SPANISH EDITION
INTEGRATED ALGEBRA
THURSDAY, JANUARY 30, 2014
9:15 A.M. TO 12:15 P.M., ONLY

The University of the State of New York

REGENTS HIGH SCHOOL EXAMINATION

ÁLGEBRA INTEGRADA

Jueves, 30 de enero de 2014 — 9:15 a.m. a 12:15 p.m., solamente

Nombre del estudiante: _____

Nombre de la escuela: _____

La posesión o el uso de cualquier aparato destinado a la comunicación están estrictamente prohibidos mientras esté realizando el examen. Si usted tiene o utiliza cualquier aparato destinado a la comunicación, aunque sea brevemente, su examen será invalidado y no se calculará su calificación.

Escriba en letra de molde su nombre y el nombre de su escuela en las líneas de arriba.

Se le ha proporcionado una hoja de respuestas separada para la Parte I. Siga las instrucciones del supervisor para completar la información del estudiante en su hoja de respuestas.

Este examen tiene cuatro partes, con un total de 39 preguntas. Usted debe responder todas las preguntas de este examen. Escriba sus respuestas a las preguntas de selección múltiple de la Parte I en la hoja de respuestas separada. Escriba sus respuestas a las preguntas de las Partes II, III y IV directamente en este folleto. Todo el trabajo debe ser realizado con bolígrafo de tinta permanente, con excepción de los gráficos y los dibujos, que deben hacerse con lápiz grafito. Indique claramente los pasos necesarios, incluyendo apropiadamente las sustituciones de fórmulas, diagramas, gráficos, tablas, etc. Las fórmulas que podría necesitar para responder a ciertas preguntas se encuentran al final de este examen. Esta hoja está perforada para que pueda desprenderla de este folleto.

No se permite el uso de papel de borrador para ninguna parte de este examen, pero puede usar los espacios en blanco en este folleto como papel de borrador. Una hoja perforada de papel cuadriculado de borrador está provista al final de este folleto para calquier pregunta para la cual sea útil un gráfico, aunque no se requiere. Puede desprender esta hoja del folleto. Todo trabajo realizado en esta hoja de papel cuadriculado de borrador *no* será calificado.

Cuando haya terminado el examen, deberá firmar la declaración impresa al final de la hoja de respuestas, indicando que no tenía conocimiento ilegal previo de las preguntas o respuestas del examen y que no ha dado ni recibido asistencia alguna para responder a las preguntas durante el examen. Su hoja de respuestas no será aceptada si no firma dicha declaración.

Aviso…

Se le debe proporcionar una calculadora para hacer gráficos y una regla para que utilice mientras realiza el examen.

NO ABRA ESTE FOLLETO DE EXAMEN HASTA QUE SE LE INDIQUE.

Parte I

Responda las 30 preguntas de esta parte. Cada respuesta correcta recibirá 2 créditos. No se dará ningún crédito parcial. Para cada pregunta, escriba en la hoja de respuestas separada, el número que precede la palabra o expresión que mejor complete la afirmación o responda a la pregunta. [60]

Utilice este espacio para sus cálculos.

1 Un ejemplo de una ecuación es

(1) $2x^2 - 4x + 12$

(2) $|x - 6|$

(3) $4(x + 6)(x - 2)$

(4) $2x = x^2 + 3$

2 El máximo común divisor de $3m^2n + 12mn^2$ es

(1) $3n$

(2) $3m$

(3) $3mn$

(4) $3mn^2$

3 Jeremy está realizando una fiesta de Halloween para 80 niños. Él le dará a cada niño, *al menos*, una barra de caramelo. Si cada bolsa de caramelos contiene 18 barras de caramelo, ¿qué desigualdad se puede usar para determinar cuantas bolsas, c, tendrá que comprar Jeremy?

(1) $18c \geq 80$

(2) $18c \leq 80$

(3) $\frac{c}{18} \geq 80$

(4) $\frac{c}{18} \leq 80$

4 ¿Qué afirmación acerca del muestreo parcial es *falsa*?

(1) El muestreo en línea es parcial porque sólo las personas que visitan el sitio web tomarán la encuesta.

(2) Una encuesta a través de la radio es parcial porque sólo las personas que tengan una opinión concreta acerca del tema responderán.

(3) Una encuesta entregada por mano a cada tercera persona saliendo de la biblioteca es parcial porque no se le pidió la participación a cada persona saliendo de la biblioteca.

(4) Pedirle a expertos que tomen la encuesta es parcial porque pueden tener algún conocimiento en particular acerca del tema.

Utilice este espacio para sus cálculos.

5 ¿Qué relación *no* es una función?

