



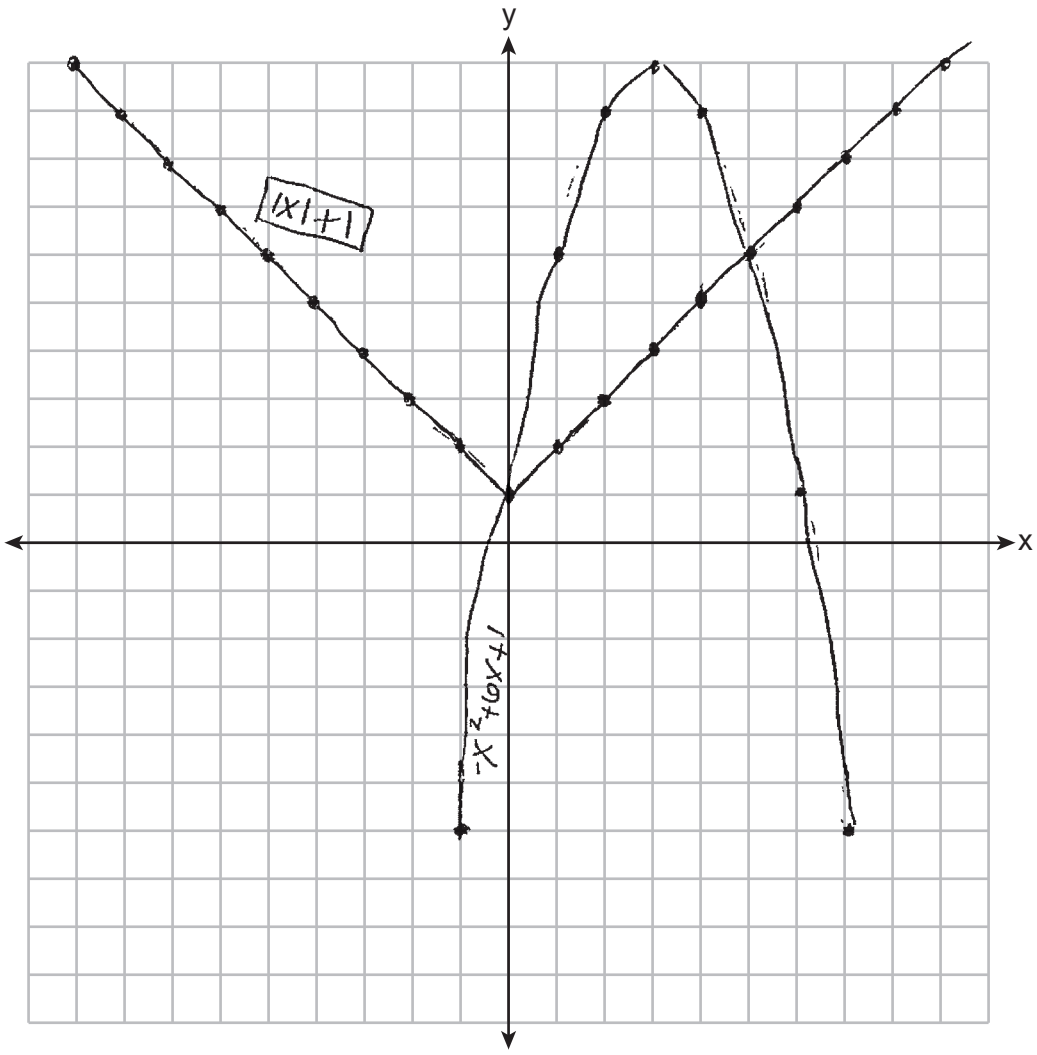
Based on your graph, determine all values of x for which $f(x) = g(x)$.

X = 0 and X = 5

Score 3: The student made one graphing error.

Question 33

33 Graph $f(x) = |x| + 1$ and $g(x) = -x^2 + 6x + 1$ on the set of axes below.



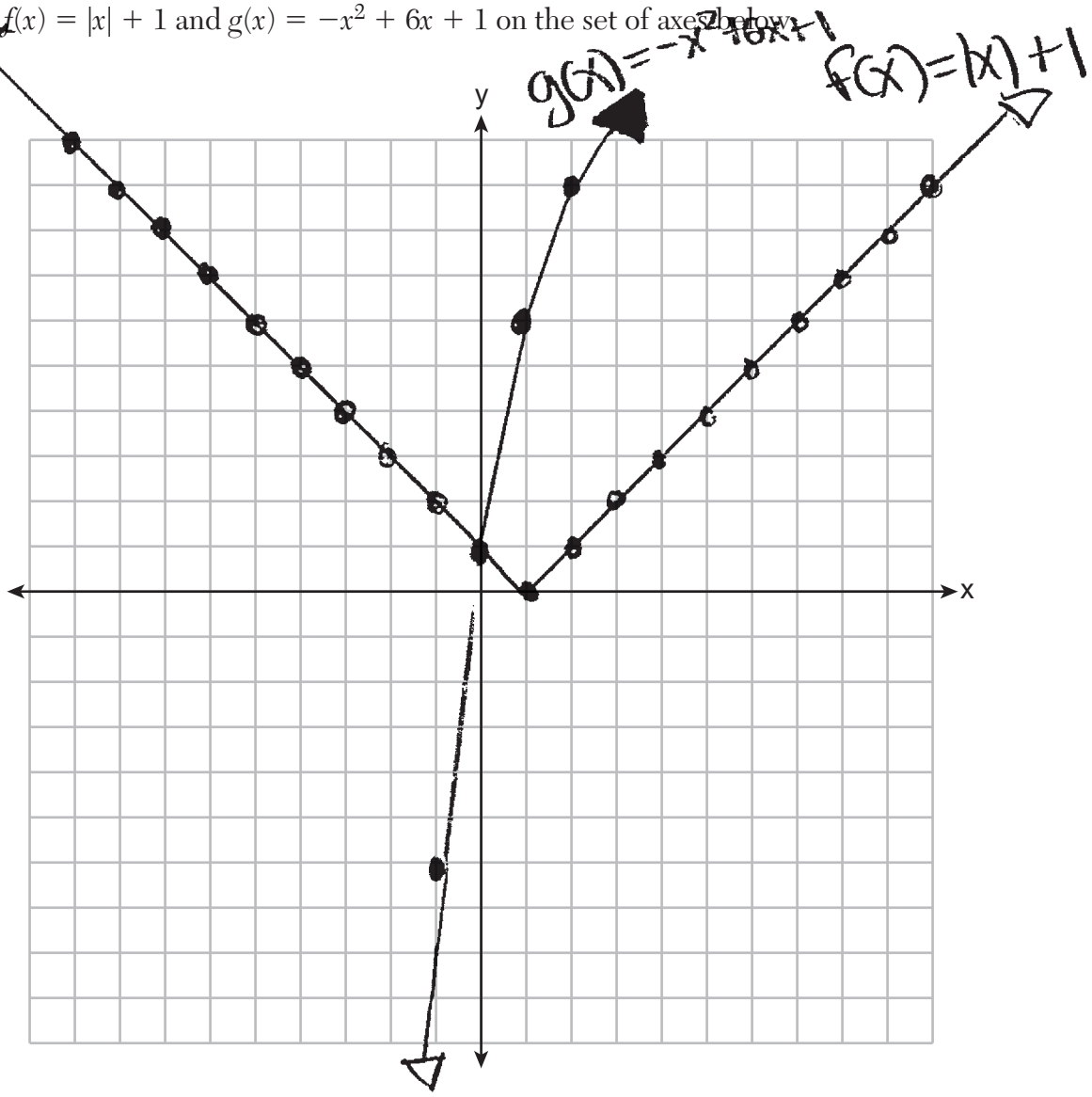
Based on your graph, determine all values of x for which $f(x) = g(x)$.

(0,1) (5,6)

Score 2: The student did not put arrows on $g(x)$ and stated the solutions as coordinate pairs.

Question 33

33 Graph $f(x) = |x| + 1$ and $g(x) = -x^2 + 6x + 1$ on the set of axes below.



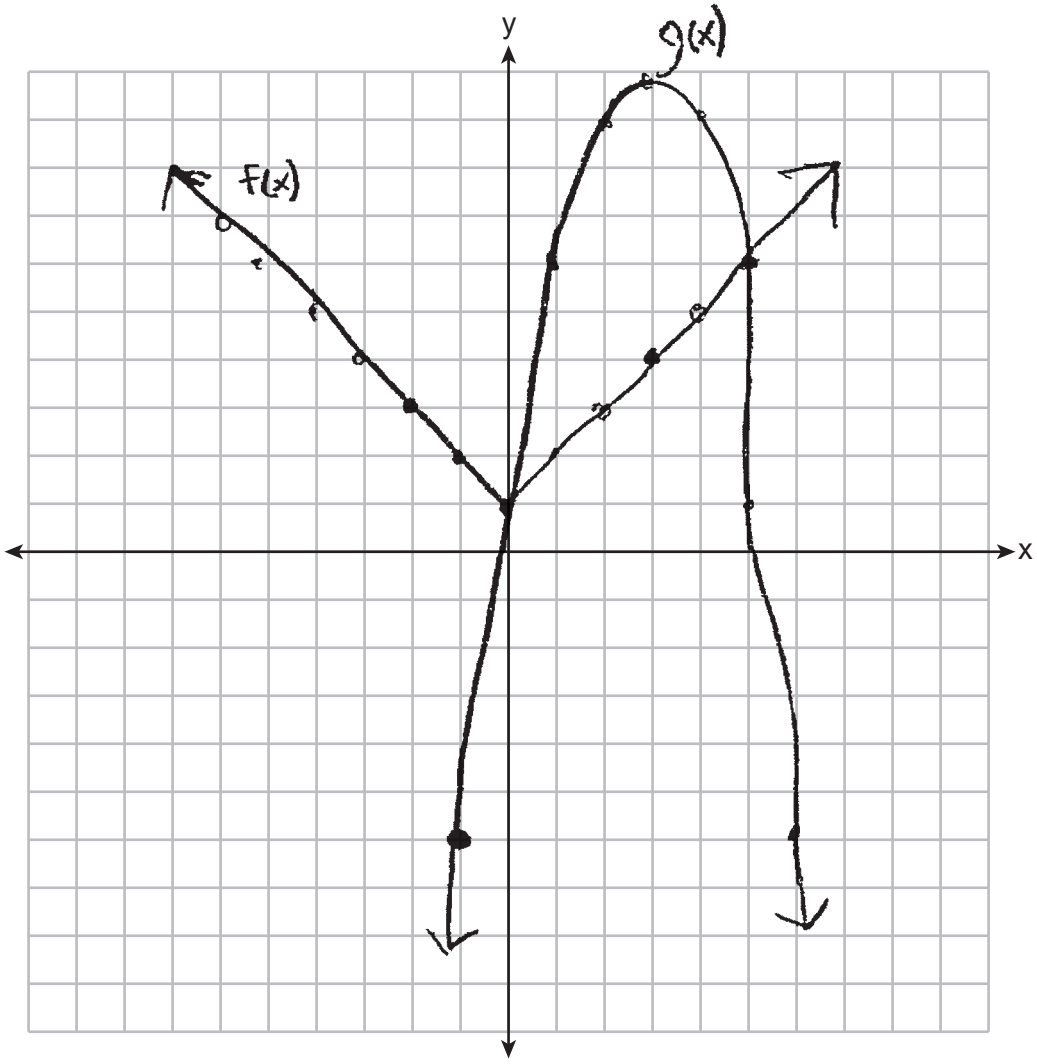
Based on your graph, determine all values of x for which $f(x) = g(x)$.

