The University of the State of New York

REGENTS HIGH SCHOOL EXAMINATION

ALGEBRA I (Common Core)

Wednesday, June 17, 2015 — 1:15 to 4:15 p.m.

MODEL RESPONSE SET

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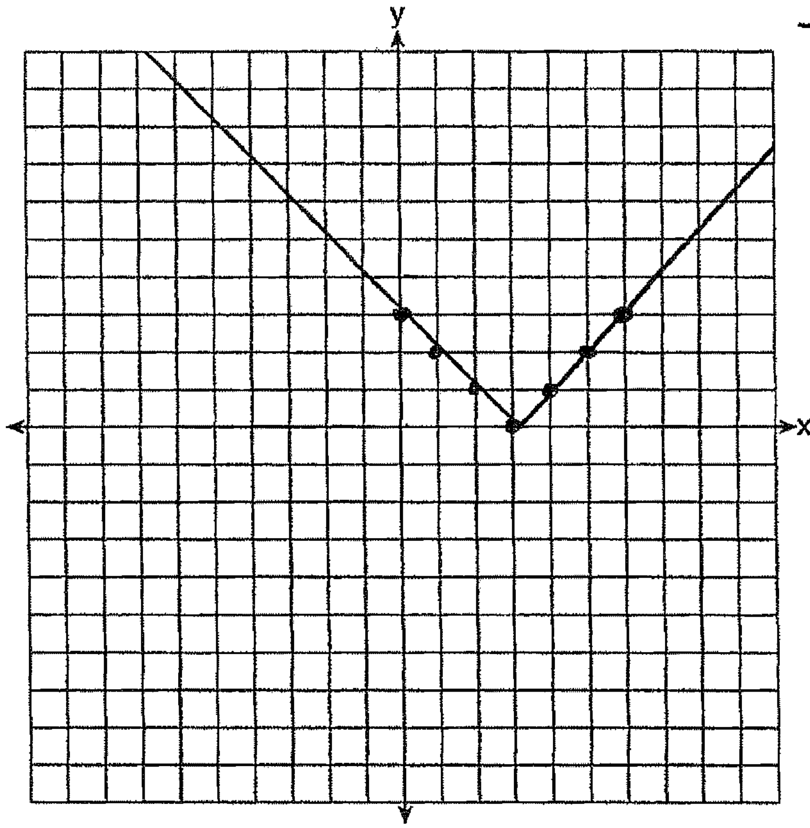
Question 25

25 Graph the function $y = |x - 3|$ on the set of axes below.



x	y
0	3
1	2
2	1
3	0
4	1
5	2
6	3

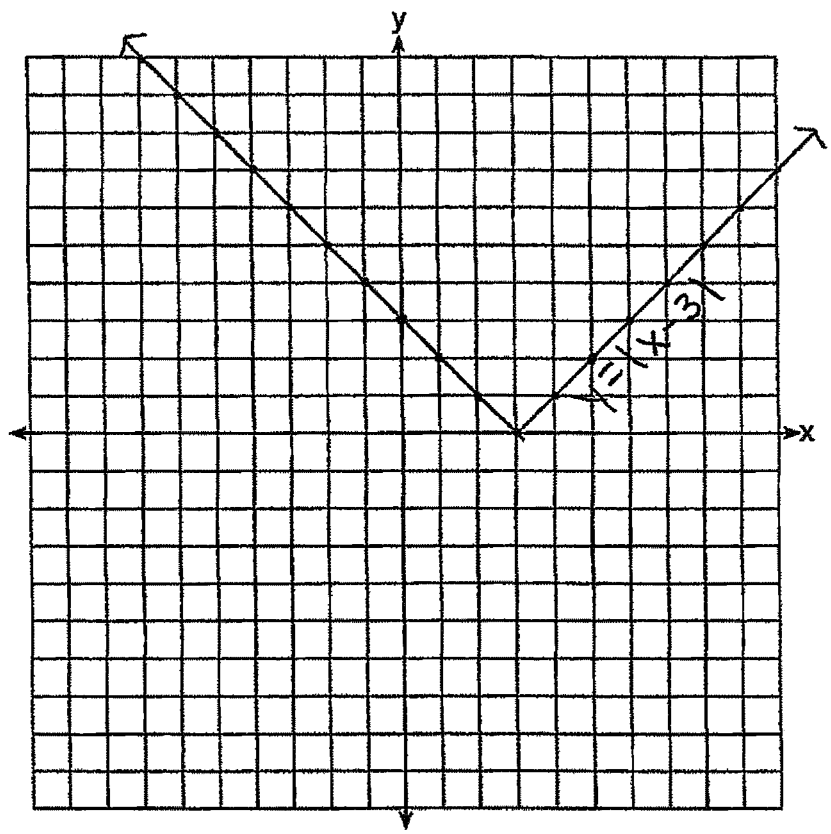
Explain how the graph of $y = |x - 3|$ has changed from the related graph $y = |x|$.

Y=|X−3| has changed from graph y=|X|
because it has moved to the right 3.

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

Question 25

25 Graph the function $y = |x - 3|$ on the set of axes below.



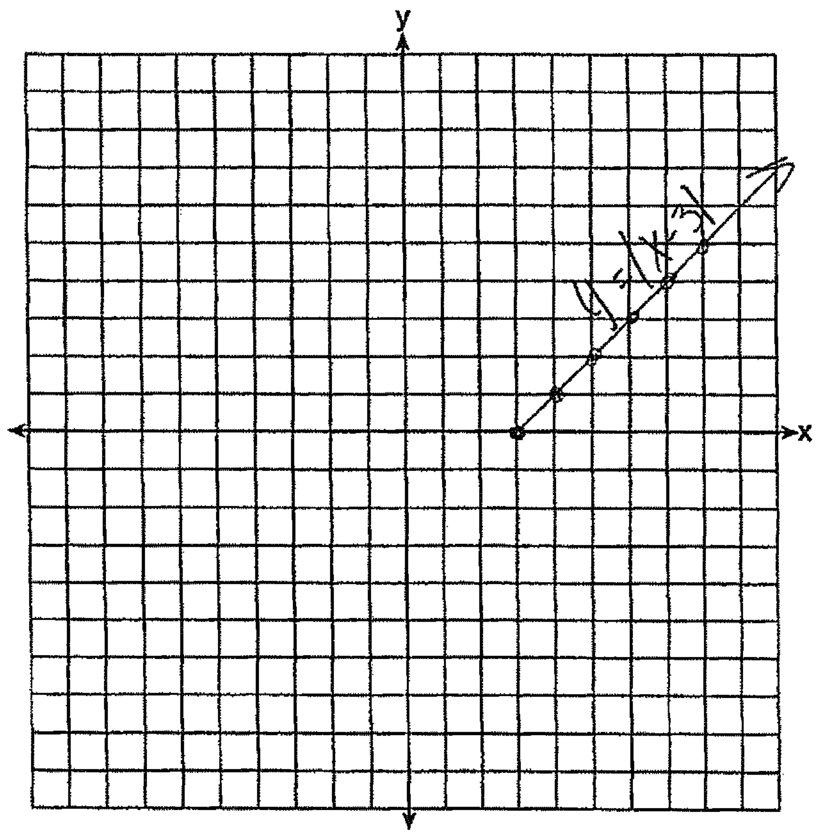
Explain how the graph of $y = |x - 3|$ has changed from the related graph $y = |x|$.

Score 1: The student drew the graph correctly, but gave no explanation.

Question 25

25 Graph the function $y = |x - 3|$ on the set of axes below.

$y=|x-3|$



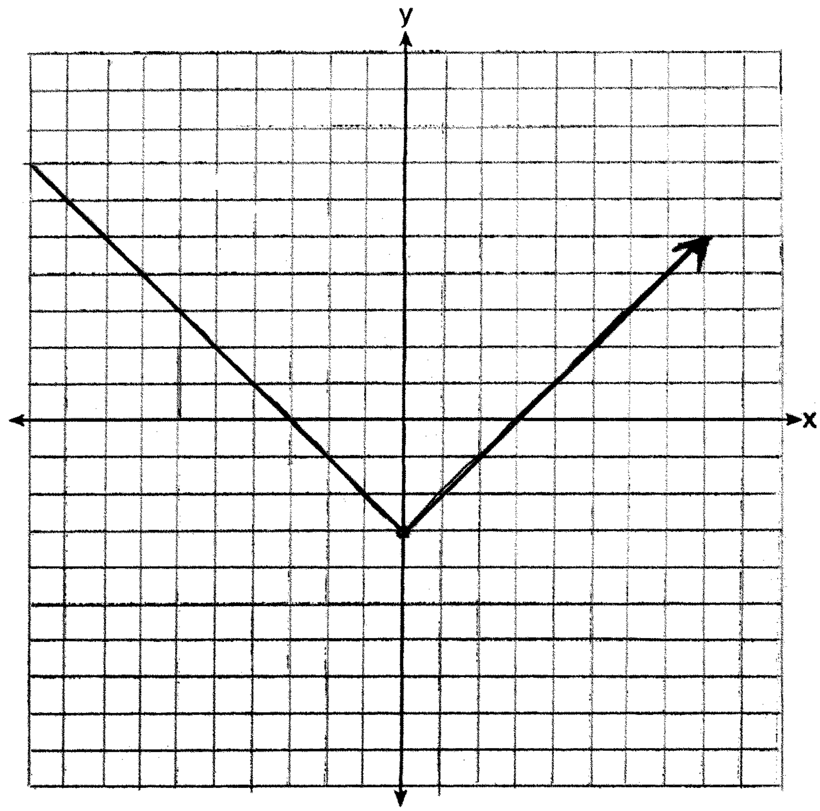
Explain how the graph of $y = |x - 3|$ has changed from the related graph $y = |x|$.

it shifted to the right 3 (horizontal shift)

Score 1: The student made one graphing error by drawing an incomplete absolute value graph.

Question 25

25 Graph the function $y = |x - 3|$ on the set of axes below.



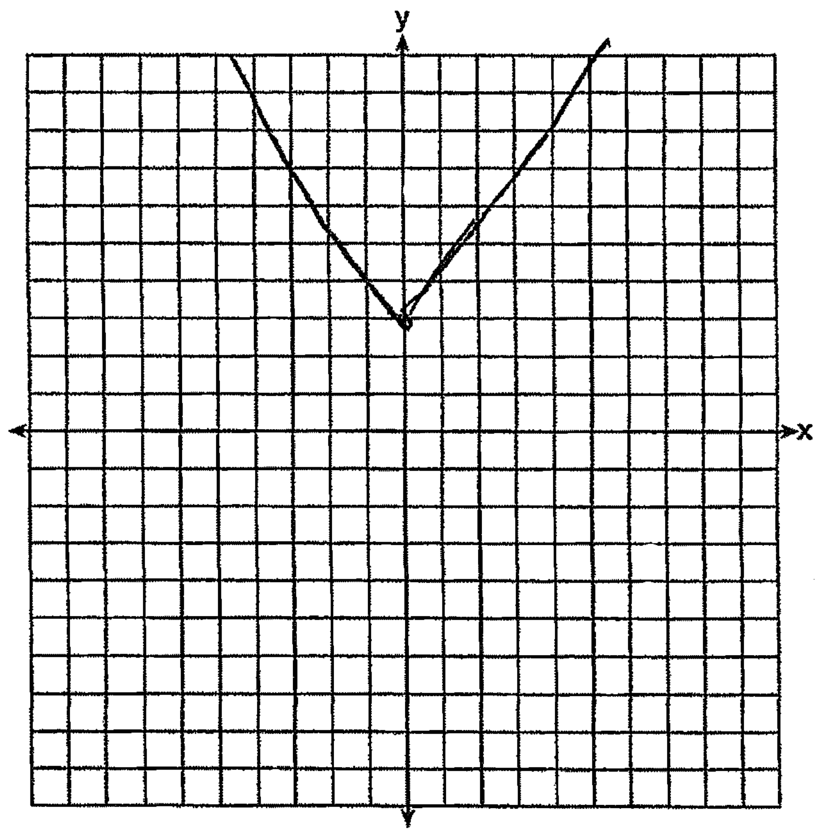
Explain how the graph of $y = |x - 3|$ has changed from the related graph $y = |x|$.

the new one is 3 spaces down
from y=|x|

Score 1: The student made a transformation error.

Question 25

25 Graph the function $y = |x - 3|$ on the set of axes below.



Explain how the graph of $y = |x - 3|$ has changed from the related graph $y = |x|$.

It moved 3

Score 0: The student made a graphing error and gave an incomplete explanation.

Question 26

26 Alex is selling tickets to a school play. An adult ticket costs \$6.50 and a student ticket costs \$4.00. Alex sells x adult tickets and 12 student tickets. Write a function, $f(x)$, to represent how much money Alex collected from selling tickets.

$$6.50x + 12(4) = f(x)$$

$$6.50x + 48 = f(x)$$

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

Question 26

26 Alex is selling tickets to a school play. An adult ticket costs \$6.50 and a student ticket costs \$4.00. Alex sells x adult tickets and 12 student tickets. Write a function, $f(x)$, to represent how much money Alex collected from selling tickets.