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

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

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

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

6 ¿Cuál es la ecuación de la línea que pasa a través del punto $(-2,-8)$ y tiene una pendiente de 3?

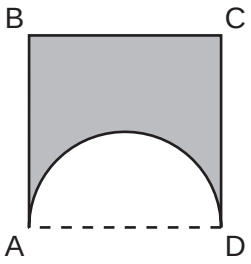
(1) $y = 3x - 2$

(2) $y = 3x - 22$

(3) $y = 3x + 2$

(4) $y = 3x + 22$

7 Una figura consiste de un cuadrado y un semicírculo, como se muestra en el diagrama a continuación.



Si la longitud de un lado del cuadrado es 6, ¿cuál es el área de la región sombreada?

(1) $36 - 3\pi$

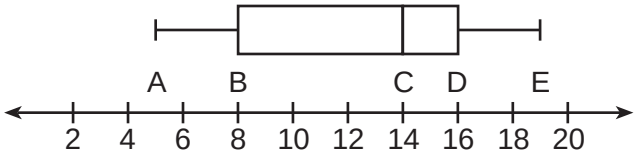
(2) $36 - 4.5\pi$

(3) $36 - 6\pi$

(4) $36 - 9\pi$

Utilice este espacio para sus cálculos.

8 El diagrama de caja y bigotes que se muestra a continuación representa el número de suscripciones a revistas vendidas por miembros de un club.



¿Qué medidas estadísticas representan los puntos *B*, *D*, y *E*, respectivamente?

(1) mínima, mediana, máxima

(2) primer cuartil, mediana, tercer cuartil

(3) primer cuartil, tercer cuartil, máxima

(4) mediana, tercer cuartil, máxima

9 ¿Cuál es la pendiente de una línea representada por la ecuación $2y = x - 4$?

(1) 1

(2) $\frac{1}{2}$

(3) -1

(4) $-\frac{1}{2}$

10 ¿Cuál es la solución para el sistema de ecuaciones que se muestra a continuación?

$$2x + 3y = 7$$
$$x + y = 3$$

(1) $(1,2)$

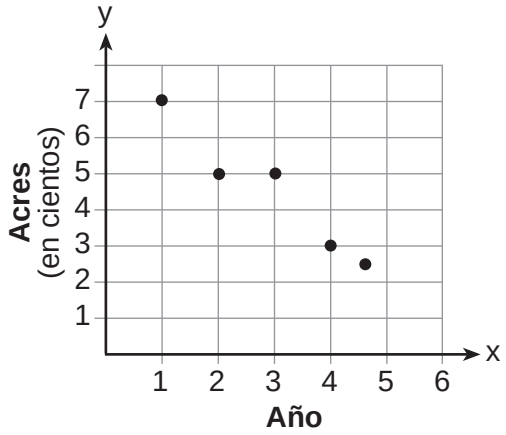
(2) $(2,1)$

(3) $(4,-1)$

(4) $(4,1)$

Utilice este espacio para sus cálculos.

11 El siguiente gráfico representa el número de acres usados para el cultivo en Smalltown, Nueva York, durante varios años.



Usando una línea de ajuste óptimo, ¿aproximadamente cuántos acres se usarán para el cultivo en el 5^{to} año?

(1) 0
(2) 200
(3) 300
(4) 400

12 Cuando $16x^3 - 12x^2 + 4x$ es dividida por $4x$, el cociente es

(1) $12x^2 - 8x$
(2) $12x^2 - 8x + 1$
(3) $4x^2 - 3x$
(4) $4x^2 - 3x + 1$

13 El ancho de un rectángulo es 4 menos que la mitad de la longitud. Si ℓ representa la longitud, ¿qué ecuación podría ser usada para encontrar el ancho, w?

(1) $w = \frac{1}{2}(4 - \ell)$
(2) $w = \frac{1}{2}(\ell - 4)$
(3) $w = \frac{1}{2}\ell - 4$
(4) $w = 4 - \frac{1}{2}\ell$

Utilice este espacio para sus cálculos.

14 ¿Qué dato puede clasificarse como cuantitativo?

(1) las tiendas favoritas donde usted compra

(2) los representantes de E.U.A. y sus estados de origen

(3) la tasa de impuesto sobre la venta en cada condado de Nueva York

(4) la opinión de un estudiante de primer año acerca del color de la camisa de Paul

15 Dos cubos cuyas caras están enumeradas del 1 al 6, fueron lanzados 20 veces. Sus sumas están registradas en la tabla a continuación.

4	9	8	9	2
9	4	6	12	10
8	7	9	11	10
8	7	9	3	5

¿Cuál es la probabilidad empírica de lanzar una suma de 9?