∴ The x values that satisfy the equations f(x) = g(x) are: 0.

Score 2: The student stated an appropriate solution, based on incorrect graphs.

Question 33

33 Graph $f(x) = |x| + 1$ and $g(x) = -x^2 + 6x + 1$ on the set of axes below.



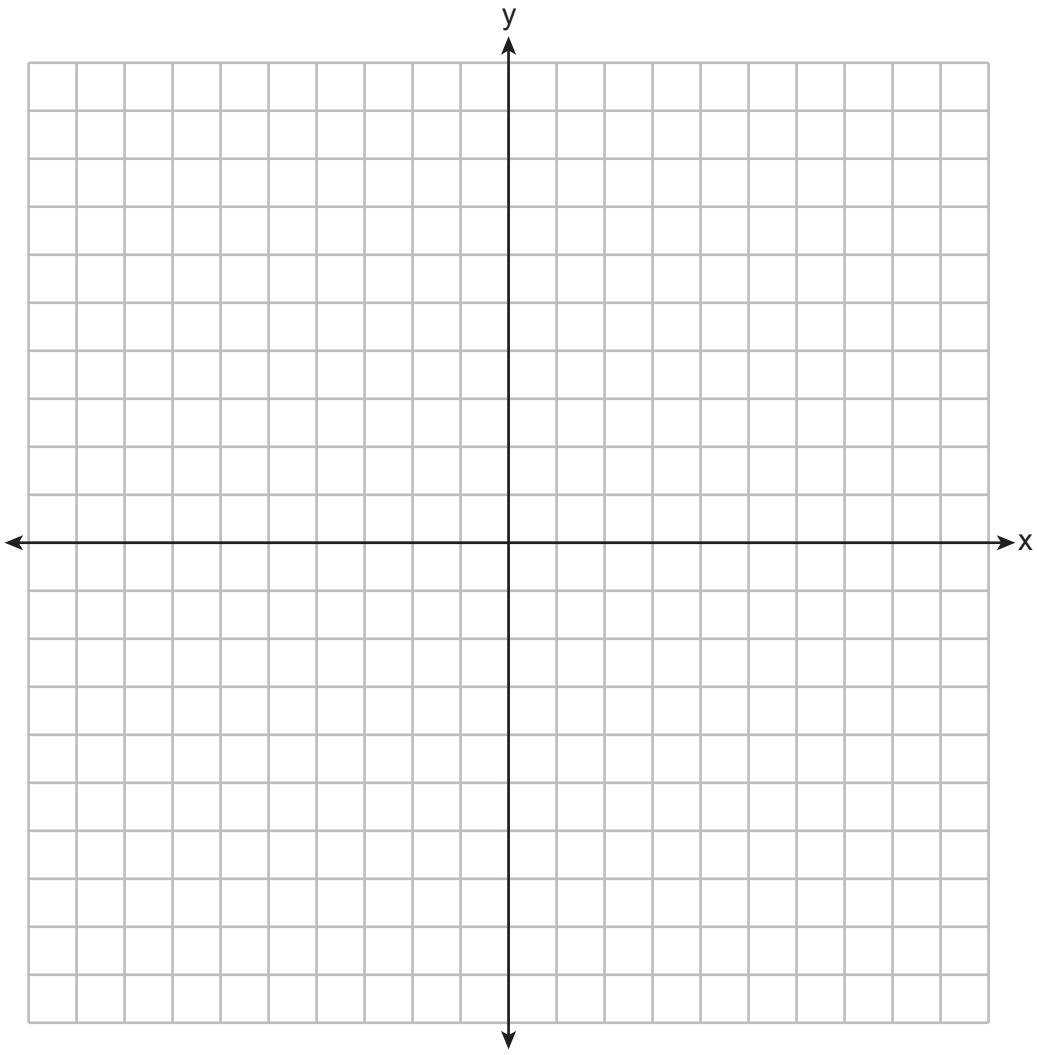
Based on your graph, determine all values of x for which $f(x) = g(x)$.

(1, 0)

Score 1: The student only graphed $f(x)$ correctly.

Question 33

33 Graph $f(x) = |x| + 1$ and $g(x) = -x^2 + 6x + 1$ on the set of axes below.



Based on your graph, determine all values of x for which $f(x) = g(x)$.

(0, 1) (5, 6)

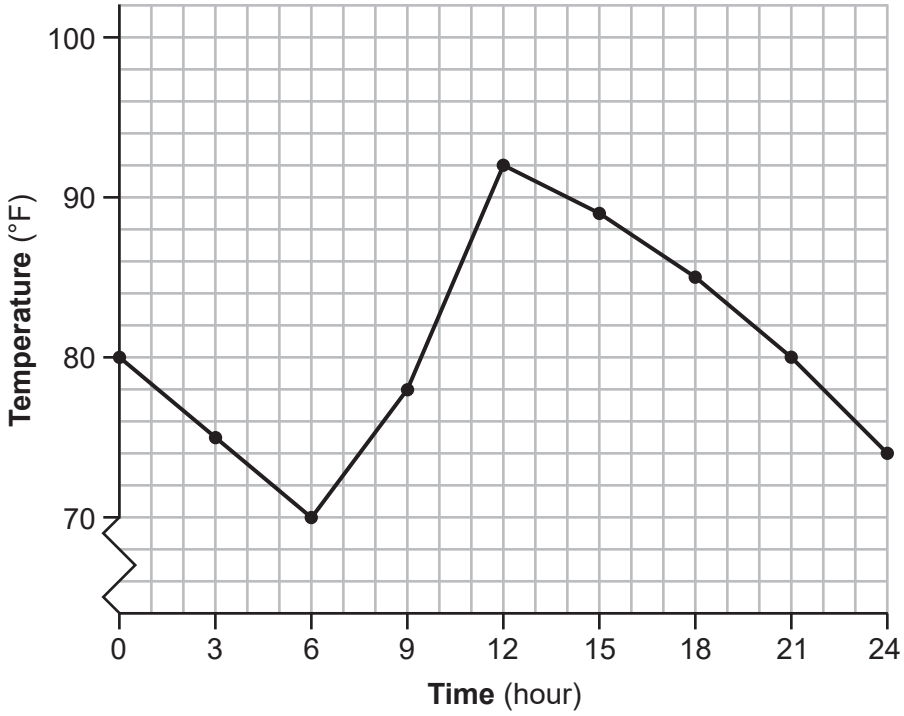
Score 0: The student did not show enough correct work to receive any credit.

Question 34

34 Jean recorded temperatures over a 24-hour period one day in August in Syracuse, NY. Her results are shown in the table below.

Time (hour)	0	3	6	9	12	15	18	21	24
Temperature (°F)	80	75	70	78	92	89	85	80	74

Her data are modeled on the graph below.



State the entire interval over which the temperature is increasing.

(6-12)

State the three-hour interval that has the greatest rate of change in temperature.

(9-12)

State the average rate of change from hour 12 to hour 24. Explain what this means in the context of the problem.

$\frac{\text{Rise}}{\text{Run}} = \frac{18}{-12} = -1.5$ This means that the temperature is decreasing by 1.5° every hour from hour 12 to hour 24.

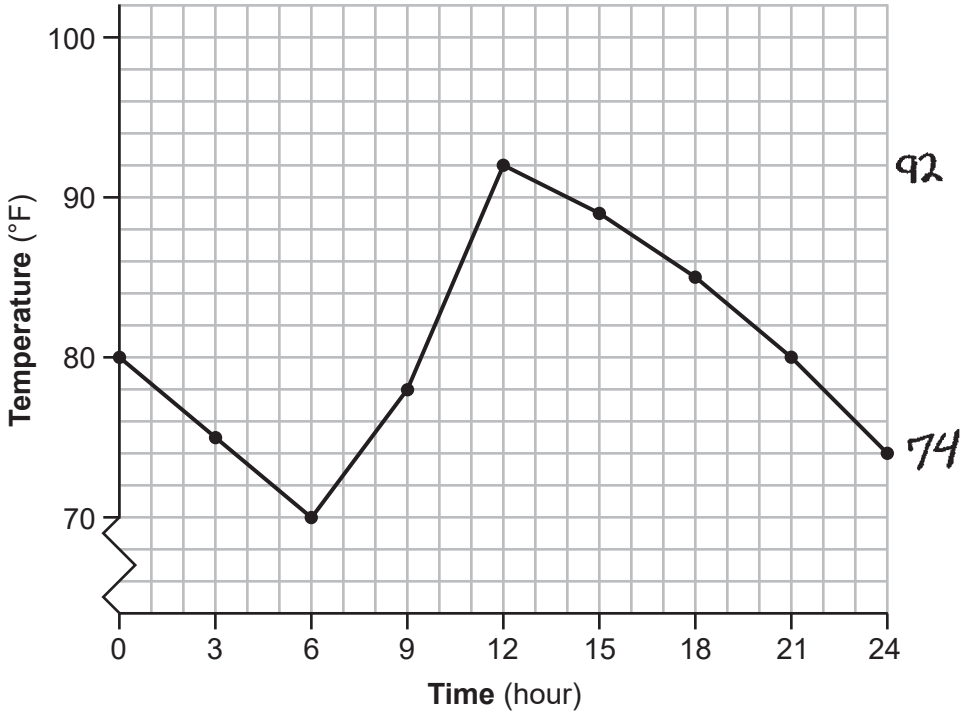
Score 4: The student gave a complete and correct response.