$f(x) = \$6.50(x) + \$4.00(12)$

$f(x) = \$6.50x + \$36.00$

Score 1: The student gave a correct response, but followed it with incorrect work.

Question 26

26 Alex is selling tickets to a school play. An adult ticket costs \$6.50 and a student ticket costs \$4.00. Alex sells x adult tickets and 12 student tickets. Write a function, $f(x)$, to represent how much money Alex collected from selling tickets.

$$6.50(x) + 4.00(12) = m$$

Score 1: The student did not write an equation using $f(x)$.

Question 26

26 Alex is selling tickets to a school play. An adult ticket costs \$6.50 and a student ticket costs \$4.00. Alex sells x adult tickets and 12 student tickets. Write a function, $f(x)$, to represent how much money Alex collected from selling tickets.

$12 \times 4 = 48$

$48 + 6.50x$

Score 1: The student wrote an appropriate expression.

Question 26

26 Alex is selling tickets to a school play. An adult ticket costs \$6.50 and a student ticket costs \$4.00. Alex sells x adult tickets and 12 student tickets. Write a function, $f(x)$, to represent how much money Alex collected from selling tickets.

Adult tickets - \$6.50

Student tickets - \$4.00

let adult ticket = 6.50x

let student tickets = 4.00(.12)

$f(x) = 4(12)$

$6.50x = 4(12)$

$\frac{6.50x}{6.50} = \frac{48}{6.50}$

$\boxed{x = \$7.3}$

Score 0: The student gave a completely incorrect response.

Question 27

27 John and Sarah are each saving money for a car. The total amount of money John will save is given by the function $f(x) = 60 + 5x$. The total amount of money Sarah will save is given by the function $g(x) = x^2 + 46$. After how many weeks, x, will they have the same amount of money saved? Explain how you arrived at your answer.

$$60 + 5x = x^2 + 46$$

$$0 = x^2 - 5x - 14$$

$$0 = (x - 7)(x + 2)$$

$$x = 7, -2$$

John and sarah will save the same amount of money after 7 weeks. I created an equation where John's function is equal to sarah's. Then I moved everything to one side of the equation and factored. The end result was x = 7 and -2. The answer is 7 weeks because you cannot a negative amount of weeks.

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

Question 27

27 John and Sarah are each saving money for a car. The total amount of money John will save is given by the function $f(x) = 60 + 5x$. The total amount of money Sarah will save is given by the function $g(x) = x^2 + 46$. After how many weeks, x, will they have the same amount of money saved? Explain how you arrived at your answer.

$$\cancel{60 + 5x = x^2 + 46}$$
$$\cancel{-46 \qquad -46}$$

John:

Weeks	Amount
0	60
1	65
2	70
3	75
4	80
5	85
6	90
7	95

Sarah:

Weeks	Amount
0	46
1	47
2	50
3	55
4	62
5	71
6	82
7	95

I created tables for each person and plugged in values for x until I got them to be the same value

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

Question 27

27 John and Sarah are each saving money for a car. The total amount of money John will save is given by the function $f(x) = 60 + 5x$. The total amount of money Sarah will save is given by the function $g(x) = x^2 + 46$. After how many weeks, x, will they have the same amount of money saved? Explain how you arrived at your answer.

$\boxed{\text{7 weeks}}$

$60 + 5x = x^2 + 46$
$-46 \qquad\qquad -46$

Work is explanation

$14 + 5x = x^2 - 5x$
$-x^2 - 5x \quad -x^2$

$-x^2 + 5x + 14 = 0$

$\cancel{-1(x^2 + 5x + 14)}$

$14x^2$

$-x^2 + 5x + 14$

$-14x^2$
-2
$+7$

$-x^2 + 7x - 2x + 14$

$-x(x - 7) - 2(x - 7)$

$(-x - 2)(x - 7)$

$-x - 2 = 0$
$+2 \quad +2$
$-x = 2$
$\cancel{-1 \quad -1}$
$\cancel{x = -2}$

$x - 7 = 0$
$+7 \quad +7$
$x = 7$

Score 1: The student gave no explanation.

Question 27

27 John and Sarah are each saving money for a car. The total amount of money John will save is given by the function $f(x) = 60 + 5x$. The total amount of money Sarah will save is given by the function $g(x) = x^2 + 46$. After how many weeks, x, will they have the same amount of money saved? Explain how you arrived at your answer.

In Two weeks

I arrived at my answer by subsituting the y's into one equation and then solving

$y = 60 + 5x \qquad y = x^2 + 46$

$x^2 + \cancel{46} = 60 + 5x$

$\quad -\cancel{46} \quad -46$

$x^2 = 14 - 5x$

$+5x \; -14 \quad -14 \; +5x$

$x^2 + 5x - 14 = 0$

$(x + 7)(x - 2) = 0$

$\cancel{x = -7} \quad x = 2$

Score 1: The student made one error. The student copied $5x$ as $-5x$.

Question 27

27 John and Sarah are each saving money for a car. The total amount of money John will save is given by the function $f(x) = 60 + 5x$. The total amount of money Sarah will save is given by the function $g(x) = x^2 + 46$. After how many weeks, x, will they have the same amount of money saved? Explain how you arrived at your answer.

$y = 60 + 5x \qquad y = x^2 + 46$

$x^2 + 46 = 60 + 5x$

$-46 \quad -46$

$x^2 = 14 - 5x$

$+5x - 14 \quad -14 \quad +5x$

$x^2 + 5x - 14 = 0$

$(x+7)(x-2) = 0$

$\cancel{x = 7} \qquad x = 2$

In two weeks

Score 0: The student made one copying error and gave no explanation.

28 If the difference $(3x^2 - 2x + 5) - (x^2 + 3x - 2)$ is multiplied by $\frac{1}{2}x^2$, what is the result, written in standard form?

$$\left[(3x^2 - 2x + 5) - (x^2 + 3x - 2)\right]\left(\frac{1}{2}x^2\right)$$

$$3x^2 \boxed{-2x} + 5 - x^2 \boxed{-3x} + 2$$

$$(2x^2 - 5x + 7)\left(\frac{1}{2}x^2\right)$$

$$\boxed{1x^4 - 2.5x^3 + 3.5x^2}$$

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

Question 28

28 If the difference $(3x^2 - 2x + 5) - (x^2 + 3x - 2)$ is multiplied by $\frac{1}{2}x^2$, what is the result, written in standard form?

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

$\frac{1}{2}x^2(2x^2 - 5x + 7)$

$\boxed{x^4 - 2\frac{1}{2}x^3 + 3\frac{1}{2}x^2}$

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

Question 28

28 If the difference $(3x^2 - 2x + 5) - (x^2 + 3x - 2)$ is multiplied by $\frac{1}{2}x^2$, what is the result, written in standard form?

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

$\frac{1}{2}x^2 \, (2x^2 - 5x + 7)$

$x^4 - \frac{5}{2}x^3 + \frac{7}{2}x^2$

$x^2(x^2 - \frac{5}{2}x + \frac{7}{2})$

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

Question 28

28 If the difference $(3x^2 - 2x + 5) - (x^2 + 3x - 2)$ is multiplied by $\frac{1}{2}x^2$, what is the result, written in standard form?

$$(3x^2 - 2x + 5) - (x^2 + 3x - 2) \cdot \left(\frac{1}{2}x^2\right)$$

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

$$\underbrace{2x^2 - 5x + 7 \cdot \left(\frac{1}{2}x^2\right)}$$

$$\boxed{1x^2 - 5x + 7}$$

Score 1: The student did correct work to find the difference but showed no further correct work.

Question 28

28 If the difference $(3x^2 - 2x + 5) - (x^2 + 3x - 2)$ is multiplied by $\frac{1}{2}x^2$, what is the result, written in standard form?

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

$$\frac{1}{2}x^2\left(2x^2 + x + 3\right)$$

$$x^4 + \frac{1}{2}x^3 + \frac{3}{2}x^2$$

Score 1: The student did not subtract correctly.

Question 28

28 If the difference $(3x^2 - 2x + 5) - (x^2 + 3x - 2)$ is multiplied by $\frac{1}{2}x^2$, what is the result, written in standard form?

$$\begin{array}{r} 3x^2 - 2x + 5 \\ - \quad x^2 + 3x - 2 \\ \hline -2x^2 - 5x + 3 \end{array}$$

$\frac{1}{2}x^2(-2x^2 - 5x + 3)$

$-1x^4 - 2.5x^3 + 1.5$

Score 0: The student made several errors when subtracting and multiplying.

Question 29

29 Dylan invested \$600 in a savings account at a 1.6% annual interest rate. He made no deposits or withdrawals on the account for 2 years. The interest was compounded annually. Find, to the *nearest cent*, the balance in the account after 2 years.

$a = x(1+r)^t$

$a = 600(1+.016)^2$

$a = \$619.35$

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

Question 29

29 Dylan invested \$600 in a savings account at a 1.6% annual interest rate. He made no deposits or withdrawals on the account for 2 years. The interest was compounded annually. Find, to the *nearest cent*, the balance in the account after 2 years.

$600 \times .016 = 9.6$

$609.6 \times .016 = 9.75$

$609.6 + 9.75 = \boxed{619.35}$

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

Question 29

29 Dylan invested $600 in a savings account at a 1.6% annual interest rate. He made no deposits or withdrawals on the account for 2 years. The interest was compounded annually. Find, to the *nearest cent*, the balance in the account after 2 years.

$y = a(.1+r)^t$

$y = \$600(1+1.6)^2$

$y = \$4056.^{00}$

$\$4056.^{00}$

Score 1: The student expressed the rate incorrectly.

Question 29

29 Dylan invested \$600 in a savings account at a 1.6% annual interest rate. He made no deposits or withdrawals on the account for 2 years. The interest was compounded annually. Find, to the *nearest cent*, the balance in the account after 2 years.

600

600
x1.016
3600
6000
9.600

1.6
600
+
\$9.60

609.66
.016
365760
609600
9.75360
9.80

609.60
+9.80

$\boxed{\$619.40}$

Score 1: The student made a mistake when rounding.

Question 29

29 Dylan invested \$600 in a savings account at a 1.6% annual interest rate. He made no deposits or withdrawals on the account for 2 years. The interest was compounded annually. Find, to the *nearest cent*, the balance in the account after 2 years.

$y=a(1-\frac{r}{n})^{nx}$ $y=\$600(1-\frac{.016}{1})^{1\cdot 2}$

$y=\$580.95$

Score 1: The student used an incorrect sign in the formula, but solved and rounded correctly.

Question 29

29 Dylan invested \$600 in a savings account at a 1.6% annual interest rate. He made no deposits or withdrawals on the account for 2 years. The interest was compounded annually. Find, to the *nearest cent*, the balance in the account after 2 years.

\$600

1.6% every year added

1.6% of 600 = 9.6

9.6 x 2 = 19.2

600 + 19.2 = 619.2

$\boxed{\$619}$

Score 0: The student used an incorrect procedure and rounded incorrectly.

Question 30

30 Determine the smallest integer that makes $-3x + 7 - 5x < 15$ true.

$$-3x + 7 - 5x < 15$$
$$-7 \quad\quad -7$$
$$-3x + -5x < 8$$
$$\frac{-8x}{-8} < \frac{8}{-8}$$
$$x > -1$$

$$0$$

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

Question 30

30 Determine the smallest integer that makes $-3x + 7 - 5x < 15$ true.

$-8x + 7 < 15$

$-8x < 8$

$x < -1$

There isn't a smallest integer.

Score 1: The student made an error by not reversing the inequality symbol, but gave an appropriate response.

30 Determine the smallest integer that makes $-3x + 7 - 5x < 15$ true.

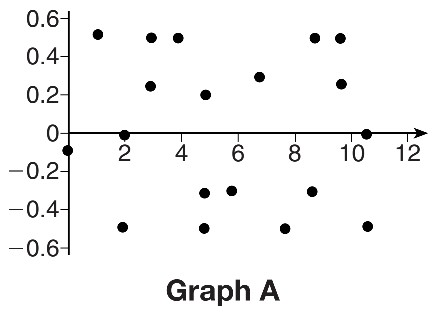
$$-8x < 8$$

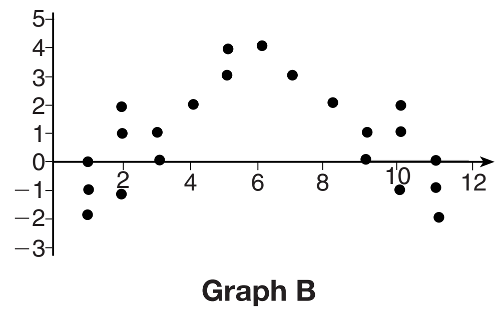
$$x < -1$$

Score 0: The student made an error by not reversing the inequality symbol and did not state the smallest integer.