(1) $\frac{4}{20}$

(2) $\frac{5}{20}$

(3) $\frac{4}{36}$

(4) $\frac{5}{36}$

16 ¿Cuál es el vértice del gráfico de la ecuación $y = 3x^2 + 6x + 1$?

(1) $(-1,-2)$

(2) $(-1,10)$

(3) $(1,-2)$

(4) $(1,10)$

17 La longitud y el ancho de un rectángulo son de 48 pulgadas y 40 pulgadas. A la *pulgada más cercana*, ¿cuál es la longitud de su diagonal?

(1) 27

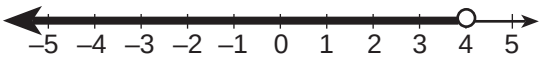
(2) 62

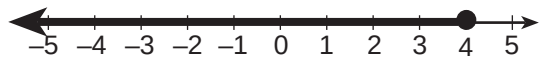
(3) 88

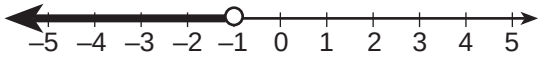
(4) 90

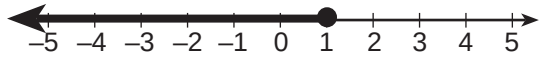
Utilice este espacio para sus cálculos.

18 ¿Qué gráfico representa el conjunto de solución de $2x - 5 < 3$?

(1) 

(2) 

(3) 

(4) 

19 Jonathan manejó al aeropuerto para recoger a su amigo. Un aguacero lo obligó a manejar a una velocidad promedio de 45 mph, llegando al aeropuerto en 3 horas. Él manejó de regreso a casa a una velocidad promedio de 55 mph. ¿Cuánto tiempo le tomó el viaje a casa, a la *décima de una hora más cercana*?

(1) 2.0 horas
(2) 2.5 horas
(3) 2.8 horas
(4) 3.7 horas

20 La expresión $\frac{2n}{5} + \frac{3n}{2}$ es equivalente a

(1) $\frac{5n}{7}$
(2) $\frac{6n^2}{10}$
(3) $\frac{19n}{10}$
(4) $\frac{7n}{10}$

Utilice este espacio para sus cálculos.

21 Cuando $x = 4$, el valor de $2x^0 + x!$ es

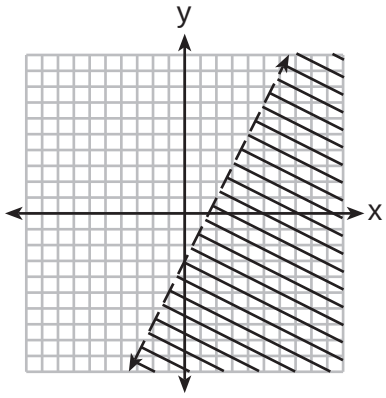
(1) 24

(2) 25

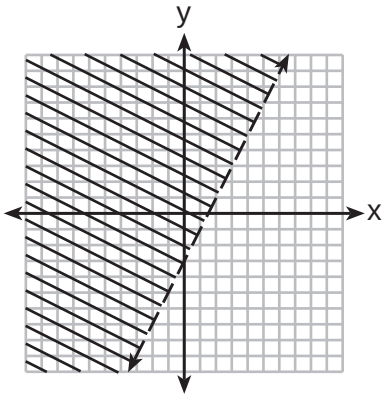
(3) 26

(4) 28

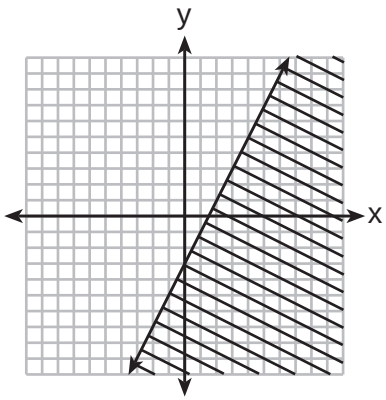
22 ¿Qué gráfico representa la solución de $2y + 6 > 4x$?