Question 34

34 Jean recorded temperatures over a 24-hour period one day in August in Syracuse, NY. Her results are shown in the table below.

Time (hour)	0	3	6	9	12	15	18	21	24
Temperature (°F)	80	75	70	78	92	89	85	80	74

Her data are modeled on the graph below.



State the entire interval over which the temperature is increasing.

6-12

State the three-hour interval that has the greatest rate of change in temperature.

9-12

State the average rate of change from hour 12 to hour 24. Explain what this means in the context of the problem.

This means the temp drops 3° every 2 hours.

$\frac{92-74}{12-24}$ $\frac{18}{-12}$ $-\frac{3}{2}$

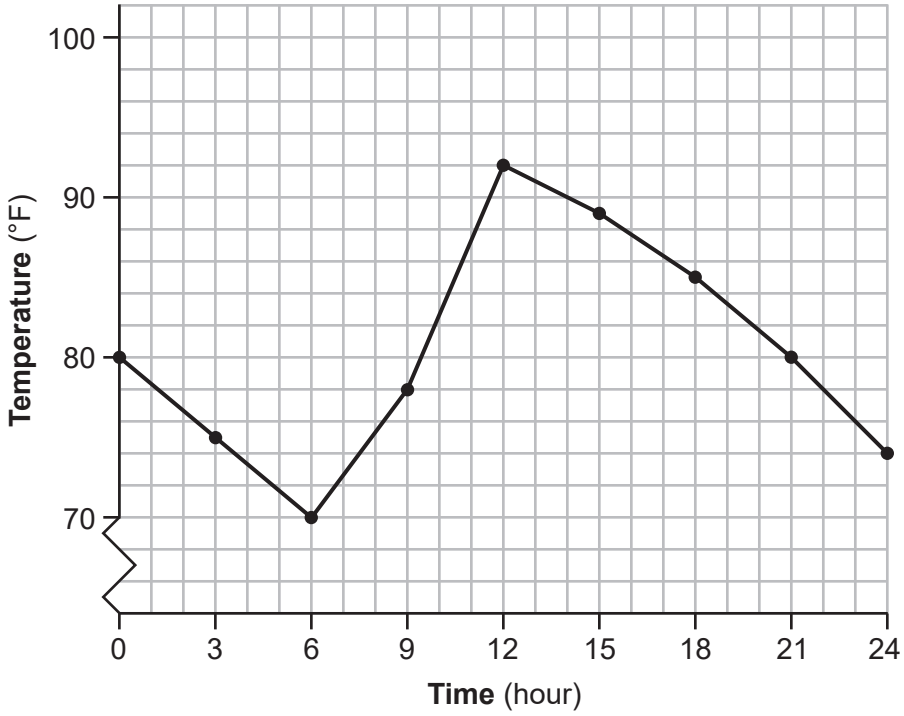
Score 4: The student gave a complete and correct response.

Question 34

34 Jean recorded temperatures over a 24-hour period one day in August in Syracuse, NY. Her results are shown in the table below.

Time (hour)	0	3	6	9	12	15	18	21	24
Temperature (°F)	80	75	70	78	92	89	85	80	74

Her data are modeled on the graph below.



State the entire interval over which the temperature is increasing.

6 to 12 hours

State the three-hour interval that has the greatest rate of change in temperature.

9 to 12 hours

State the average rate of change from hour 12 to hour 24. Explain what this means in the context of the problem.

$\frac{74-92}{24-12} = \frac{-18}{12}$ The temperature decreased 18°F every 12 hours.

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

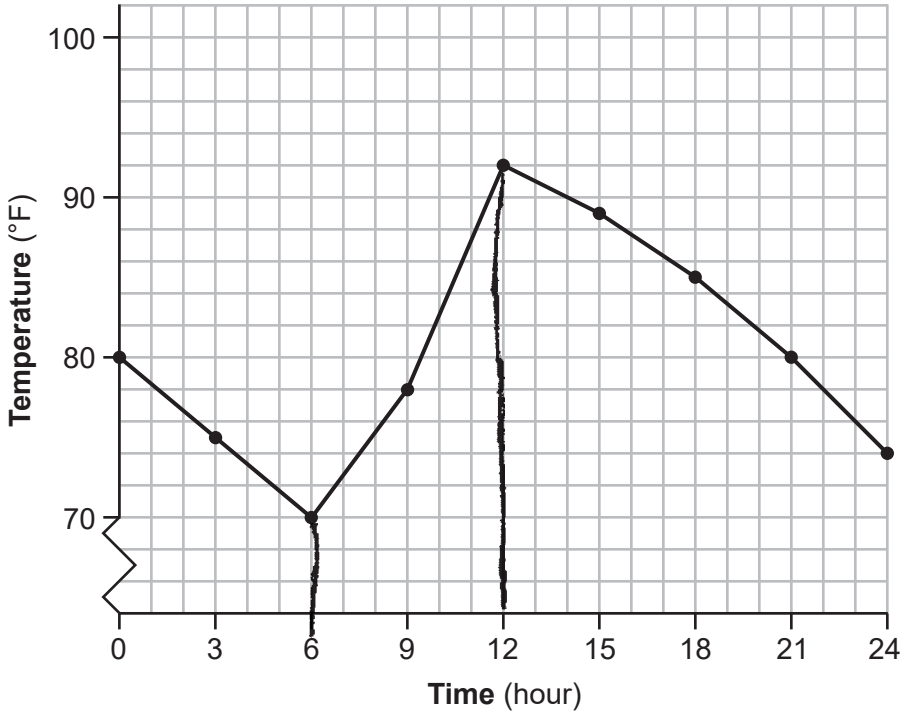
Question 34

34 Jean recorded temperatures over a 24-hour period one day in August in Syracuse, NY. Her results are shown in the table below.

Time (hour)	0	3	6	9	12	15	18	21	24
Temperature (°F)	80	75	70	78	92	89	85	80	74

5 5 8 14 3 4 5 6

Her data are modeled on the graph below.



State the entire interval over which the temperature is increasing.

(6,12)

State the three-hour interval that has the greatest rate of change in temperature.

(9,12)

State the average rate of change from hour 12 to hour 24. Explain what this means in the context of the problem.

The average rate of change is -4.5°F.
This means that on average the temperature drops 4.5 °F every 3 hours.

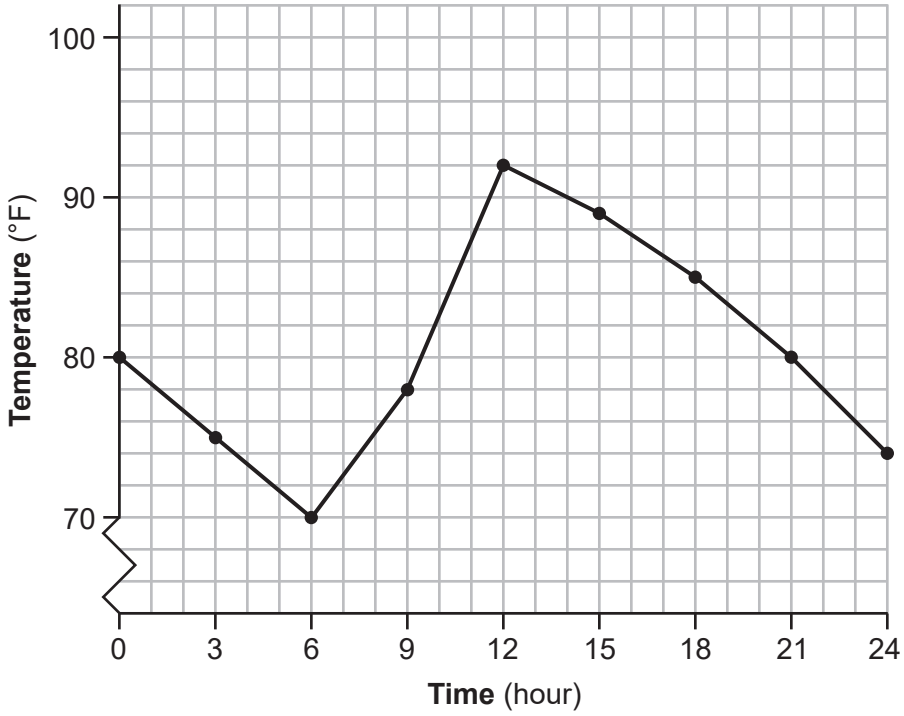
Score 3: The student stated an incorrect average rate of change.

Question 34

34 Jean recorded temperatures over a 24-hour period one day in August in Syracuse, NY. Her results are shown in the table below.

Time (hour)	0	3	6	9	12	15	18	21	24
Temperature (°F)	80	75	70	78	92	89	85	80	74

Her data are modeled on the graph below.



State the entire interval over which the temperature is increasing.

6-12

State the three-hour interval that has the greatest rate of change in temperature.

9-12

State the average rate of change from hour 12 to hour 24. Explain what this means in the context of the problem.