Question 31

31 The residual plots from two different sets of bivariate data are graphed below.





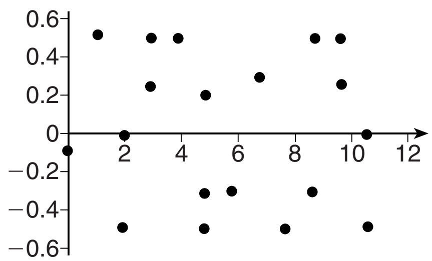
Explain, using evidence from graph *A* and graph *B*, which graph indicates that the model for the data is a good fit.

Graph A is a good fit because it does not have a clear pattern, whereas Graph B does,

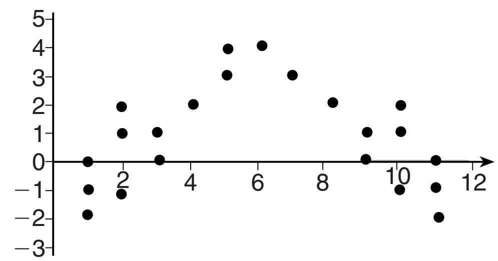
Score 2: The student has a complete and correct response.

Question 31

31 The residual plots from two different sets of bivariate data are graphed below.



Graph A

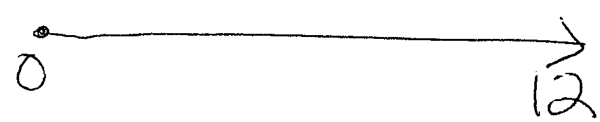


Graph B

Explain, using evidence from graph *A* and graph *B*, which graph indicates that the model for the data is a good fit.

Graph A

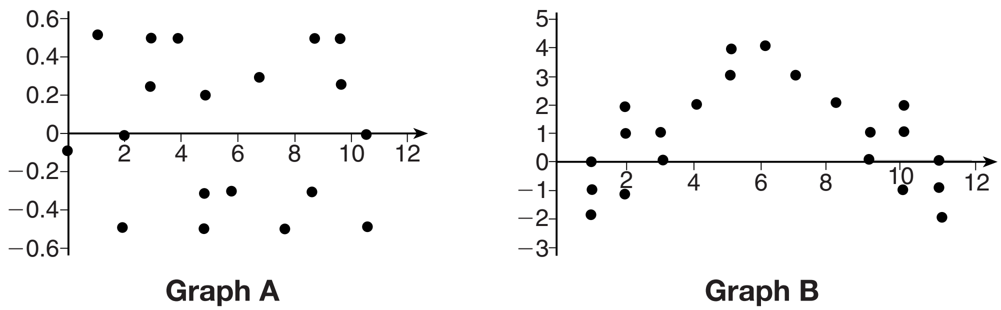
It ~~have~~ has random points scattered above and below the line



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

Question 31

31 The residual plots from two different sets of bivariate data are graphed below.



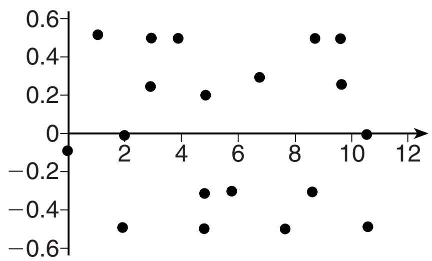
Explain, using evidence from graph *A* and graph *B*, which graph indicates that the model for the data is a good fit.

Graph A. I say this because the x axis is in the middle of all of the points.

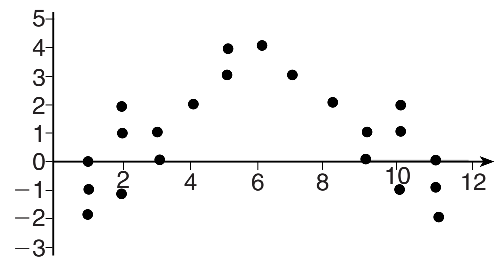
Score 1: The student gave an incomplete explanation.

Question 31

31 The residual plots from two different sets of bivariate data are graphed below.



Graph A



Graph B

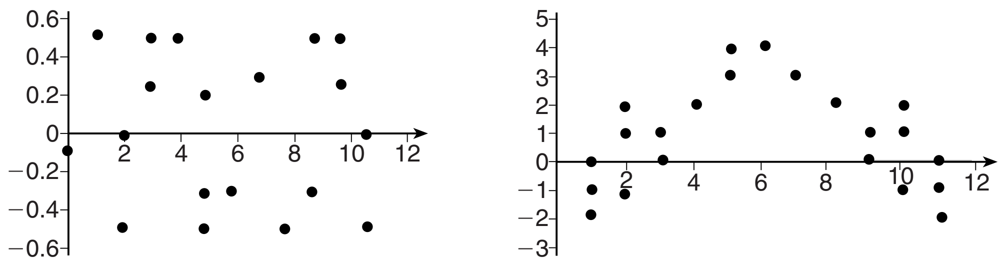
Explain, using evidence from graph *A* and graph *B*, which graph indicates that the model for the data is a good fit.

graph B because it has a curved shape indicating it is a good fit

Score 1: The student made a conceptual error.

Question 31

31 The residual plots from two different sets of bivariate data are graphed below.



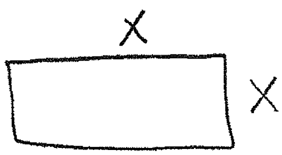
Graph A **Graph B**

Explain, using evidence from graph *A* and graph *B*, which graph indicates that the model for the data is a good fit.

Graph B because the dots are tighter together.

Score 0: The student made a completely incorrect response.

32 A landscaper is creating a rectangular flower bed such that the width is half of the length. The area of the flower bed is 34 square feet. Write and solve an equation to determine the width of the flower bed, to the *nearest tenth of a foot*.



let x = the length of the flower bed
let $\frac{1}{2}x$ = the width of the flower bed

$$A = bh$$

$$34 = (x)(\tfrac{1}{2}x)$$

$$\left(\tfrac{2}{1}\right)34 = \tfrac{1}{2}x^2\left(\tfrac{2}{1}\right)$$

$$\pm\sqrt{68} = \sqrt{x^2}$$

$$\pm 8.24621125124 = x$$

$$\boxed{+8.2} \text{ or } -\cancel{8.2}$$

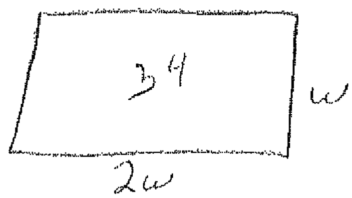
$$\tfrac{1}{2}(8.2) = 4.1$$

the width of the Flower bed is 4.1

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

Question 32

32 A landscaper is creating a rectangular flower bed such that the width is half of the length. The area of the flower bed is 34 square feet. Write and solve an equation to determine the width of the flower bed, to the *nearest tenth of a foot*.



$$w(2w) = 34$$

$$2w^2 = 34$$

$$w^2 = 17$$

$$w = 4.12310562562$$

$$\boxed{w \approx 4.1}$$

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

Question 32

32 A landscaper is creating a rectangular flower bed such that the width is half of the length. The area of the flower bed is 34 square feet. Write and solve an equation to determine the width of the flower bed, to the *nearest tenth of a foot*.

$A = L \cdot w$

$34 = L \cdot \frac{1}{2}L$

$L = 8.2$ $w = 4.1\ ft^2$

Score 1: The student did correct work to find 4.1, but gave the units as square feet.

Question 32

32 A landscaper is creating a rectangular flower bed such that the width is half of the length. The area of the flower bed is 34 square feet. Write and solve an equation to determine the width of the flower bed, to the *nearest tenth of a foot*.

$L(\frac{1}{2}L) = 34$

$L =$

Score 1: The student gave a correct equation, but showed no further correct work.

Question 32

32 A landscaper is creating a rectangular flower bed such that the width is half of the length. The area of the flower bed is 34 square feet. Write and solve an equation to determine the width of the flower bed, to the *nearest tenth of a foot*.

$L = 2x$

$W = x$ $\quad 2(2x) + 2(x) = 34$

$6x = 34$

$x = 5.\overline{6}$

$x = 5.7$

Score 1: The student used the wrong formula.

Question 32

32 A landscaper is creating a rectangular flower bed such that the width is half of the length. The area of the flower bed is 34 square feet. Write and solve an equation to determine the width of the flower bed, to the *nearest tenth of a foot*.

Area = length x width

length = x width = $\frac{1}{2}x$

$$x + \frac{1}{2}x + x + \frac{1}{2}x = 34$$

$$3x = 34$$

$$x = 11.\overline{3}$$

$$x = 11.3$$

Score 0: The student used the wrong formula and did not state the width.

Question 33

33 Albert says that the two systems of equations shown below have the same solutions.

Solution: $\left(-\frac{3}{4}, 6\right)$ Solution: $\left(-\frac{3}{4}, 6\right)$

First System	Second System
$8x + 9y = 48$ $12x + 5y = 21$	$8x + 9y = 48$ $-8.5y = -51$

Determine and state whether you agree with Albert. Justify your answer.

$12(8x + 9y) = (48)12$
$-8(12x + 5y) = (21)-8$

$96x + 108y = 576$
$-96x - 40y = -168$

$\frac{68y}{68} = \frac{408}{68}$

$\boxed{y = 6}$

$8x + 9y = 48$
$8x + 9(6) = 48$
$8x + 54 = 48$
$-54 \quad -54$

$\frac{8x}{8} = \frac{-6}{8}$

$\boxed{x = \frac{-3}{4}}$

Solution: $\left(-\frac{3}{4}, 6\right)$

I agree with Albert that the two systems have the same solutions.

$8x + 9y = 48$
$\frac{-8.5y}{-8.5} = \frac{-51}{-8.5}$

$\boxed{y = 6}$

$8x + 9y = 48$
$8x + 9(6) = 48$
$8x + 54 = 48$
$-54 \quad -54$

$\frac{8x}{8} = \frac{-6}{8}$

$\boxed{x = -3/4}$

Solution: $\left(-\frac{3}{4}, 6\right)$

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

33 Albert says that the two systems of equations shown below have the same solutions.

First System	**Second System**
$8x + 9y = 48$ $12x + 5y = 21$	$8x + 9y = 48$ $-8.5y = -51$

Determine and state whether you agree with Albert. Justify your answer. yes

$8x+9y=48$
$12x+5y=21$

$8x+9y=48$
$\frac{-8.5y}{-8.5} = \frac{-51}{-8.5}$

$y=6$

$12x+5y=21$
$12(-.75)+5(6)=21$
$-9+30=21$
$21=21$

$8x+9y=48$
$8x+9(6)=48$
$8x+54=48$
$\quad -54 \quad -54$
$\frac{8x}{8}=\frac{-6}{8}$
$x=-.75$

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

Question 33

33 Albert says that the two systems of equations shown below have the same solutions.

First System	Second System
$8x + 9y = 48$ $12x + 5y = 21$	$8x + 9y = 48$ $-8.5y = -51$

Determine and state whether you agree with Albert. Justify your answer.

$5(8x+9y=48)$
$9(12x+5y=21)$

$40x+45y=240$
$\underline{-108x+45y=-189}$
$-68x=51$
$x=-.75$

$8(-.75)+9y=48$
$-6+9y=48$
$9y=54$
$y=6$

$(-.75,6)$

Disagree.
The two systems don't have the same solutions because when you solve for x and y in each system, the solution comes out differently in each one. So I disagree with Albert.

$8x+9y=48$
$-8.5y=-51$
$y=-42.5$

$(53.8125,-42.5)$

$8x+9(-42.5)=48$
$8x+382.5=48$
$8x=430.5$
$x=53.8125$

Score 3: The student made a computational error solving for y in the second system.

Question 33

33 Albert says that the two systems of equations shown below have the same solutions.

First System	Second System
$8x + 9y = 48$ $12x + 5y = 21$	$8x + 9y = 48$ $-8.5y = -51$

Determine and state whether you agree with Albert. Justify your answer.

FIRST SYSTEM

$3(8x+9y=48)$

$-2(12x+5y=21)$

$24x+27y=144$

$-24x-10y=-42$

$\frac{17y}{17}=\frac{102}{17}$

$y=6$

$8x+9(6)=48$

$8x+54=48$

$-54 \quad -54$

$\frac{8x}{8}=\frac{-6}{8}$

$x=-.75$

I disagree with Albert because they both do not have the same solutions

SECOND SYSTEM

$8x+9y=48$

$-8.5y=-51$

$-8.5y+9y=48$

$\frac{0.5y}{0.5}=\frac{48}{0.5}$

$y=96$

$8x+9(96)=48$

$8x+864=48$

$-864 \quad -864$

$\frac{8x}{8}=-\frac{816}{8}$

$x=-102$

Score 2: The student made a conceptual error in the second system by substituting $-8.5y$ for $8x$.