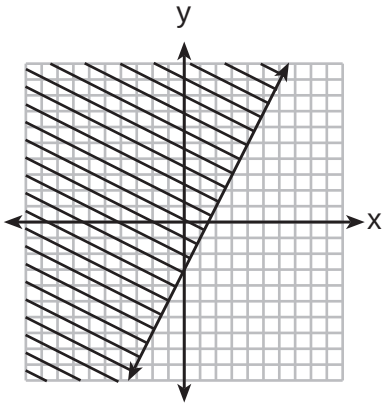
(1)



(3)



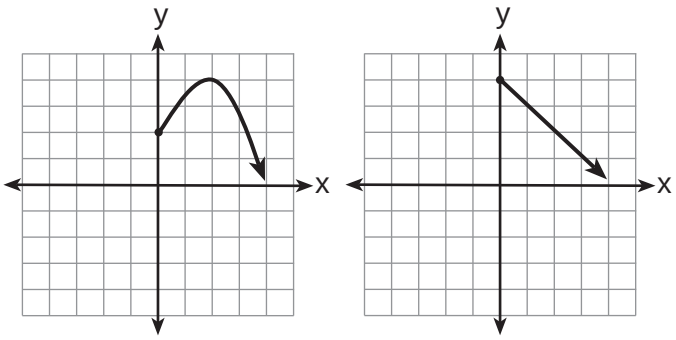
(2)



(4)

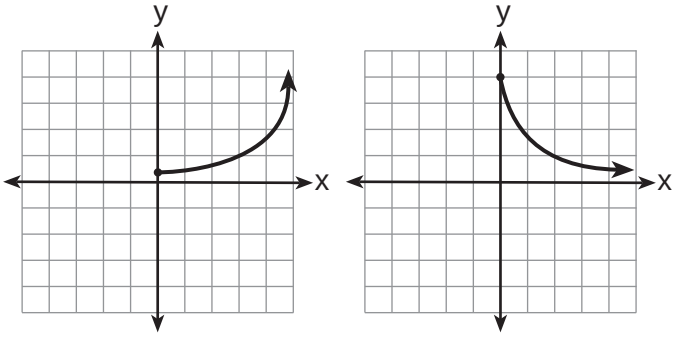
Utilice este espacio para sus cálculos.

23 ¿Qué gráfico representa el decrecimiento exponencial de un elemento radioactivo?



(1)

(3)



(2)

(4)

24 ¿Qué fracción representa $\frac{x^2-25}{x^2-x-20}$ expresada en la forma más simple?

(1) $\frac{5}{4}$

(2) $\frac{x-5}{x-4}$

(3) $\frac{x+5}{x+4}$

(4) $\frac{25}{x+20}$

25 Si $abx - 5 = 0$, ¿cuál es x en términos de a y b?

(1) $x = \frac{5}{ab}$

(2) $x = -\frac{5}{ab}$

(3) $x = 5 - ab$

(4) $x = ab - 5$

Utilice este espacio para sus cálculos.

26 Dado:

$U = \{x | 0 < x < 10 \text{ y } x \text{ es un entero}\}$

$S = \{x | 0 < x < 10 \text{ y } x \text{ es un entero impar}\}$

El complemento del conjunto S dentro del conjunto universal U es

(1) $\{0, 2, 4, 6, 8, 10\}$

(2) $\{2, 4, 6, 8, 10\}$

(3) $\{0, 2, 4, 6, 8\}$

(4) $\{2, 4, 6, 8\}$

27 Las raíces de la ecuación $2x^2 - 8x = 0$ son

(1) -2 y 2

(2) 0, -2, y 2

(3) 0 y -4

(4) 0 y 4

28 ¿Qué ecuación ilustra la propiedad del inverso multiplicativo?

(1) $a \cdot 1 = a$

(2) $a \cdot 0 = 0$

(3) $a\left(\frac{1}{a}\right) = 1$

(4) $(-a)(-a) = a^2$

29 ¿Cuál es el resultado cuando $4x^2 - 17x + 36$ se resta de $2x^2 - 5x + 25$?

(1) $6x^2 - 22x + 61$

(2) $2x^2 - 12x + 11$

(3) $-2x^2 - 22x + 61$

(4) $-2x^2 + 12x - 11$

30 Julie tiene tres hijos cuyas edades son enteros impares consecutivos. Si x representa la edad del hijo más jóven, ¿que expresión representa la suma de las edades de sus hijos?

(1) $3x + 3$

(2) $3x + 4$

(3) $3x + 5$

(4) $3x + 6$

Parte II

Responda las 3 preguntas de esta parte. Cada respuesta correcta recibirá 2 créditos. Indique claramente los pasos necesarios, incluyendo apropiadamente las sustituciones de fórmulas diagramas, gráficos, tablas, etc. Para todas las preguntas en esta parte, una respuesa numérica correcta sin demostrar el trabajo recibirá solamente 1 crédito. Todas las respuestas deben escribirse con bolígrafo de tinta permanente, con excepción de los gráficos y los dibujos, que deben hacerse con lápiz grafito. [6]

31 Exprese $\frac{\sqrt{84}}{2\sqrt{3}}$ en la forma radical más simple.

32 La siguiente tabla de frecuencia acumulativa muestra el número de minutos que 31 estudiantes usaron enviando mensajes de texto en un fin de semana.