It's dropin $y = \frac{-2}{3}$ $y = -2\frac{1}{2}$ $y =$

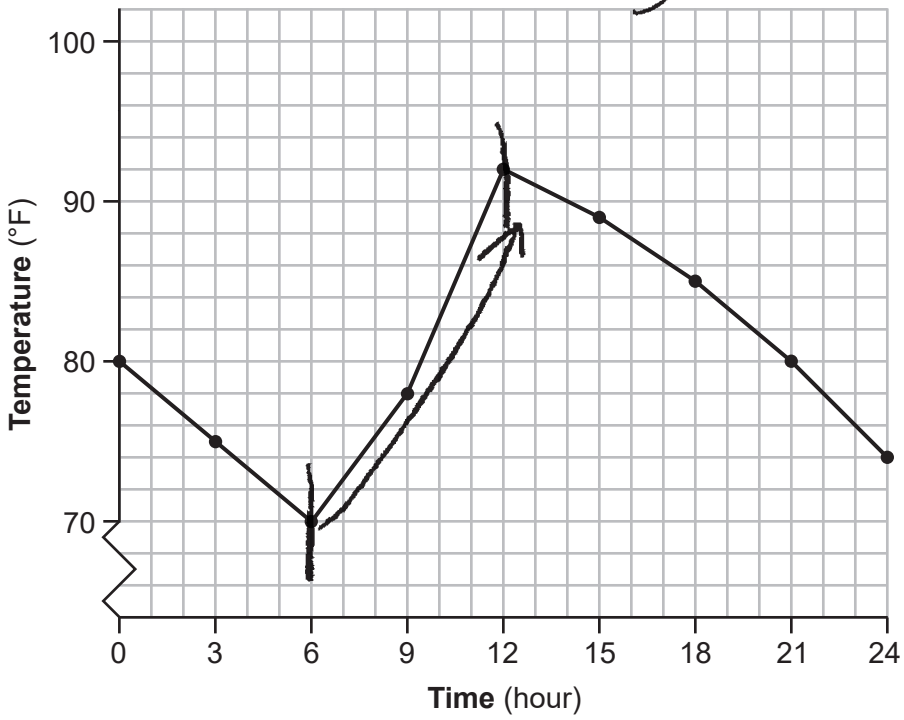
Score 2: The student stated 6-12 and 9-12 correctly.

Question 34

34 Jean recorded temperatures over a 24-hour period one day in August in Syracuse, NY. Her results are shown in the table below.

Time (hour)	0	3	6	9	12	15	18	21	24
Temperature (°F)	80	75	70	78	92	89	85	80	74

Her data are modeled on the graph below.



State the entire interval over which the temperature is increasing.

$6 \leq x \leq 12$

State the three-hour interval that has the greatest rate of change in temperature.

$6 \leq x \leq 12$

State the average rate of change from hour 12 to hour 24. Explain what this means in the context of the problem.

1.5 degrees Farenheit/hr This means that depending on the time, the rate of change changes.

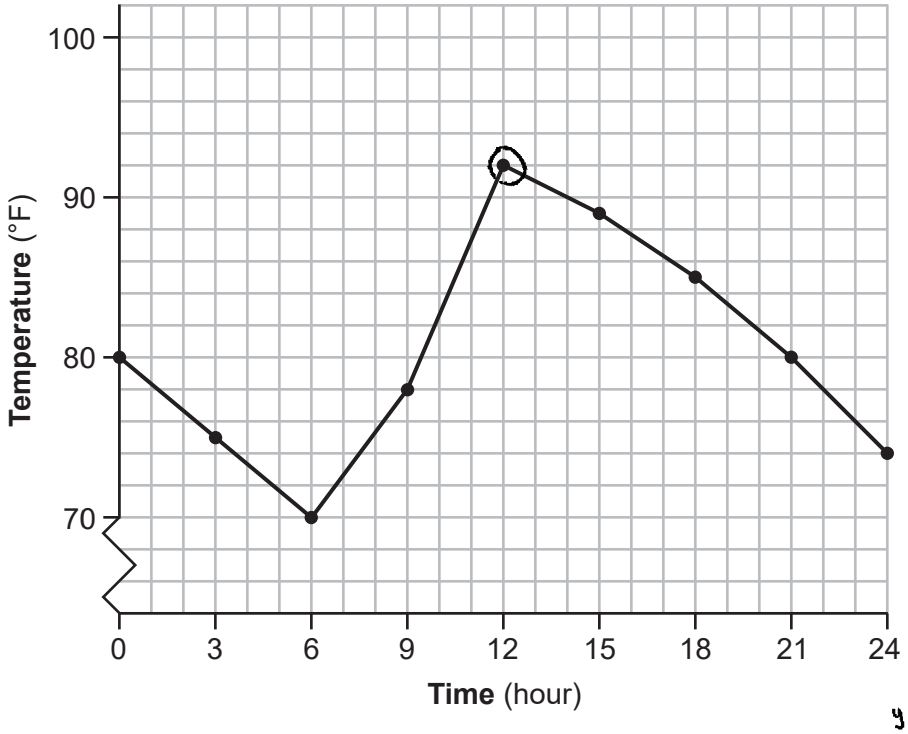
Score 1: The student stated the first interval correctly.

Question 34

34 Jean recorded temperatures over a 24-hour period one day in August in Syracuse, NY. Her results are shown in the table below.

Time (hour)	0	3	6	9	12	15	18	21	24
Temperature (°F)	80	75	70	78	92	89	85	80	74

Her data are modeled on the graph below.



State the entire interval over which the temperature is increasing.

The interval is (12, 92)
(hour) (°F)

State the three-hour interval that has the greatest rate of change in temperature.

The interval is (12, 92)

State the average rate of change from hour 12 to hour 24. Explain what this means in the context of the problem.

$\frac{74-92}{24-12} = \frac{-18}{12} = -1.5$ the rate of change is -1.5

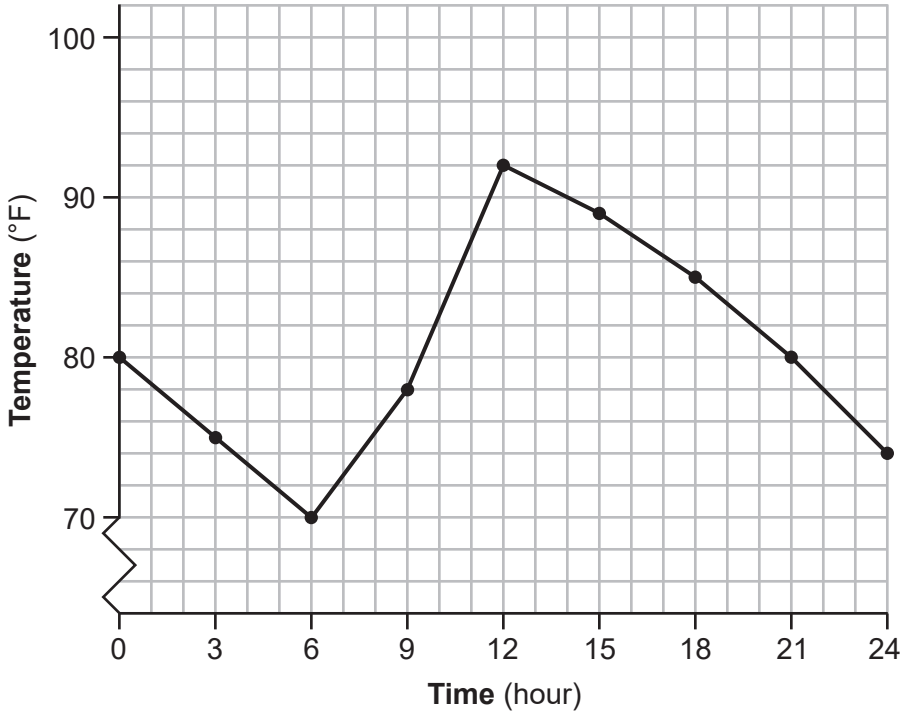
Score 1: The student stated the average rate of change correctly.

Question 34

34 Jean recorded temperatures over a 24-hour period one day in August in Syracuse, NY. Her results are shown in the table below.

Time (hour)	0	3	6	9	12	15	18	21	24
Temperature (°F)	80	75	70	78	92	89	85	80	74

Her data are modeled on the graph below.



State the entire interval over which the temperature is increasing.

State the three-hour interval that has the greatest rate of change in temperature.

$9 \geq x \leq 12$

State the average rate of change from hour 12 to hour 24. Explain what this means in the context of the problem.

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

Question 35

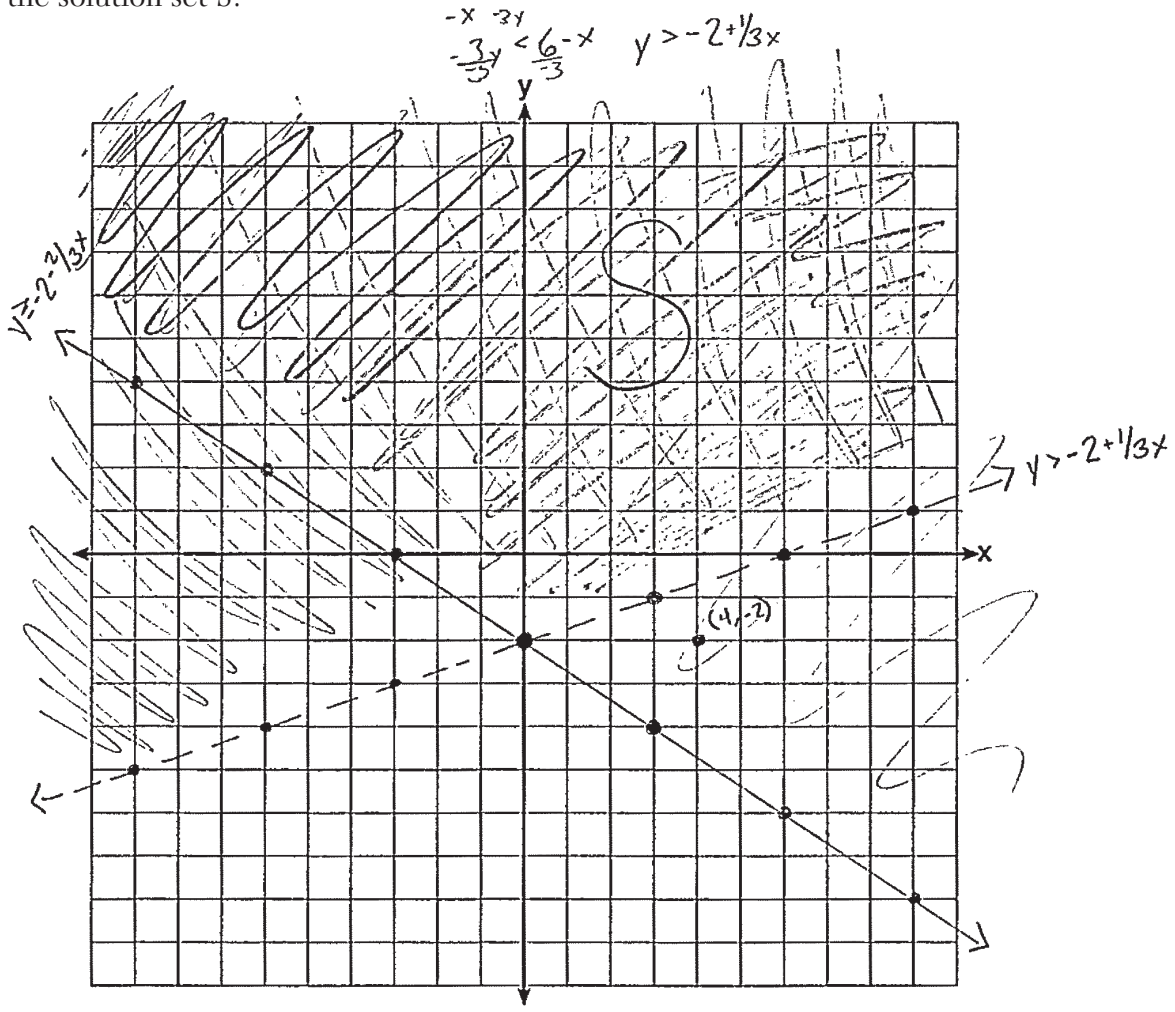
35 Solve the following system of inequalities graphically on the set of axes below.