Question 33

33 Albert says that the two systems of equations shown below have the same solutions.

First System	Second System
$8x + 9y = 48$ $12x + 5y = 21$	$8x + 9y = 48$ $-8.5y = -51$

Determine and state whether you agree with Albert. Justify your answer.

$$\frac{\cancel{-8.5}y}{\cancel{-8.5}} = \frac{-51}{-8.5}$$

$$y = 6$$

$$8x + 9y = 48$$

$$8x + 9(6) = 48$$

$$8x + \cancel{54} = 48$$

$$\cancel{-54} \quad -54$$

$$\frac{\cancel{8}x}{\cancel{8}} = \frac{-6}{8}$$

$$x = -\frac{6}{8}$$

$$x = \frac{-3}{4}$$

Score 2: The student showed correct work to solve one system correctly.

Question 33

33 Albert says that the two systems of equations shown below have the same solutions.

First System	Second System
$8x + 9y = 48$ $12x + 5y = 21$	$8x + 9y = 48$ $-8.5y = -51$

Determine and state whether you agree with Albert. Justify your answer.

$3 \cdot 8x + 9y = 48$

$-2 \cdot 12x + 5y = 21$

$24x + 9y = 48$

$-24x + 5y = 21$

$14y = 69$

$y = \frac{69}{14}$

$8x + 9\left(\frac{69}{14}\right) = 48$

$8x = \frac{51}{14}$

$x = \frac{51}{112}$

$8x + 9y = 48$

$-8.5y = -51$

$y = 6$

$8x + 9 \cdot 6 = 48$

$8x = -6$

$x = -.75$

Score 1: The student made a conceptual error in the first system and did not state agree or disagree.

Question 33

33 Albert says that the two systems of equations shown below have the same solutions.

First System	Second System
$8x + 9y = 48$ $12x + 5y = 21$	$8x + 9y = 48$ $-8.5y = -51$

Determine and state whether you agree with Albert. Justify your answer.

$-5(8x + 9y = 48)$
$9(12x + 5y = 21)$

$-40x - \cancel{45} = -240$
$60x \cancel{+45} = 189$

$\frac{20x}{20} = \frac{-51}{20}$

$x = -.75$

$8(-.75) + 9y = 48$

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

Question 33

33 Albert says that the two systems of equations shown below have the same solutions.

First System	Second System
$8x + 9y = 48$ $12x + 5y = 21$	$8x + 9y = 48$ $-8.5y = -51$

Determine and state whether you agree with Albert. Justify your answer.

$8x+9y=48$ $\quad$ $8x+9y=48$

$12x+5y=21$ $\quad$ $-8.5y=-51$

I don't agree with Albert because it doesn't show how he had gotten the first and second system of equations for the same solutions.

Score 0: The student did not show work to support a conclusion.

33 Albert says that the two systems of equations shown below have the same solutions.

First System	Second System
$8x + 9y = 48$ $12x + 5y = 21$	$8x + 9y = 48$ $-8.5y = -51$

Determine and state whether you agree with Albert. Justify your answer.

Agree that Albert is write.

Score 0: The student stated agree, but gave no justification.

Question 34

34 The equation to determine the weekly earnings of an employee at The Hamburger Shack is given by $w(x)$, where x is the number of hours worked.

$$w(x) = \begin{cases} 10x, & 0 \le x \le 40 \\ 15(x - 40) + 400, & x > 40 \end{cases}$$

Determine the difference in salary, *in dollars*, for an employee who works 52 hours versus one who works 38 hours.

$10(38) = 380$

$15(52-40)+400 = 580$

$$\begin{array}{r} 580 \\ -380 \\ \hline \boxed{\$200} \end{array}$$

Determine the number of hours an employee must work in order to earn \$445. Explain how you arrived at this answer.

x	y
40	400
41	415
42	430
43	445
44	460
45	475

$\boxed{15(x-40)+400}$

$\boxed{43 \text{ hours}}$

I used the equation for employees that work more than 40 hrs and a pattern emerged

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

Question 34

34 The equation to determine the weekly earnings of an employee at The Hamburger Shack is given by $w(x)$, where x is the number of hours worked.

$$w(x) = \begin{cases} 10x, & 0 \leq x \leq 40 \\ 15(x - 40) + 400, & x > 40 \end{cases}$$

Determine the difference in salary, *in dollars*, for an employee who works 52 hours versus one who works 38 hours.

$15(52-40)+400$

$15(12)+400$

$180+400$

580

$10(38)$

380

$580-380=200$

difference in salary is 200 dollars

Determine the number of hours an employee must work in order to earn \$445. Explain how you arrived at this answer.

$445 = 15(x-40)+400$

$445 = 15x-600+400$

$445 = 15x-200$

$+200 = +200$

$\frac{645}{15} = \frac{15x}{15}$

$43=x$

You would have to work 43 hours

Score 3: The student did not give an explanation.

Question 34

34 The equation to determine the weekly earnings of an employee at The Hamburger Shack is given by $w(x)$, where x is the number of hours worked.

$$w(x) = \begin{cases} 10x, & 0 \le x \le 40 \\ 15(x-40)+400, & x > 40 \end{cases}$$

Determine the difference in salary, *in dollars*, for an employee who works 52 hours versus one who works 38 hours.

$W(52) = 15(52-40)+400$
$= 15(12)+400$
$= 180+400$
$= \$580$

$W(32) = 10(32)$
$W(32) = \$320$

580
-320
$\$260$

Determine the number of hours an employee must work in order to earn \$445. Explain how you arrived at this answer.

$445 = 15(x-40)+400$
$445 = 15x - 600 + 400$
$445 = 15x - 200$
$+200 \quad\quad +200$
$\frac{645}{15} = \frac{15x}{15}$
$43 = x$
hrs

An employee must work 43 hours to earn \$445. To figure this out, I first had to pick an equation. I picked $15(x-40)+400$ because the other equation has a domain of $0 \le x \le 40$, and 40 hours is not enough to earn \$445. I set the equation I chose equal to 445 and solved it, and I got 43 hours as an answer

Score 3: The student used 32 hours instead of 38.

Question 34

34 The equation to determine the weekly earnings of an employee at The Hamburger Shack is given by $w(x)$, where x is the number of hours worked.

$$w(x) = \begin{cases} 10x, & 0 \leq x \leq 40 \\ 15(x - 40) + 400, & x > 40 \end{cases}$$

Determine the difference in salary, *in dollars*, for an employee who works 52 hours versus one who works 38 hours.

$10 \cdot 52 = 520$

$15(38-40)+400 = 370$

$\$150$

Determine the number of hours an employee must work in order to earn \$445. Explain how you arrived at this answer.

$40 \cdot 10 = 400$	40
10	1
10	1
10	1
10	1
5	½

44.5 hours.

They get \$10 an hour. 44 hours makes \$440. Then I added an extra half hour worth of work to get \$445.

Score 2: The student made an error in the first part by switching 52 and 38. The student made an error in the second part, but gave an appropriate explanation.

Question 34

34 The equation to determine the weekly earnings of an employee at The Hamburger Shack is given by $w(x)$, where x is the number of hours worked.

$$w(x) = \begin{cases} 10x, & 0 \le x \le 40 \\ 15(x - 40) + 400, & x > 40 \end{cases}$$

Determine the difference in salary, *in dollars*, for an employee who works 52 hours versus one who works 38 hours.

$w(x) = 10x,\ 0 \le x \le 40$

$w(38) = 10(38)$

$\boxed{w(38) = \$380}$

$w(x) = 15(x-40)+400$

$x > 40$

$w(52) = 15(52-40)+400$

$w(52) = 15(12)+400$

$\boxed{w(52) = \$580}$

* A Emploie who works 52 hours gets a higher salary

Determine the number of hours an employee must work in order to earn \$445. Explain how you arrived at this answer.

About 45 hours

$w(x) = 10x$

$w(45) = 10(45$

$w(45) = \underline{\underline{450}}$

Score 1: The student showed appropriate work to find 380 and 580, but didn't calculate the difference.

Question 34

34 The equation to determine the weekly earnings of an employee at The Hamburger Shack is given by $w(x)$, where x is the number of hours worked.

$$w(x) = \begin{cases} 10x, & 0 \le x \le 40 \\ 15(x - 40) + 400, & x > 40 \end{cases}$$

Determine the difference in salary, *in dollars*, for an employee who works 52 hours versus one who works 38 hours.

$10x, 0 \le x \le 40$

$15(x-40)+400 \; x > 40$

$15(38-40)+400 = 370$

$15(52-40)+400 \quad \$580$

Determine the number of hours an employee must work in order to earn \$445. Explain how you arrived at this answer.

$15(x-40)+400 = 445$

$15x - 600 + 400 = 445$

$15x - 200 = 445$

$+200 \quad +200$

$\frac{15x}{15} = \frac{645}{15}$

$x = 16.\overline{3}$

$x = 17$ hrs

An employee must work at least 17 hrs to earn \$445

Score 0: The student made a conceptual error using the piecewise function, did not find the difference, made a computational error, and did not give an explanation.

35 An on-line electronics store must sell at least \$2500 worth of printers and computers per day. Each printer costs \$50 and each computer costs \$500. The store can ship a maximum of 15 items per day.

let x=printers let y=computers

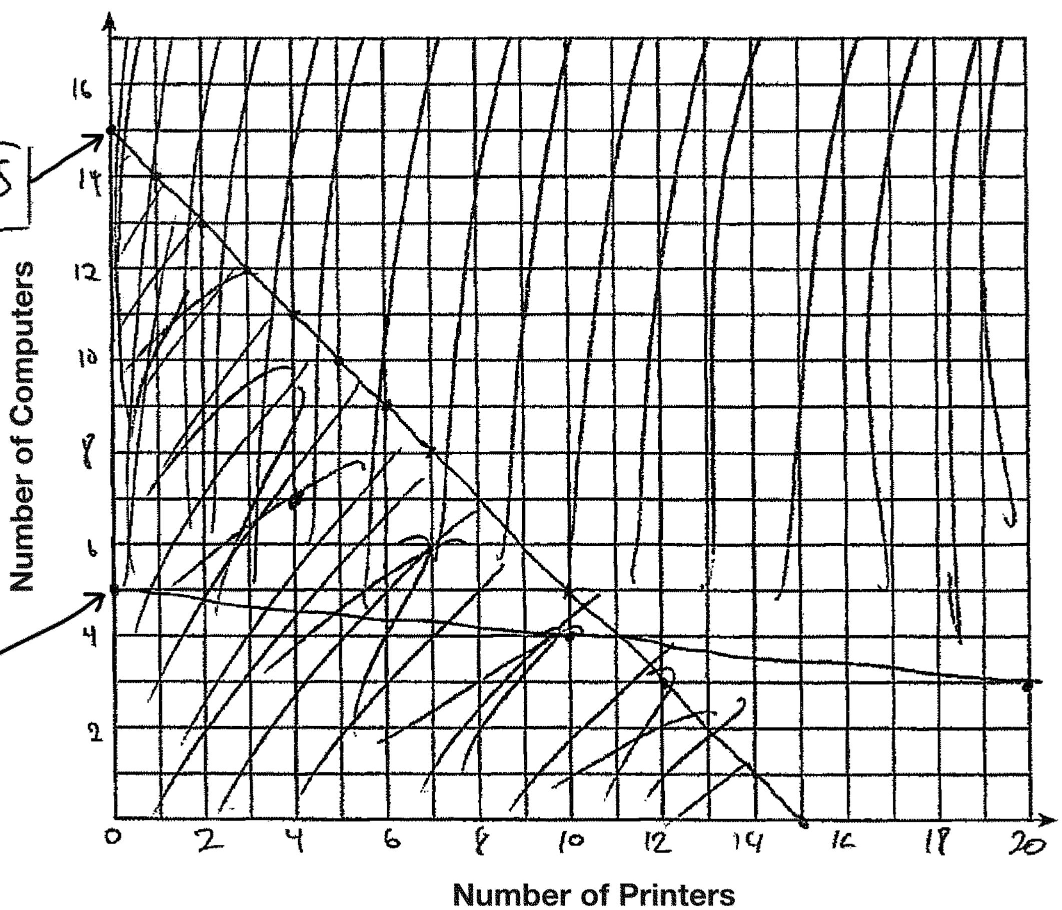
$x+y \le 15$

$50x+500y \ge 2500$

On the set of axes below, graph a system of inequalities that models these constraints.

$x+y \le 15$
$-x \quad -x$
$\boxed{y \le -x+15}$

$50x+500y \ge 2500$
$-50x \quad -50x$
$\frac{500y}{500} \ge \frac{-50x+2500}{500}$
$\boxed{y \ge -.1x+5}$



Determine a combination of printers and computers that would allow the electronics store to meet all of the constraints. Explain how you obtained your answer.

4 printers, 7 computers. I graphed the functions, and looked in the solution set

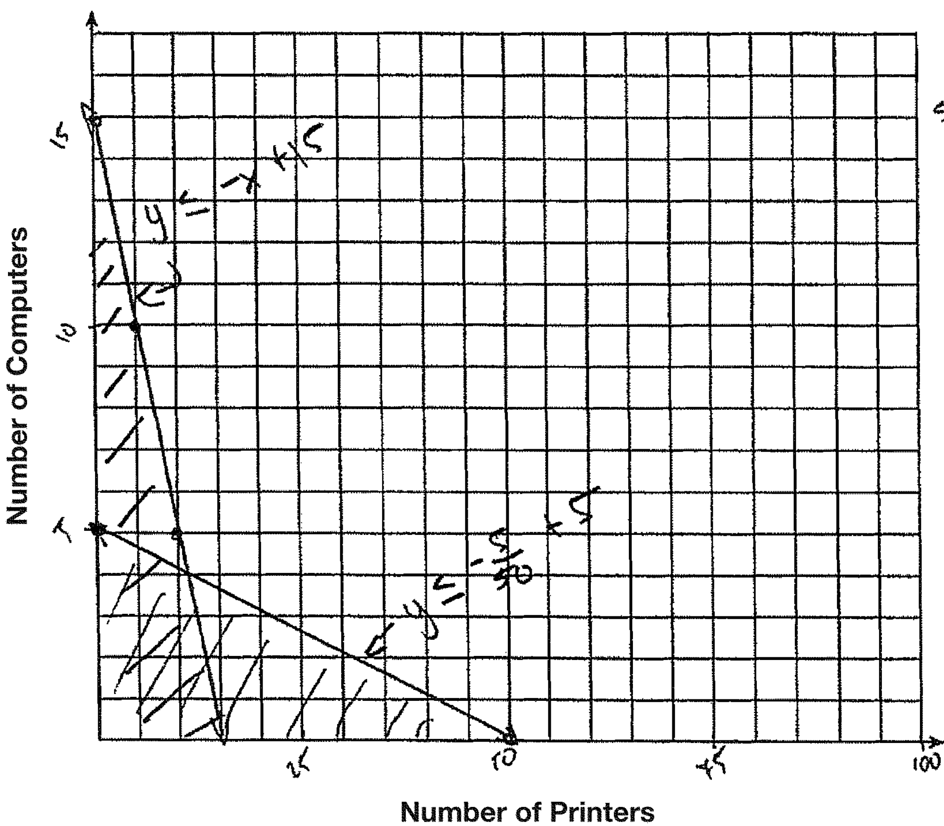
Score 4: The student has a complete and correct response.

Question 35

35 An on-line electronics store must sell at least \$2500 worth of printers and computers per day. Each printer costs \$50 and each computer costs \$500. The store can ship a maximum of 15 items per day.

$50x + 500y \leq 2500$
$x + y \leq 15$

On the set of axes below, graph a system of inequalities that models these constraints.



$\boxed{y \leq -x + 15}$

$\frac{500y}{500} \leq \frac{-50x + 2500}{500}$

$y \leq -\frac{50}{500}x + 5$

$\boxed{y \leq -\frac{5}{50}x + 5}$

Determine a combination of printers and computers that would allow the electronics store to meet all of the constraints. Explain how you obtained your answer.

$\boxed{\text{1 computer and 5 printers}}$

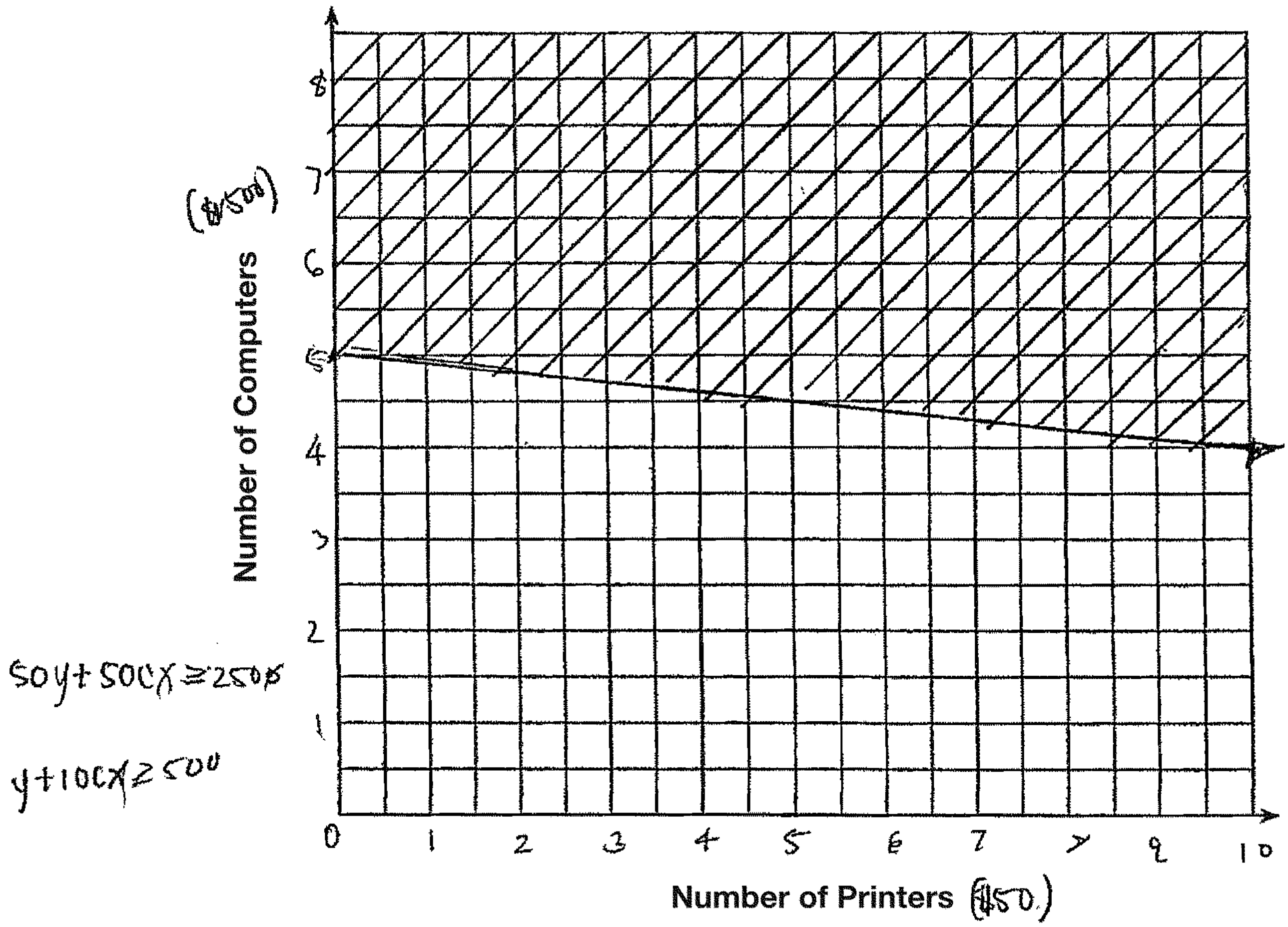
The part where it is double shaded on the graph.

Score 3: The student did not write one of the inequalities correctly, but gave an appropriate answer.

Question 35

35 An on-line electronics store must sell at least \$2500 worth of printers and computers per day. Each printer costs \$50 and each computer costs \$500. The store can ship a maximum of 15 items per day.

On the set of axes below, graph a system of inequalities that models these constraints.



Determine a combination of printers and computers that would allow the electronics store to meet all of the constraints. Explain how you obtained your answer.

at least
- 5 computers & 0 printers
- 4 computers & 10 printers

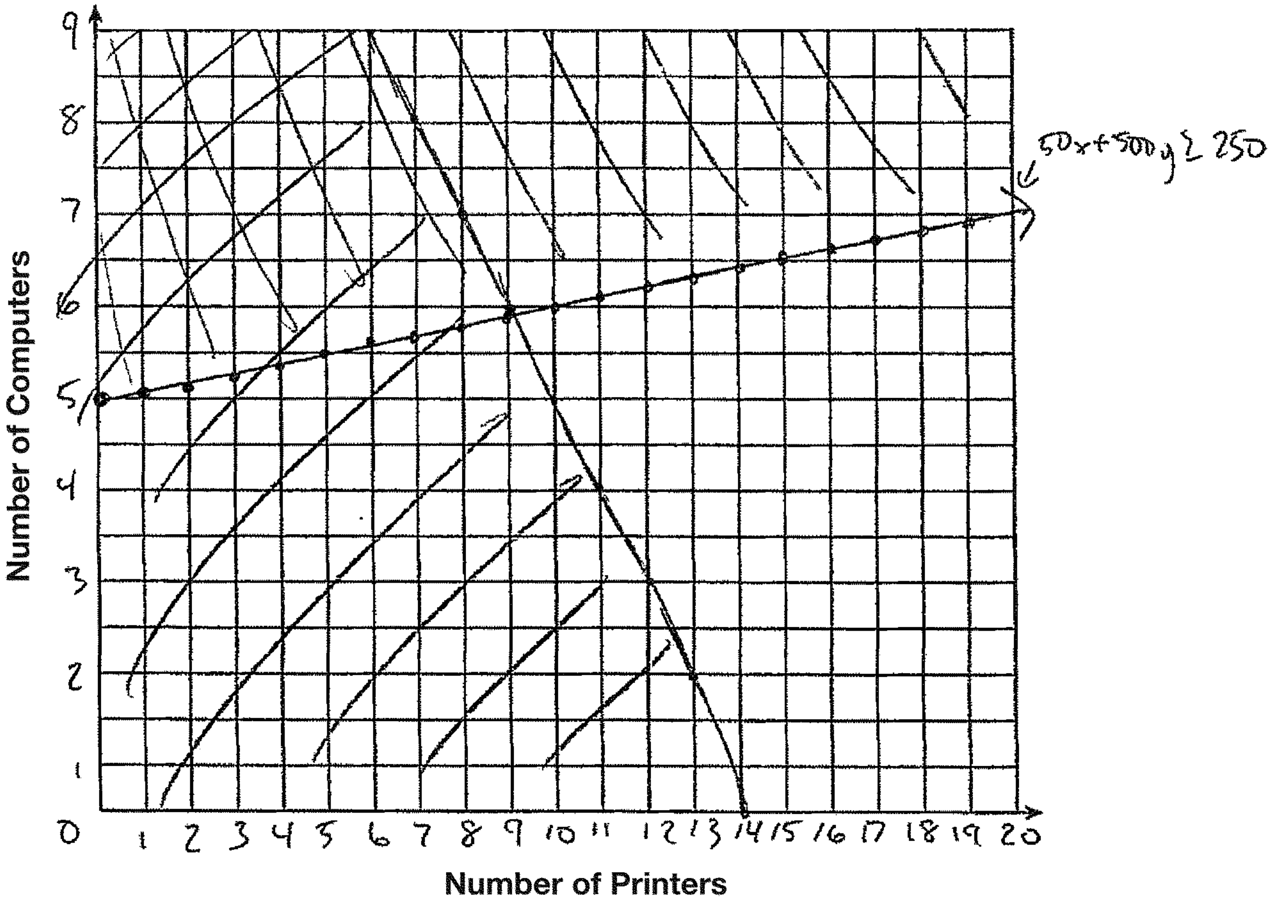
Score 2: The student graphed one inequality correctly and named a combination correctly, but did not give an explanation.

Question 35

35 An on-line electronics store must sell at least \$2500 worth of printers and computers per day. Each printer costs \$50 and each computer costs \$500. The store can ship a maximum of 15 items per day.

x= printers   y = computers $50x+500y \geq 2500$

On the set of axes below, graph a system of inequalities that models these constraints.



Determine a combination of printers and computers that would allow the electronics store to meet all of the constraints. Explain how you obtained your answer.