$$2x + 3y \geq -6$$
$$x < 3y + 6$$

$\frac{2x+3y}{3} \geq \frac{-6-2x}{3}$

$y \geq -2 - \frac{2}{3}x$

Label the solution set S.



Is the point $(4,-2)$ in the solution set?

Explain your answer. No. It's a solution to the first inequality, but not to both.

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

Question 35

35 Solve the following system of inequalities graphically on the set of axes below.

$x < 3y + 6$ $\quad 2x + 3y \geq -6$

$x < 3y + 6$

$x - 6 < 3y$

$\frac{x-6}{3} < \frac{3y}{3}$

$\frac{1}{3}x - 2 < y$

$y > \frac{1}{3}x - 2$

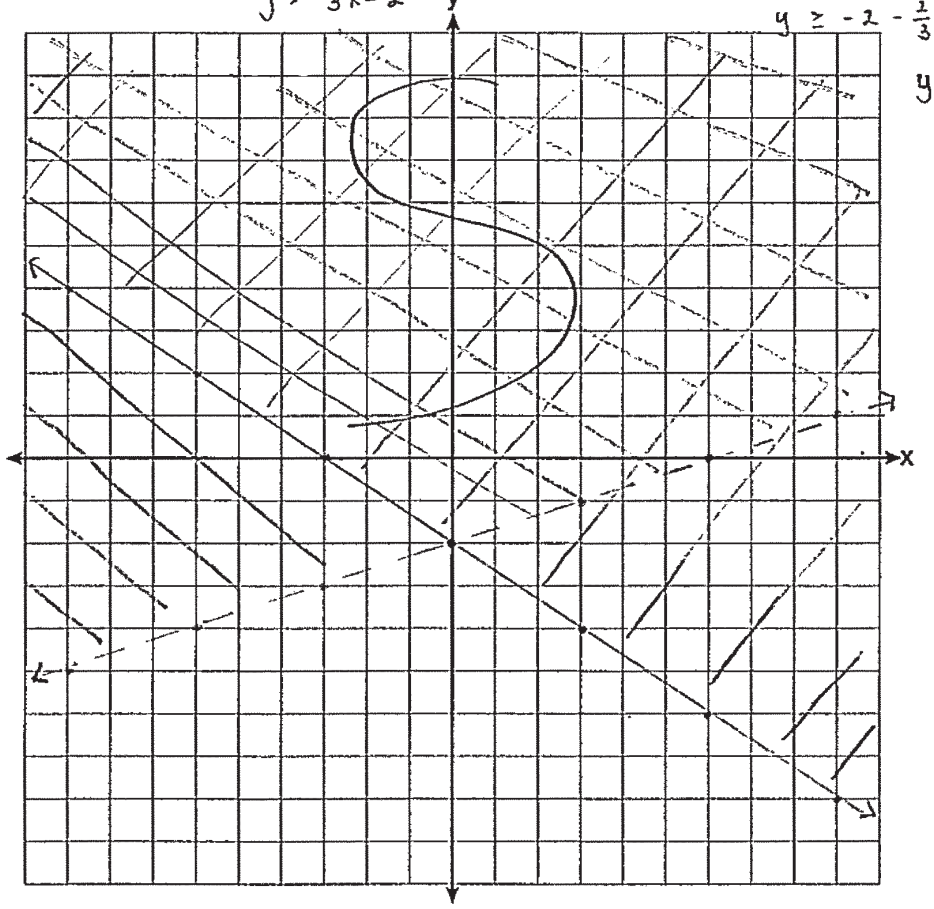
$2x + 3y \geq -6$

$-2x \quad -2x$

$\frac{3y}{3} \geq \frac{-6-2x}{3}$

$y \geq -2 - \frac{2}{3}x$

$y \geq -\frac{2}{3}x - 2$



Label the solution set S.

Is the point $(4,-2)$ in the solution set?

Explain your answer.

Point (4, -2) is not in the solution set due to the fact that it is only found in ONE inequality and not both which is required to be in a solution set.

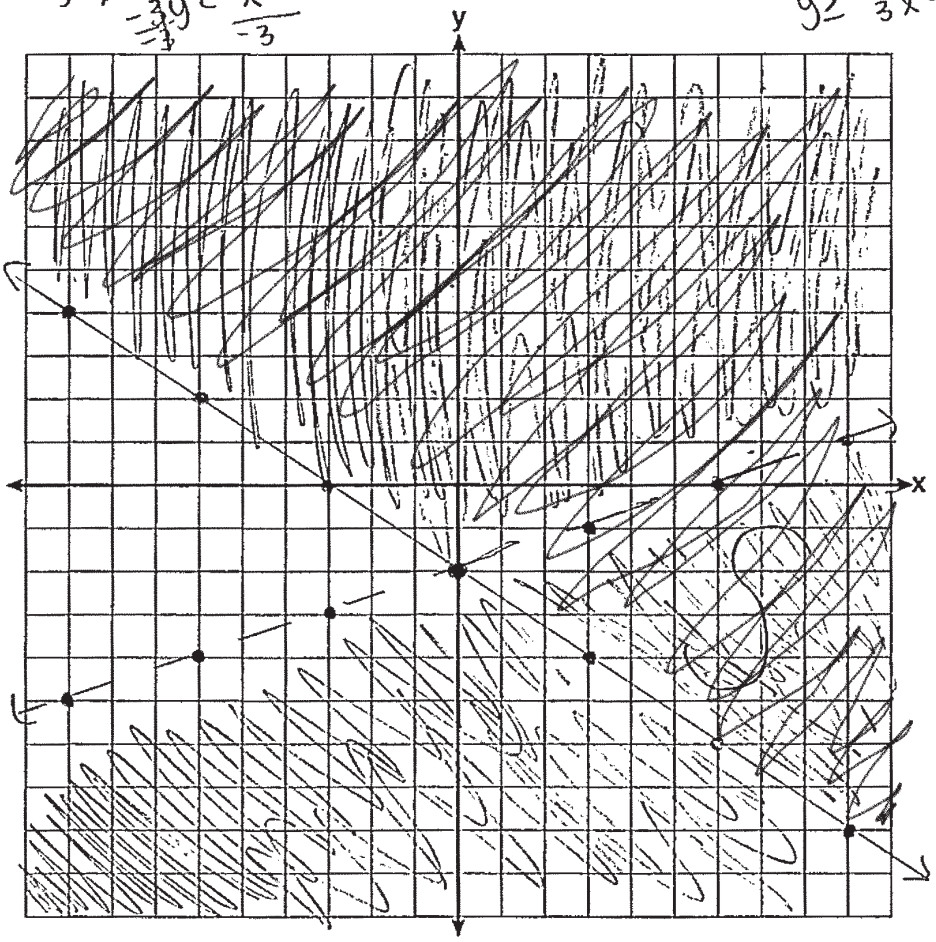
Score 3: The student did not label at least one of the inequalities.

Question 35

35 Solve the following system of inequalities graphically on the set of axes below.

$2x + 3y \geq -6$
$x < 3y + 6$

Label the solution set S.



Is the point $(4,-2)$ in the solution set?

Explain your answer. Yes because when shaded the point (4,-2) is in both equations' shaded area.

Score 2: The student did not label at least one graph and shaded $x < 3y + 6$ incorrectly.