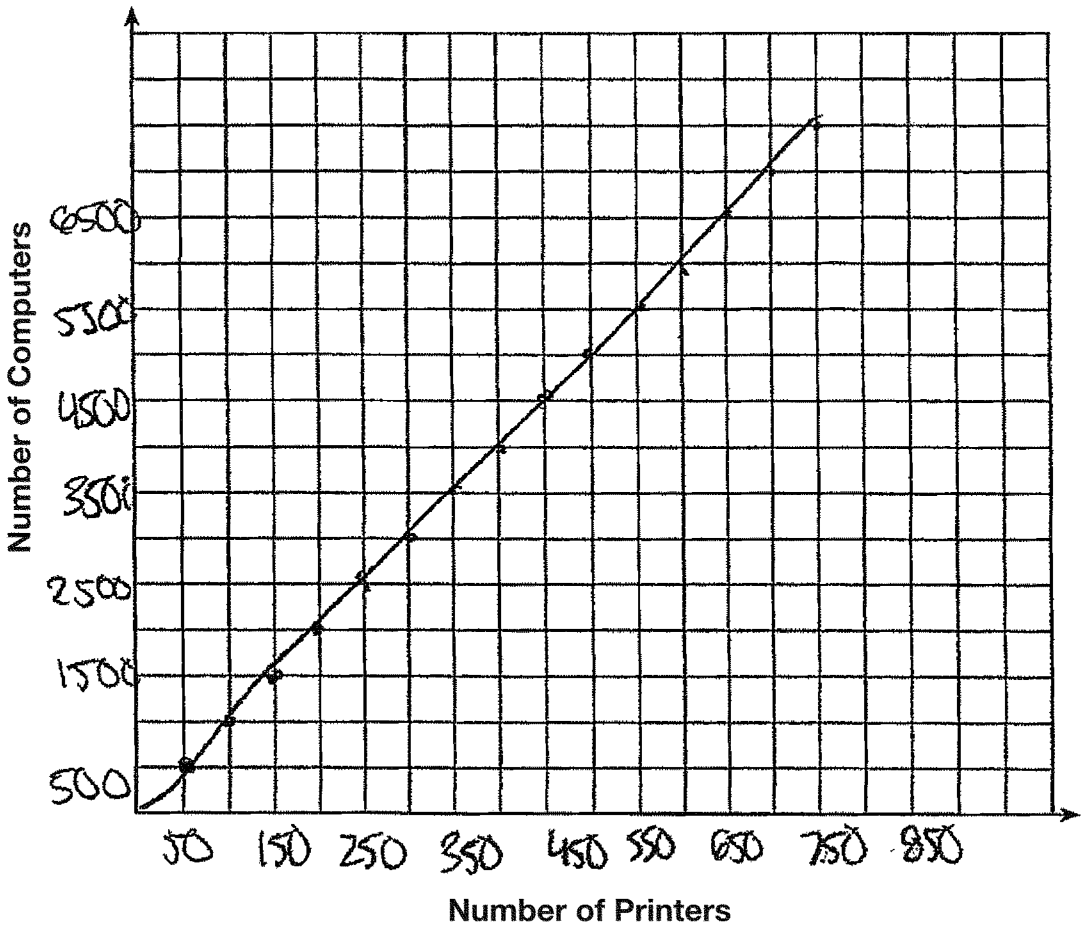
8 computers and 4 printers. the point (4, 8) satisfies both inequalities

Score 2: The student stated a correct combination and a correct explanation.

Question 35

35 An on-line electronics store must sell at least \$2500 worth of printers and computers per day. Each printer costs \$50 and each computer costs \$500. The store can ship a maximum of 15 items per day.

On the set of axes below, graph a system of inequalities that models these constraints.



Determine a combination of printers and computers that would allow the electronics store to meet all of the constraints. Explain how you obtained your answer.

10 printers
4 computers

because I used my calculator to multiply till I got to 2500

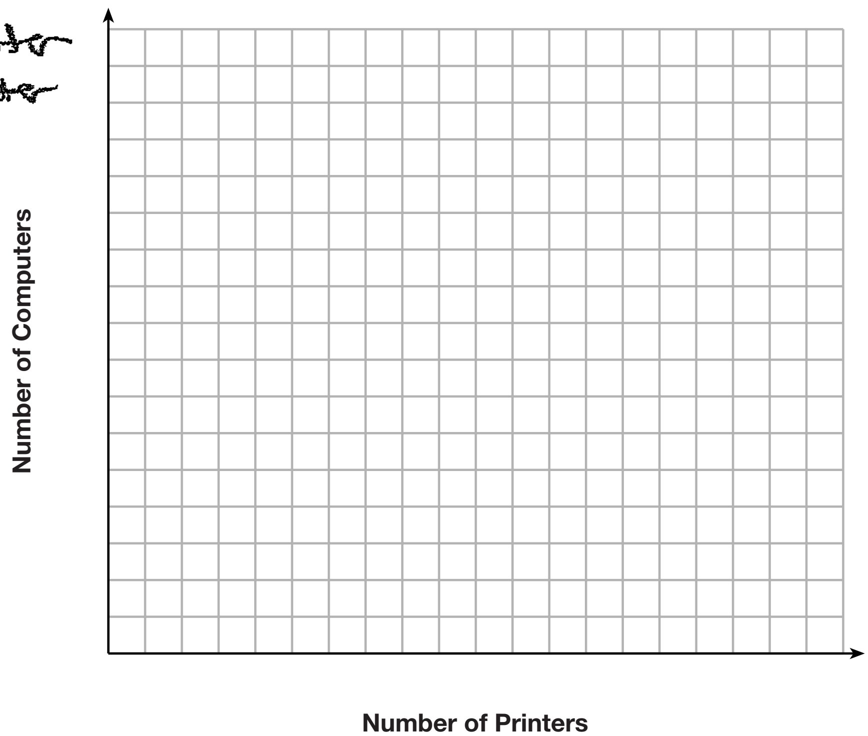
Score 1: The student named a correct combination, but gave an insufficient explanation.

Question 35

35 An on-line electronics store must sell at least \$2500 worth of printers and computers per day. Each printer costs \$50 and each computer costs \$500. The store can ship a maximum of 15 items per day.

On the set of axes below, graph a system of inequalities that models these constraints.

let p=printer
let c=computer



Determine a combination of printers and computers that would allow the electronics store to meet all of the constraints. Explain how you obtained your answer.

$50p+500c=2500$
$-50(p + c = 15)$

$\cancel{50p}+500c=2500$
$\cancel{-50} - 50c = -750$
$\frac{450c}{450} = \frac{1750}{450}$
$c=4$

$p+c=15$

$p+c=15$
$p+4=15$
$-4\ \ -4$
$p=11$

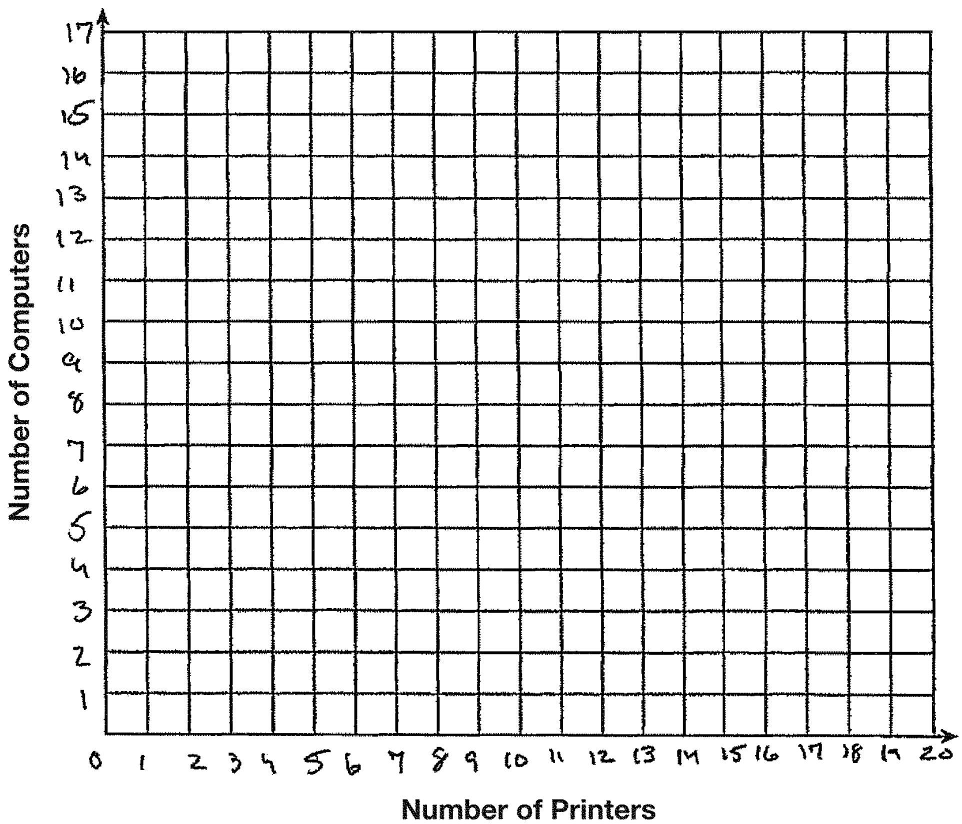
4 computers
11 printers

Score 1: The student named a correct combination without giving an explanation.

35 An on-line electronics store must sell at least \$2500 worth of printers and computers per day. Each printer costs \$50 and each computer costs \$500. The store can ship a maximum of 15 items per day.

$50p + 500c \geq 2500$

On the set of axes below, graph a system of inequalities that models these constraints.



Determine a combination of printers and computers that would allow the electronics store to meet all of the constraints. Explain how you obtained your answer.

Score 0: The student wrote one inequality, but showed no further correct work.

Question 36

36 An application developer released a new app to be downloaded. The table below gives the number of downloads for the first four weeks after the launch of the app.

Number of Weeks	1	2	3	4
Number of Downloads	120	180	270	405

Write an exponential equation that models these data.

$y = 80 * 1.5^x$

Use this model to predict how many downloads the developer would expect in the 26th week if this trend continues. Round your answer to the *nearest download*.

$y = 80 * 1.5^{26}$

3,030,140 downloads

Would it be reasonable to use this model to predict the number of downloads past one year? Explain your reasoning.

no, the number would be way too big. once everyone downloads it the numbers would slow down.

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

Question 36

36 An application developer released a new app to be downloaded. The table below gives the number of downloads for the first four weeks after the launch of the app.

Number of Weeks	1	2	3	4
Number of Downloads	120	180	270	405

Write an exponential equation that models these data.

$f(x) = 120 \cdot 1.5^{x-1}$

Use this model to predict how many downloads the developer would expect in the 26th week if this trend continues. Round your answer to the *nearest download*.

3,030,140 downloads

Would it be reasonable to use this model to predict the number of downloads past one year? Explain your reasoning.

No, because there isn't that many people in the world.

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

Question 36

36 An application developer released a new app to be downloaded. The table below gives the number of downloads for the first four weeks after the launch of the app.

Number of Weeks	1	2	3	4
Number of Downloads	120	180	270	405

Write an exponential equation that models these data.

$y = 80(1.5)^x$

Use this model to predict how many downloads the developer would expect in the 26th week if this trend continues. Round your answer to the *nearest download*.

$y = 80(1.5)^{26}$

$y \approx$ ~~3,0~~ 30,140

Would it be reasonable to use this model to predict the number of downloads past one year? Explain your reasoning.

yes, because we can find the value for the number of downloads with how many weeks there are in a year and plug that in fur x.

Score 3: The student gave an incorrect explanation.

36 An application developer released a new app to be downloaded. The table below gives the number of downloads for the first four weeks after the launch of the app.

Number of Weeks	1	2	3	4
Number of Downloads	120	180	270	405

Write an exponential equation that models these data.

$y = ab^x$

$a = 80$

$b = 1.5$

Use this model to predict how many downloads the developer would expect in the 26th week if this trend continues. Round your answer to the *nearest download*.

$80(1.5)^{26} \approx 3,030,140$

Would it be reasonable to use this model to predict the number of downloads past one year? Explain your reasoning.

Score 3: The student did not give an explanation.

Question 36

36 An application developer released a new app to be downloaded. The table below gives the number of downloads for the first four weeks after the launch of the app.

Number of Weeks	1	2	3	4
Number of Downloads	120	180	270	405

Write an exponential equation that models these data.

$y = 80 \cdot (1.5)^x$

Use this model to predict how many downloads the developer would expect in the 26th week if this trend continues. Round your answer to the *nearest download*.

$80 \cdot (1.5)^{(26)}$

26th week = 3030140.19529

Would it be reasonable to use this model to predict the number of downloads past one year? Explain your reasoning.

?

Score 2: The student has a rounding error and did not give an explanation.

Question 36

36 An application developer released a new app to be downloaded. The table below gives the number of downloads for the first four weeks after the launch of the app.

Number of Weeks	1	2	3	4
Number of Downloads	120	180	270	405

Write an exponential equation that models these data.

$80(1.5)^x$

Use this model to predict how many downloads the developer would expect in the 26th week if this trend continues. Round your answer to the *nearest download*.

$y = 80(1.5)^{26}$

$y = 3,030,140$

Would it be reasonable to use this model to predict the number of downloads past one year? Explain your reasoning.

Yes because you can use the number of weeks in 1 year for the x value in order to get the answer.

Score 2: The student wrote an expression and gave an incorrect explanation.

36 An application developer released a new app to be downloaded. The table below gives the number of downloads for the first four weeks after the launch of the app.

Number of Weeks	1	2	3	4
Number of Downloads	120	180	270	405

+60 +90 +135

Write an exponential equation that models these data.

$a_1 = 120(n+1)1.5$

Use this model to predict how many downloads the developer would expect in the 26th week if this trend continues. Round your answer to the *nearest download*.

$120(26+1)1.5$

$120(27)1.5$

$3{,}240 \cdot 1.5 = \boxed{4{,}860 \text{ downloads}}$

Would it be reasonable to use this model to predict the number of downloads past one year? Explain your reasoning.

No, because the data is going by weeks which is too small to predict the past one year.

Score 1: The student found the correct number of downloads based on an incorrect equation.

Question 36

36 An application developer released a new app to be downloaded. The table below gives the number of downloads for the first four weeks after the launch of the app.

Number of Weeks	1	2	3	4
Number of Downloads	120	180	270	405

Write an exponential equation that models these data.

$80 \cdot 1.5^x$

Use this model to predict how many downloads the developer would expect in the 26th week if this trend continues. Round your answer to the *nearest download*.

$80 * 1.5^{26}$

3030140.195

Would it be reasonable to use this model to predict the number of downloads past one year? Explain your reasoning.

yes because x is the amount of week and you can use the number of weeks in a year as the x

Score 1: The student wrote an expression, made a rounding error, and gave an incorrect explanation.

Question 36

36 An application developer released a new app to be downloaded. The table below gives the number of downloads for the first four weeks after the launch of the app.

Number of Weeks	1	2	3	4
Number of Downloads	120	180	270	405

Write an exponential equation that models these data.

$$y = 120 + (n-1) \cdot 40$$

Use this model to predict how many downloads the developer would expect in the 26th week if this trend continues. Round your answer to the *nearest download*.

$$y = 120 + (26-1) \cdot 40$$
$$y = 120 + 1040$$
$$y = 1160$$

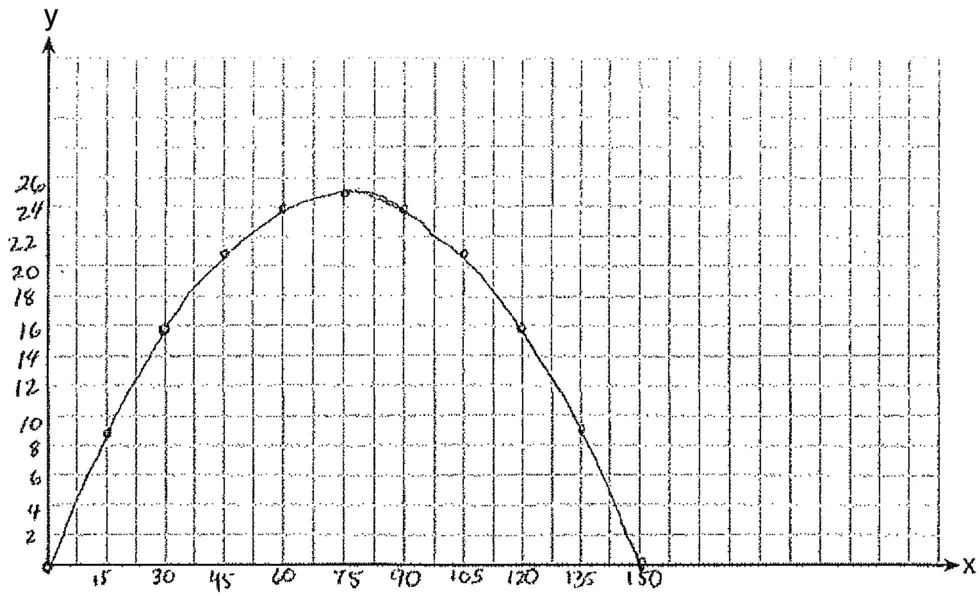
Would it be reasonable to use this model to predict the number of downloads past one year? Explain your reasoning.

Score 0: The student is completely incorrect.

Question 37

37 A football player attempts to kick a football over a goal post. The path of the football can be modeled by the function $h(x) = -\frac{1}{225}x^2 + \frac{2}{3}x$, where x is the horizontal distance from the kick, and $h(x)$ is the height of the football above the ground, when both are measured in feet.

On the set of axes below, graph the function $y = h(x)$ over the interval $0 \le x \le 150$.



Determine the vertex of $y = h(x)$. Interpret the meaning of this vertex in the context of the problem.

(75, 25)

~~If you~~ ~~The~~ When the football is 25 feet high it has traveled 75 feet and is at its highest point.

The goal post is 10 feet high and 45 yards away from the kick. Will the ball be high enough to pass over the goal post? Justify your answer.

No because when you convert 45 yards to feet it is only going to be 9 ft. high

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

Question 37

37 A football player attempts to kick a football over a goal post. The path of the football can be modeled by the function $h(x) = -\frac{1}{225}x^2 + \frac{2}{3}x$, where x is the horizontal distance from the kick, and $h(x)$ is the height of the football above the ground, when both are measured in feet.

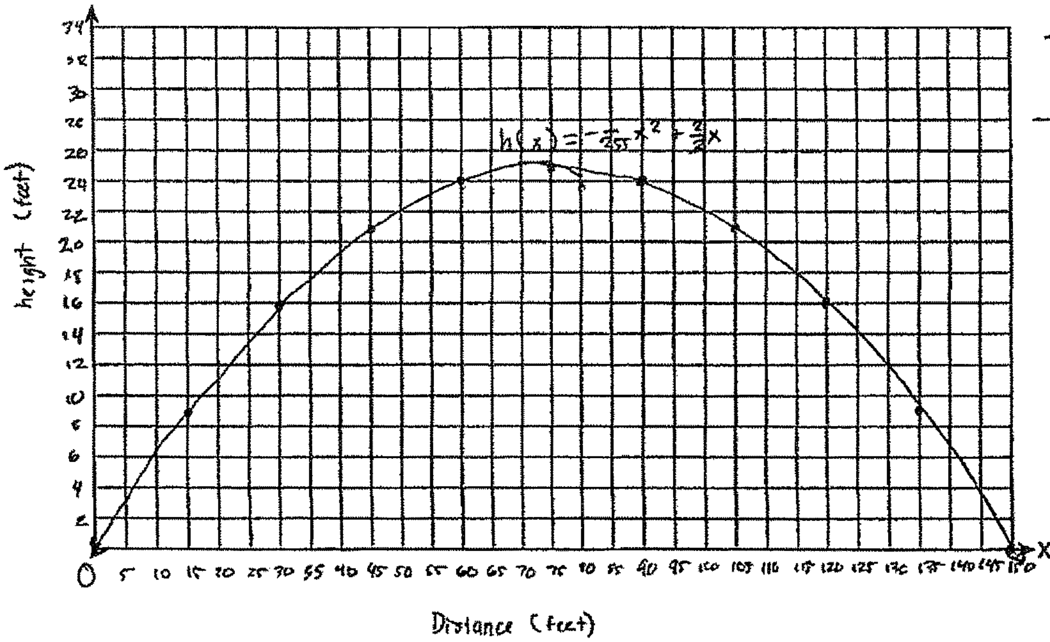
On the set of axes below, graph the function $y = h(x)$ over the interval $0 \leq x \leq 150$.

$-\frac{1}{255}(15)^2 + \frac{2}{3}15$

$-\frac{30}{255} + \frac{30}{3}$

$-\frac{2}{15} + 10$

$-9\frac{2}{15}$



Determine the vertex of $y = h(x)$. Interpret the meaning of this vertex in the context of the problem.

The vertex of h(x) is (75, 25). This means that when the football player, at 75 feet from the kick, the ball will be at it's highest point,

The goal post is 10 feet high and 45 yards away from the kick. Will the ball be high enough to pass over the goal post? Justify your answer.

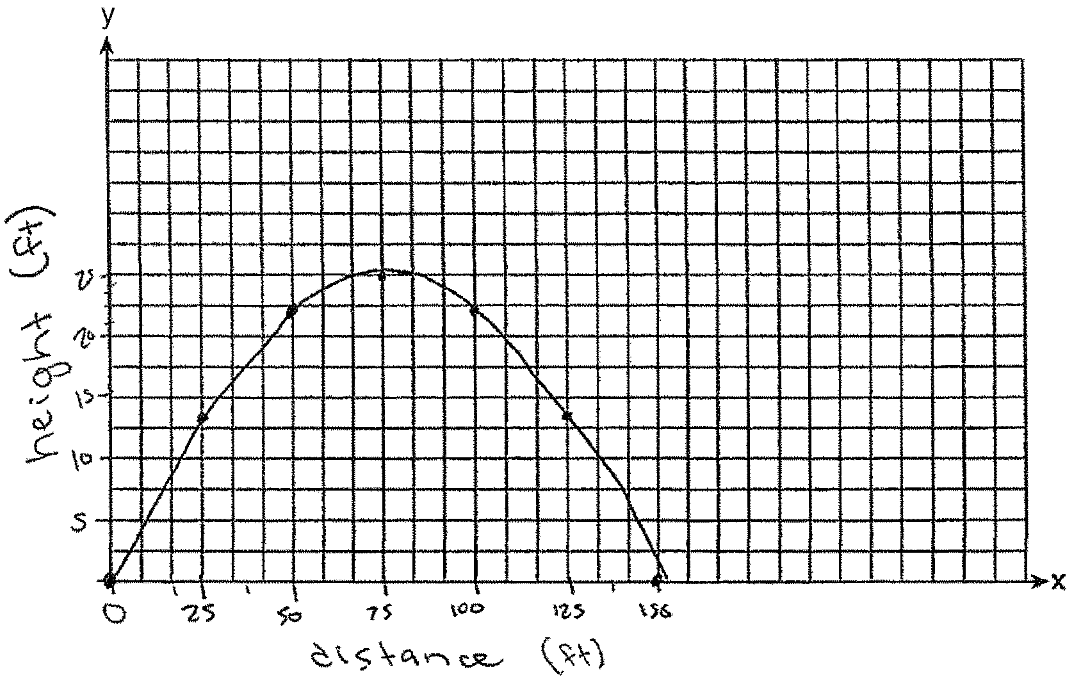
When the ball is 45 yards away from the kick, the ball will be high enough to pass over the goal post. The ball will be 21 feet high which is higher than 10 feet. When you plug in 45 as your x in $h(x) = -\frac{1}{255}x^2 + \frac{2}{3}x$ you'll get h(x) is equal to 21. Therefore the ball will be high enough to pass over the goal post.

Score 5: The student did not change yards to feet.

Question 37

37 A football player attempts to kick a football over a goal post. The path of the football can be modeled by the function $h(x) = -\frac{1}{225}x^2 + \frac{2}{3}x$, where x is the horizontal distance from the kick, and $h(x)$ is the height of the football above the ground, when both are measured in feet.

On the set of axes below, graph the function $y = h(x)$ over the interval $0 \leq x \leq 150$.



x	y
0	0
25	13.9
50	22.2
~~75~~	~~25~~
100	22.2
125	13.9
150	0

Determine the vertex of $y = h(x)$. Interpret the meaning of this vertex in the context of the problem.

(75,25) the vertex represents the highest height (25ft) that the football reached.

The goal post is 10 feet high and 45 yards away from the kick. Will the ball be high enough to pass over the goal post? Justify your answer.

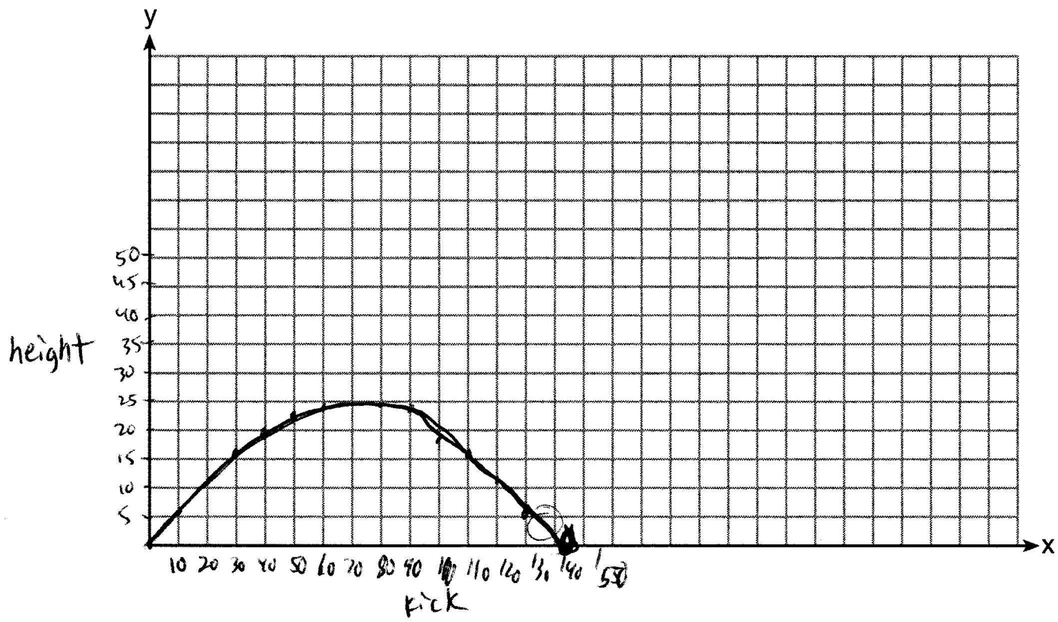
NO. at 45 yards away (135 feet), the football will be about 7.5 ft high.