Question 35

35 Solve the following system of inequalities graphically on the set of axes below.

A. $2x + 3y \geq -6$

B. $x < 3y + 6$

$2x + 3y \geq -6$

$-2x \quad -2x$

$\frac{3y}{3} \geq \frac{-6 - 2x}{3}$

$y \geq -2 - 2x/3$

$x < 3y + 6$

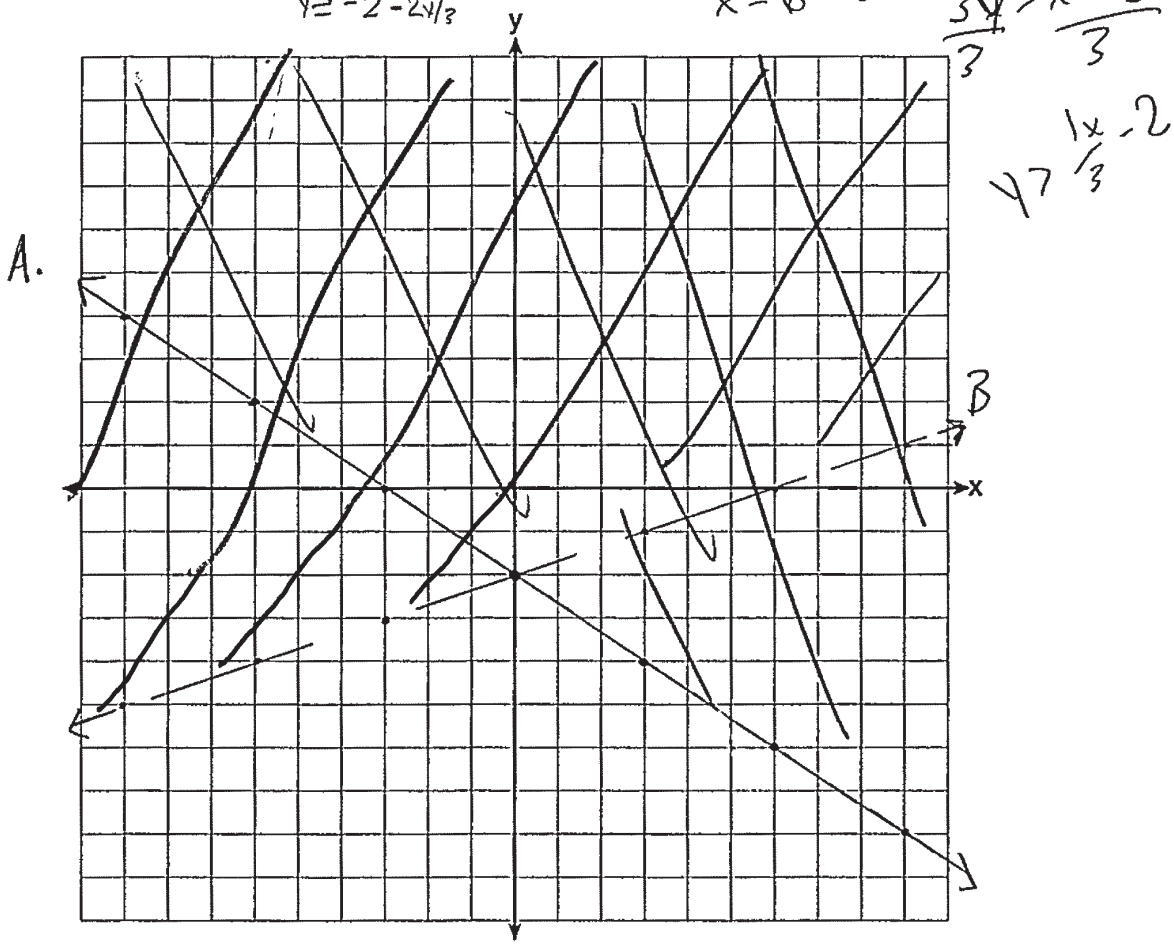
$-6 \quad -6$

$x - 6 < 3x$

$\frac{3y}{3} > \frac{x - 6}{3}$

$y > \frac{1}{3}x - 2$

Label the solution set S.



Is the point $(4,-2)$ in the solution set?

Explain your answer. Yes because it is in were the lines are.

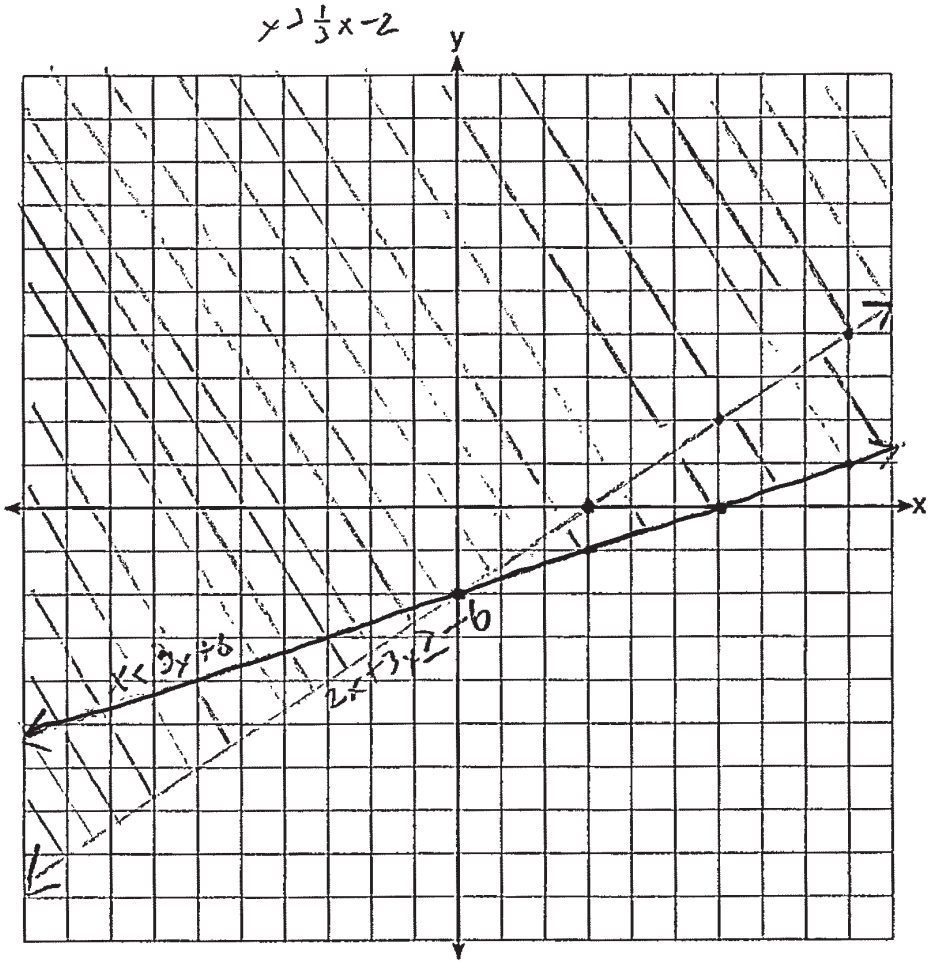
Score 2: The student graphed and labeled both inequalities correctly.

Question 35

35 Solve the following system of inequalities graphically on the set of axes below.

$2x + 3y \geq -6$
$x < 3y + 6$

Label the solution set S.



Is the point $(4,-2)$ in the solution set?

Explain your answer. no its not in the shaded area.

Score 1: The student wrote an appropriate explanation based on their graph.

Question 35

35 Solve the following system of inequalities graphically on the set of axes below.

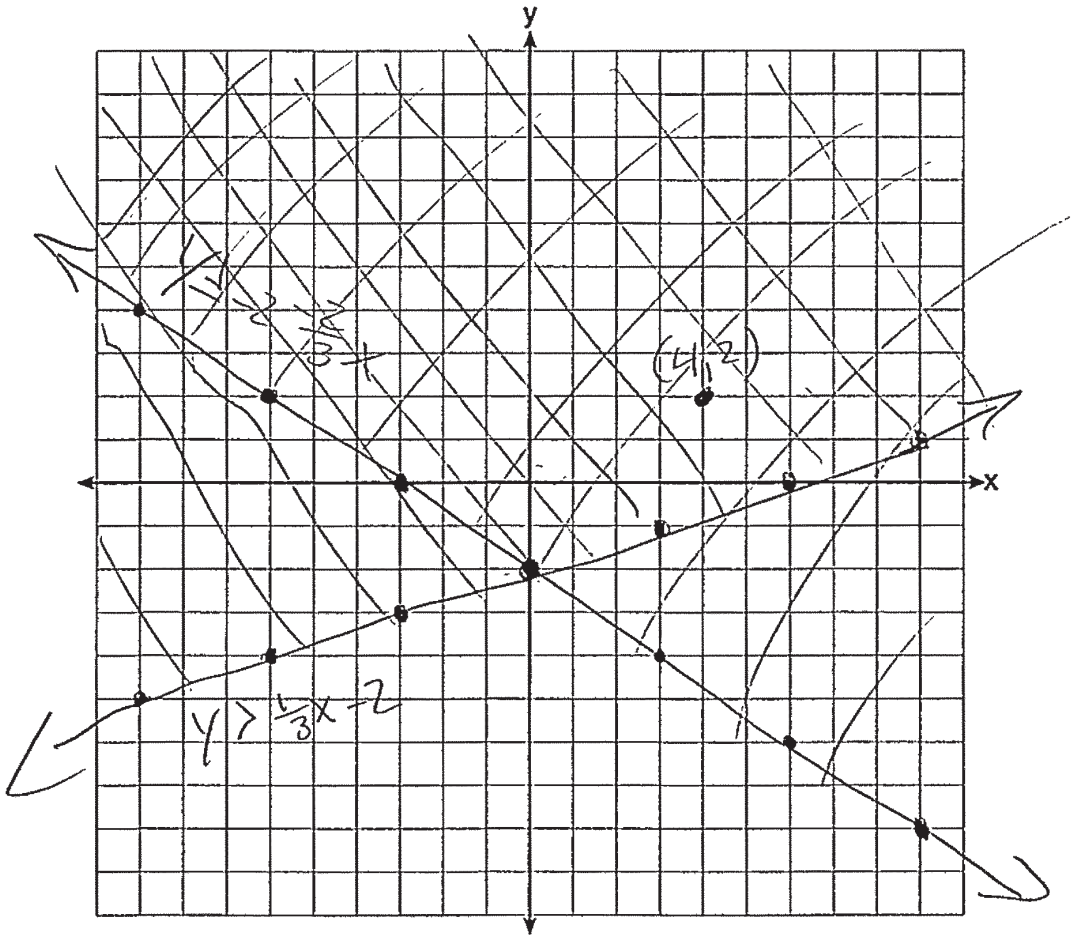
$y > \frac{1}{3}x - 2$

$2x + 3y \geq -6$ $-2x$ $\frac{3y}{3} \geq \frac{-6-2x}{3}$

$-\frac{6}{3} \leq \frac{3y}{3}$ #6

$y \geq -2 - \frac{2}{3}x$

Label the solution set S.



Is the point $(4,-2)$ in the solution set?

Explain your answer. yes because it is in the checkered area

Score 1: The student graphed $2x + 3y \geq -6$ correctly.