Score 5: The student made a computational error computing the height at 135 feet.

Question 37

37 A football player attempts to kick a football over a goal post. The path of the football can be modeled by the function $h(x) = -\frac{1}{225}x^2 + \frac{2}{3}x$, where x is the horizontal distance from the kick, and $h(x)$ is the height of the football above the ground, when both are measured in feet.

On the set of axes below, graph the function $y = h(x)$ over the interval $0 \le x \le 150$.



Determine the vertex of $y = h(x)$. Interpret the meaning of this vertex in the context of the problem.

at 75 the ball is at the peak height of the kick

The goal post is 10 feet high and 45 yards away from the kick. Will the ball be high enough to pass over the goal post? Justify your answer.

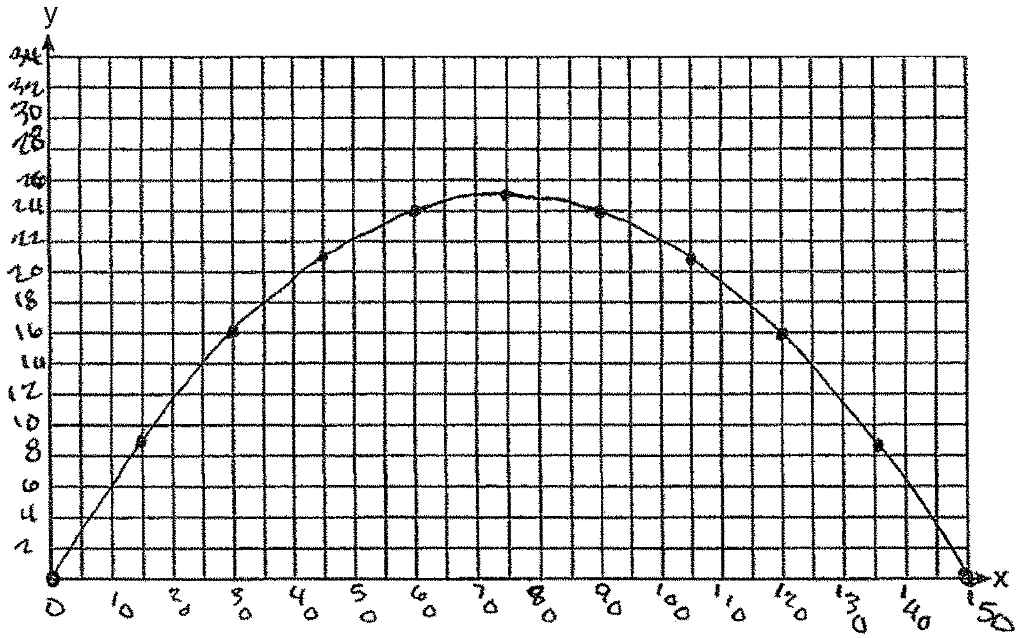
no at 135 feet the ball is under 10 feet on my graph

Score 4: The student made a graphing error and did not determine the vertex.

Question 37

37 A football player attempts to kick a football over a goal post. The path of the football can be modeled by the function $h(x) = -\frac{1}{225}x^2 + \frac{2}{3}x$, where x is the horizontal distance from the kick, and $h(x)$ is the height of the football above the ground, when both are measured in feet.

On the set of axes below, graph the function $y = h(x)$ over the interval $0 \le x \le 150$.



Determine the vertex of $y = h(x)$. Interpret the meaning of this vertex in the context of the problem.

The goal post is 10 feet high and 45 yards away from the kick. Will the ball be high enough to pass over the goal post? Justify your answer.

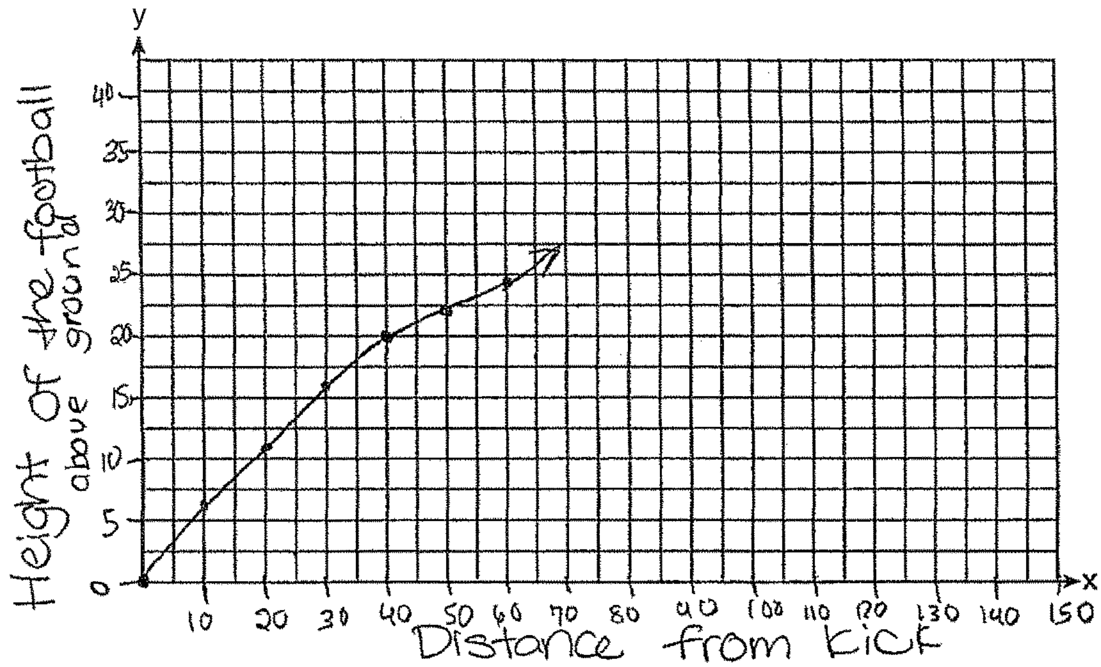
yes, because at 45 yards, the height is 21 feet.

Score 3: The student did not give the vertex and its meaning, and did not change yards to feet.

Question 37

37 A football player attempts to kick a football over a goal post. The path of the football can be modeled by the function $h(x) = -\frac{1}{225}x^2 + \frac{2}{3}x$, where x is the horizontal distance from the kick, and $h(x)$ is the height of the football above the ground, when both are measured in feet.

On the set of axes below, graph the function $y = h(x)$ over the interval $0 \le x \le 150$.



Determine the vertex of $y = h(x)$. Interpret the meaning of this vertex in the context of the problem.

The vertex of h(x) is zero. This means when the distance from the kick is 0, and it hasn't been kicked, the height of the football will also be zero.

The goal post is 10 feet high and 45 yards away from the kick. Will the ball be high enough to pass over the goal post? Justify your answer.

$-\frac{1}{225}(45)^2 + \frac{2}{3}(45) = 21$

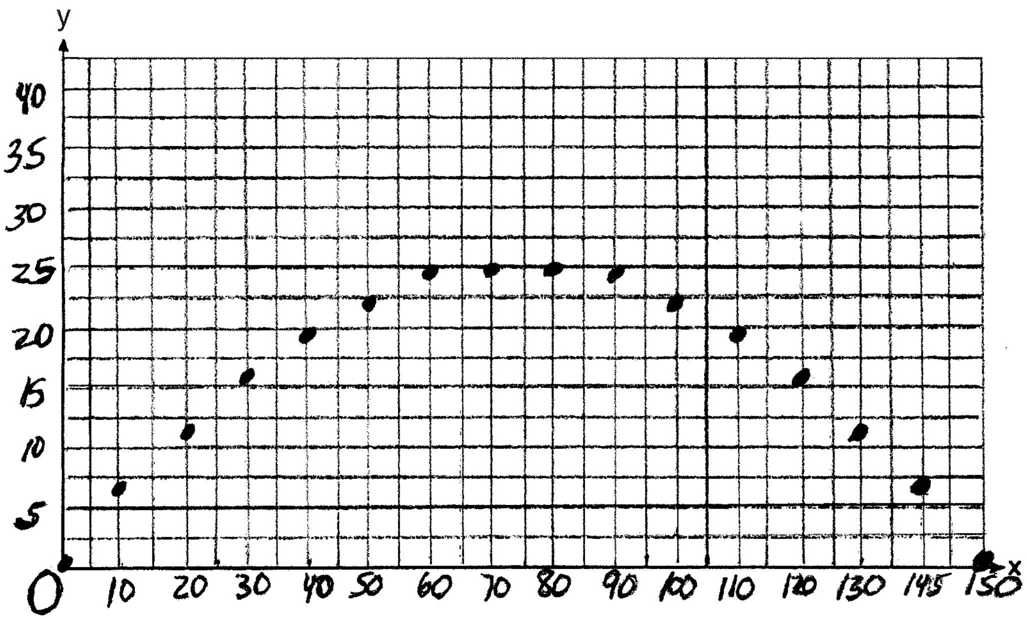
The ball will be high enough because it will reach 21 ft over the ground and the goal post is only 10 ft high.

Score 2: The student did not graph the function over the entire domain. The student wrote a correct justification based on 45 feet.

Question 37

37 A football player attempts to kick a football over a goal post. The path of the football can be modeled by the function $h(x) = -\frac{1}{225}x^2 + \frac{2}{3}x$, where x is the horizontal distance from the kick, and $h(x)$ is the height of the football above the ground, when both are measured in feet.

On the set of axes below, graph the function $y = h(x)$ over the interval $0 \leq x \leq 150$.



Determine the vertex of $y = h(x)$. Interpret the meaning of this vertex in the context of the problem.

the vertex is between 70 and 80

The goal post is 10 feet high and 45 yards away from the kick. Will the ball be high enough to pass over the goal post? Justify your answer.

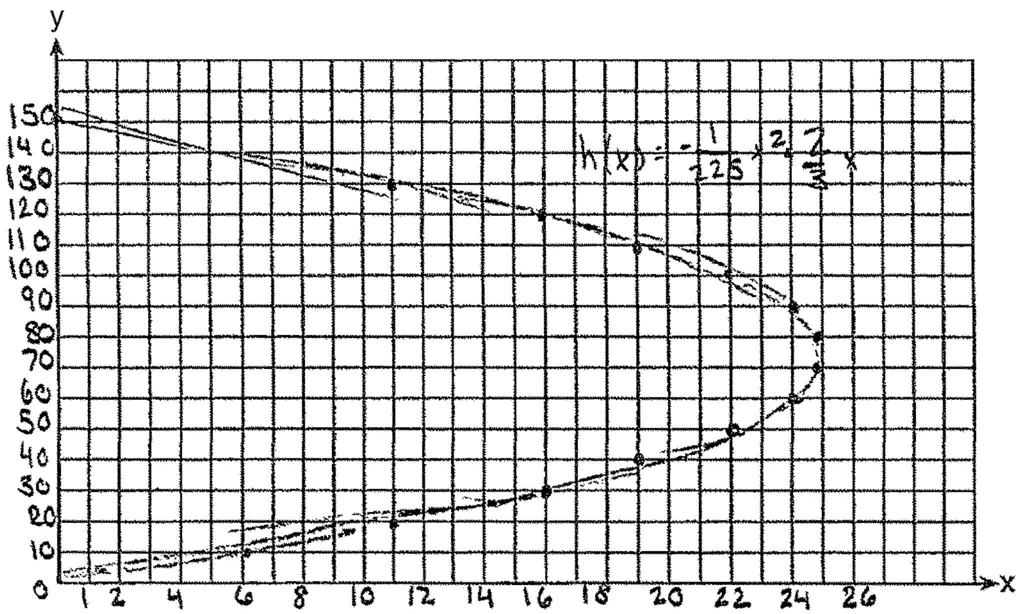
yes

Score 1: The student made one graphing error, did not state or interpret the vertex correctly, and did not justify an incorrect response.

Question 37

37 A football player attempts to kick a football over a goal post. The path of the football can be modeled by the function $h(x) = -\frac{1}{225}x^2 + \frac{2}{3}x$, where x is the horizontal distance from the kick, and $h(x)$ is the height of the football above the ground, when both are measured in feet.

On the set of axes below, graph the function $y = h(x)$ over the interval $0 \leq x \leq 150$.



Determine the vertex of $y = h(x)$. Interpret the meaning of this vertex in the context of the problem.

(70,24.889)

The goal post is 10 feet high and 45 yards away from the kick. Will the ball be high enough to pass over the goal post? Justify your answer.

Yes

Score 0: The student showed completely incorrect work.