Question 35

35 Solve the following system of inequalities graphically on the set of axes below.

$$2x + 3y \geq -6$$
$$x < 3y + 6$$

$x < 3y + 6$

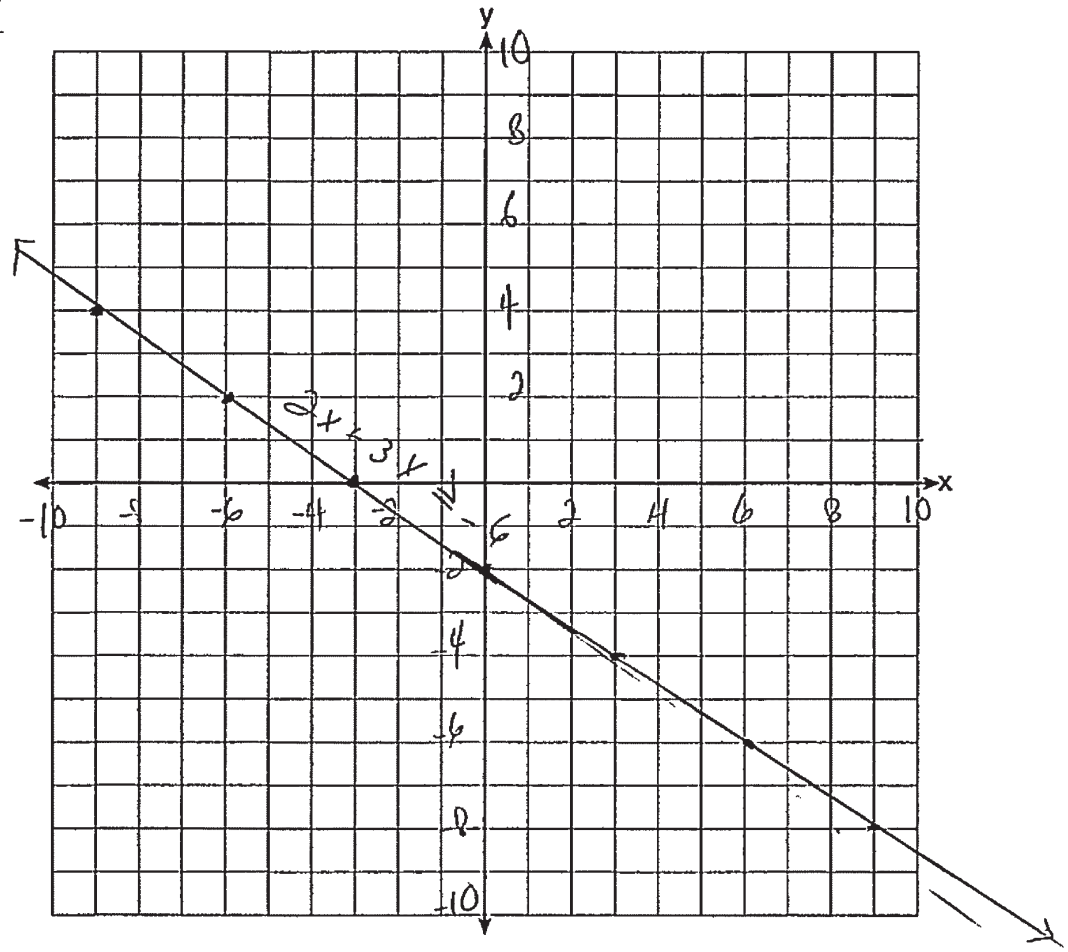
Label the solution set S.

$2x + 3y \geq -6$
$-2x \quad -2x$

$\frac{3y}{3} \geq \frac{-2x}{3} - \frac{6}{3}$

$-\frac{2}{3}x - 2$

x	y
-9	4
6	2
3	0
0	-2
	-4
	-6
	-8



Is the point $(4,-2)$ in the solution set?

Explain your answer.

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

Question 36

36 Suzanna collected information about a group of ponies and horses. She made a table showing the height, measured in hands (hh), and the weight, measured in pounds (lbs), of each pony and horse.

Height (hh) x	**Weight** (lbs) y
11	264
12	638
13	700
14	850
15	1000
16	1230
17	1495

Write the linear regression equation for this set of data. Round all values to the *nearest hundredth*.

y = ax + b

y = 184.89x − 1706.07

State the correlation coefficient for the linear regression. Round your answer to the *nearest hundredth*.

correlation coefficient : 0.99

Explain what the correlation coefficient indicates about the linear fit of the data in the context of the problem.

As the height of the horse increases the weight of the horse increases.

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

Question 36

36 Suzanna collected information about a group of ponies and horses. She made a table showing the height, measured in hands (hh), and the weight, measured in pounds (lbs), of each pony and horse.

Height (hh) x	**Weight** (lbs) y
11	264
12	638
13	700
14	850
15	1000
16	1230
17	1495

Write the linear regression equation for this set of data. Round all values to the *nearest hundredth*.

$y = 184.89x + -1706.07$

State the correlation coefficient for the linear regression. Round your answer to the *nearest hundredth*.

0.99

Explain what the correlation coefficient indicates about the linear fit of the data in the context of the problem.

the correlation coefficient indicates that it has a strong, positive correlation

Score 3: The student did not write an explanation in context.

Question 36

36 Suzanna collected information about a group of ponies and horses. She made a table showing the height, measured in hands (hh), and the weight, measured in pounds (lbs), of each pony and horse.

Height (hh) x	**Weight** (lbs) y
11	264
12	638
13	700
14	850
15	1000
16	1230
17	1495

Write the linear regression equation for this set of data. Round all values to the *nearest hundredth*.

y=184.89x+-1706.07

State the correlation coefficient for the linear regression. Round your answer to the *nearest hundredth*.

.9

Explain what the correlation coefficient indicates about the linear fit of the data in the context of the problem.

The closer it is to 1 and -1
The closer it is to a line.

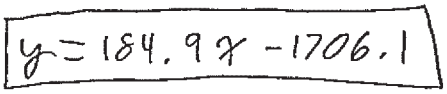
Score 2: The student only wrote a correct linear regression equation.

Question 36

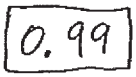
36 Suzanna collected information about a group of ponies and horses. She made a table showing the height, measured in hands (hh), and the weight, measured in pounds (lbs), of each pony and horse.

Height (hh) x	**Weight** (lbs) y
11	264
12	638
13	700
14	850
15	1000
16	1230
17	1495

Write the linear regression equation for this set of data. Round all values to the *nearest hundredth*.



State the correlation coefficient for the linear regression. Round your answer to the *nearest hundredth*.



Explain what the correlation coefficient indicates about the linear fit of the data in the context of the problem.

It shows how much weight is left over.

Score 2: The student rounded the regression equation incorrectly and wrote an incorrect explanation.

Question 36

36 Suzanna collected information about a group of ponies and horses. She made a table showing the height, measured in hands (hh), and the weight, measured in pounds (lbs), of each pony and horse.

Height (hh) x	**Weight** (lbs) y
11	264
12	638
13	700
14	850
15	1000
16	1230
17	1495

x1 y1
x2 y2

Write the linear regression equation for this set of data. Round all values to the *nearest hundredth*.

184.89 ÷ 1706.07

State the correlation coefficient for the linear regression. Round your answer to the *nearest hundredth*.

.985 → .99

Explain what the correlation coefficient indicates about the linear fit of the data in the context of the problem.

Because it's a high positive #

Score 1: The student stated the correlation coefficient correctly.

Question 36

36 Suzanna collected information about a group of ponies and horses. She made a table showing the height, measured in hands (hh), and the weight, measured in pounds (lbs), of each pony and horse.

Height (hh) x	**Weight** (lbs) y
11	264
12	638
13	700
14	850
15	1000
16	1230
17	1495

Write the linear regression equation for this set of data. Round all values to the *nearest hundredth*.

$\frac{\Delta y}{\Delta x} = \frac{638-264}{12-11} = \frac{374}{1}$

$y = mx + b$

$y = 2x + 374$

State the correlation coefficient for the linear regression. Round your answer to the *nearest hundredth*.

coefficient: 2

Explain what the correlation coefficient indicates about the linear fit of the data in the context of the problem.

This means that when you graph this, the graph will go up 2 over 1

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

Question 37

37 Dana went shopping for plants to put in her garden. She bought three roses and two daisies for $31.88. Later that day, she went back and bought two roses and one daisy for $18.92.

If r represents the cost of one rose and d represents the cost of one daisy, write a system of equations that models this situation.

$$\begin{cases} 3r + 2d = 31.88 \\ 2r + d = 18.92 \end{cases}$$

Use your system of equations to algebraically determine both the cost of one rose and the cost of one daisy.

$\begin{cases} 3r + 2d = 31.88 \\ -2(2r + d = 18.92) \end{cases}$

$3r - 4r = 31.88 - 37.84$

$-r = -5.96$

$r = 5.96$

rose

$2(5.96) + d = 18.92$

$11.92 + d = 18.92$

$d = 7$

daisy

1 rose costs $5.96
1 daisy costs $7.00

Question 37 is continued on the next page.

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

Question 37 continued

If Dana had waited until the plants were on sale, she would have paid $4.50 for each rose and $6.50 for each daisy. Determine the total amount of money she would have saved by buying all of her flowers during the sale.

$(31.88+18.92)-[5.(4.50)+3(6.50)]$

$50.80-[42]$

She would have saved $8.80

Question 37

37 Dana went shopping for plants to put in her garden. She bought three roses and two daisies for $31.88. Later that day, she went back and bought two roses and one daisy for $18.92.

If r represents the cost of one rose and d represents the cost of one daisy, write a system of equations that models this situation.

$3r + 2d = 31.88$

$2r + d = 18.92$

Use your system of equations to algebraically determine both the cost of one rose and the cost of one daisy.

$3r + 2d = 31.88$

$2r + d = 18.92 \rightarrow d = 18.92 - 2r$

$3r + 2(18.92 - 2r) = 31.88$

$3r + 37.84 - 4r = 31.88$

$37.84 - r = 31.88$

$-r = -5.96$

$r = 5.96$

$d = 18.92 - 2(5.96)$

$d = 7$

Question 37 is continued on the next page.

Score 5: The student did not state the amount of money saved.

Question 37 continued

If Dana had waited until the plants were on sale, she would have paid $4.50 for each rose and $6.50 for each daisy. Determine the total amount of money she would have saved by buying all of her flowers during the sale.

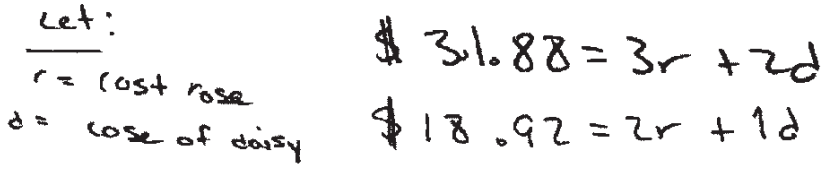
Original $31.88 + 18.92 = 50.80$

Sale $3(4.50) + 2(6.50) + 2(4.50) + 6.50 = 42$

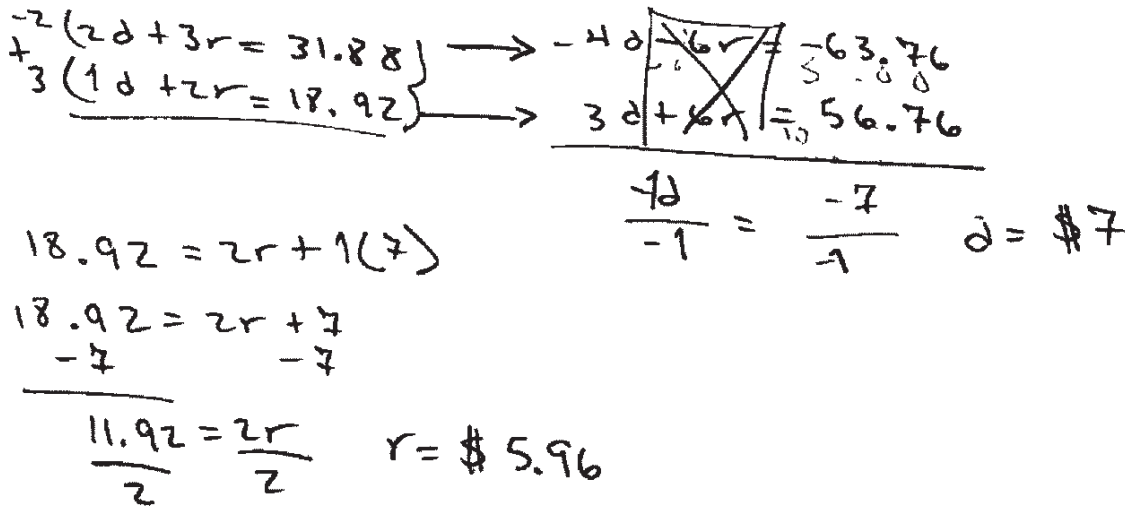
Question 37

37 Dana went shopping for plants to put in her garden. She bought three roses and two daisies for $31.88. Later that day, she went back and bought two roses and one daisy for $18.92.

If r represents the cost of one rose and d represents the cost of one daisy, write a system of equations that models this situation.



Use your system of equations to algebraically determine both the cost of one rose and the cost of one daisy.

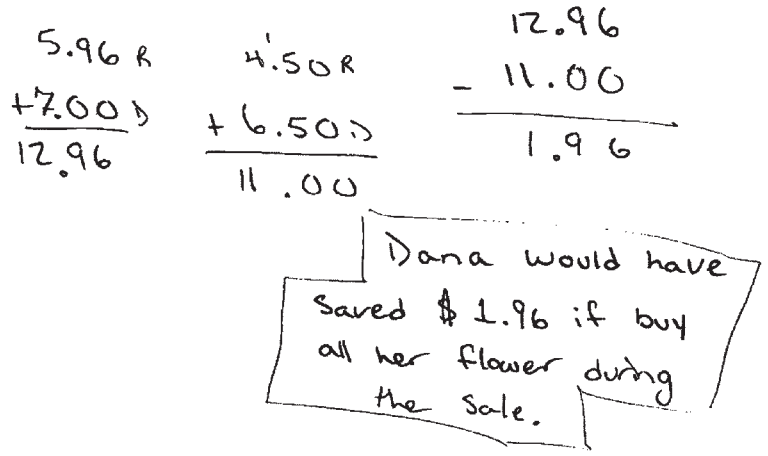


Question 37 is continued on the next page.

Score 4: The student did not correctly determine how much money would have been saved.

Question 37 continued

If Dana had waited until the plants were on sale, she would have paid $4.50 for each rose and $6.50 for each daisy. Determine the total amount of money she would have saved by buying all of her flowers during the sale.



Question 37

37 Dana went shopping for plants to put in her garden. She bought three roses and two daisies for $31.88. Later that day, she went back and bought two roses and one daisy for $18.92.

If r represents the cost of one rose and d represents the cost of one daisy, write a system of equations that models this situation.

$3r+2d=31.88$
$2r+1d=18.92$

Use your system of equations to algebraically determine both the cost of one rose and the cost of one daisy.

doesn't add up?

$3r+2d=31.88$
$-2(2r+1d=18.92)$
$3r+2d=31.88$
$-4r-2d=-37.84$
$\frac{-1r}{-1}=\frac{-5.99}{-1}$
$r=\$1.49$

$3(1.49)+2d=31.88$
$4.47+2d=31.88$
$-4.47 \quad -4.47$
$\frac{2d}{2}=\frac{27.41}{2}$
$d=\$13.71$

Question 37 is continued on the next page.

Score 4: The student solved their system of equations incorrectly.

Question 37 continued

If Dana had waited until the plants were on sale, she would have paid $4.50 for each rose and $6.50 for each daisy. Determine the total amount of money she would have saved by buying all of her flowers during the sale.

5(4.50) + 3(6.50) = $42
Orisinal was $50.80
so you saved $8.80

Question 37

37 Dana went shopping for plants to put in her garden. She bought three roses and two daisies for $31.88. Later that day, she went back and bought two roses and one daisy for $18.92.

If r represents the cost of one rose and d represents the cost of one daisy, write a system of equations that models this situation.

$3r+2d=31.88$
$2r+1d=18.92$

Use your system of equations to algebraically determine both the cost of one rose and the cost of one daisy.

$3r+2d=31.88$
$-2(2r+1d=18.92)$
$3(5.96)+1d=18.92$
$17.88+1d=18.92$
$-17.88 \quad -17.88$
$1d=1.04$

$3r+2d=31.88$
$-4r-2d=-37.84$
$-1r=5.96$
$-1 \quad -1$
$r=5.96$

Question 37 is continued on the next page.

Score 3: The student only wrote a correct system of equations and the correct cost of the rose.

Question 37 continued

If Dana had waited until the plants were on sale, she would have paid $4.50 for each rose and $6.50 for each daisy. Determine the total amount of money she would have saved by buying all of her flowers during the sale.

3(4.50)+2(6.50) = 31.88
13.50 + 13.00 = 31.88
26.50 = 31.88
5.38 saved

Question 37

37 Dana went shopping for plants to put in her garden. She bought three roses and two daisies for $31.88. Later that day, she went back and bought two roses and one daisy for $18.92.

If r represents the cost of one rose and d represents the cost of one daisy, write a system of equations that models this situation.

Use your system of equations to algebraically determine both the cost of one rose and the cost of one daisy.

Question 37 is continued on the next page.

Score 2: The student correctly determined how much money was saved.

Question 37 continued

If Dana had waited until the plants were on sale, she would have paid $4.50 for each rose and $6.50 for each daisy. Determine the total amount of money she would have saved by buying all of her flowers during the sale.

r = 5.96

Sale = 4.50

1.46

d = 7

Sale = 6.50

0.50

5(1.46) + 3(0.50) = 8.80

Question 37

37 Dana went shopping for plants to put in her garden. She bought three roses and two daisies for $31.88. Later that day, she went back and bought two roses and one daisy for $18.92.

If r represents the cost of one rose and d represents the cost of one daisy, write a system of equations that models this situation.

$3x + 2y = 31.88$
$2x + y = 18.92$

Use your system of equations to algebraically determine both the cost of one rose and the cost of one daisy.

$-2(3x + 2y = 31.88)$
$3(2x + y = 18.92)$

$-6x - 4y = -63.76$
$6x + 3y = 37.84$

$\frac{-1y}{-1} = \frac{25.92}{-1}$

$y = -25.92$

Question 37 is continued on the next page.

Score 1: The student did not use the indicated variables in their system of equations.

Question 37 continued

If Dana had waited until the plants were on sale, she would have paid $4.50 for each rose and $6.50 for each daisy. Determine the total amount of money she would have saved by buying all of her flowers during the sale.

Question 37

37 Dana went shopping for plants to put in her garden. She bought three roses and two daisies for $31.88. Later that day, she went back and bought two roses and one daisy for $18.92.

If r represents the cost of one rose and d represents the cost of one daisy, write a system of equations that models this situation.

Use your system of equations to algebraically determine both the cost of one rose and the cost of one daisy.

Question 37 is continued on the next page.

Score 1: The student only found the amount of money saved for one day.

Question 37 continued

If Dana had waited until the plants were on sale, she would have paid $4.50 for each rose and $6.50 for each daisy. Determine the total amount of money she would have saved by buying all of her flowers during the sale.

$3r + 2d = 31.88$

$3(4.50) + 2(6.50) = 26.50$

31.88
$- 26.50$
$\$5.38$

Question 37

37 Dana went shopping for plants to put in her garden. She bought three roses and two daisies for $31.88. Later that day, she went back and bought two roses and one daisy for $18.92.

If r represents the cost of one rose and d represents the cost of one daisy, write a system of equations that models this situation.

$3r + 2d = 31.88x + 18.92$

Use your system of equations to algebraically determine both the cost of one rose and the cost of one daisy.

18.92
31.88

Question 37 is continued on the next page.

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

Question 37 continued

If Dana had waited until the plants were on sale, she would have paid $4.50 for each rose and $6.50 for each daisy. Determine the total amount of money she would have saved by buying all of her flowers during the sale.

$3