Texto-Intervalo de Uso (minutos)	**Frecuencia Acumulativa**
41–50	2
41–60	5
41–70	10
41–80	19
41–90	31

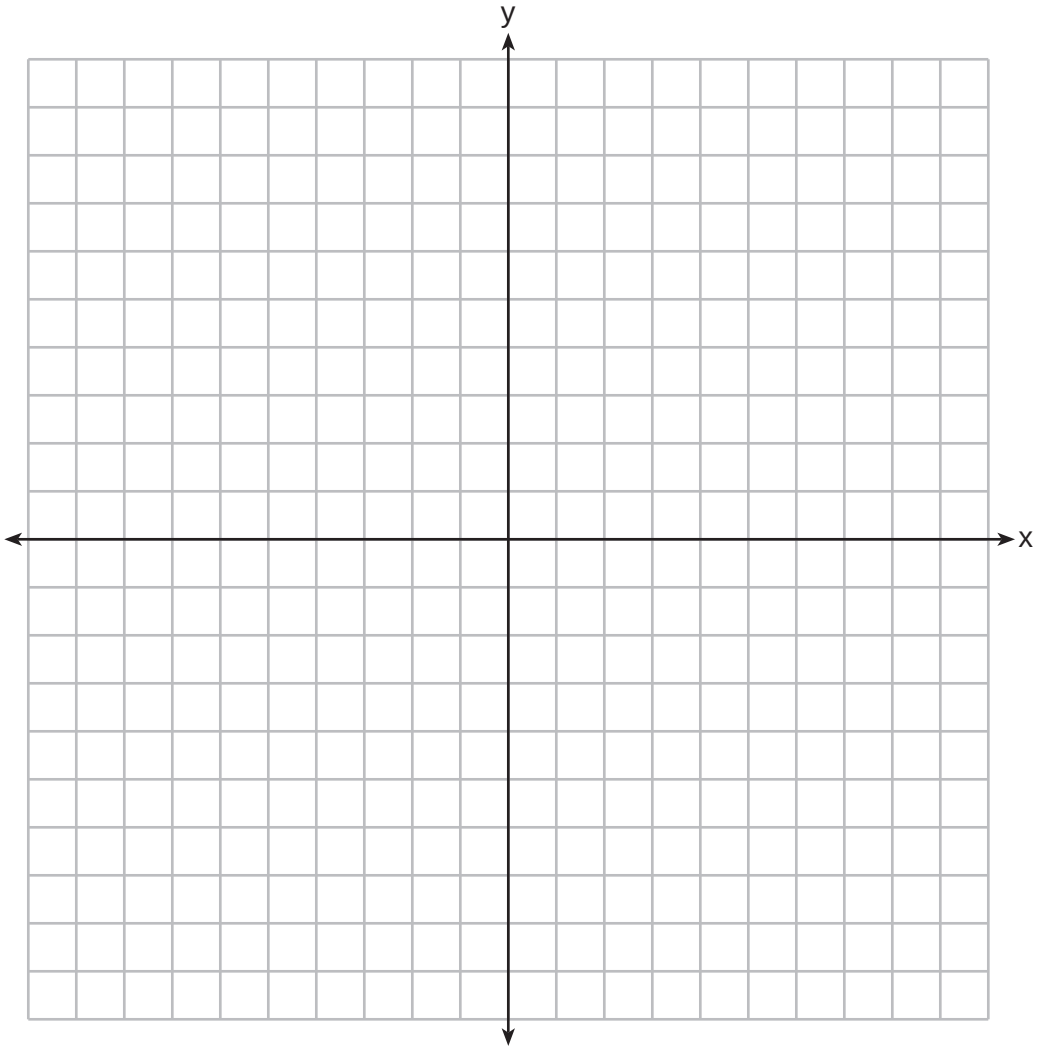
Determine que intervalo de 10-minutos contiene la mediana. Justifique su elección.

33 Kirsten invirtió \$1000 en una cuenta con una tasa de interés anual del 3%. Ella no realizó depósitos ni retiros de la cuenta en 5 años. El interés fue aumentando anualmente. Encuentre el balance de la cuenta al final de los 5 años, al *centavo más cercano*.

Parte III

Responda las 3 preguntas de esta parte. Cada respuesta correcta recibirá 3 créditos. Indique claramente los pasos necesarios, incluyendo apropidamente las sustituciones de fórmulas, diagramas, gráficos, tablas, etc. Para todas las preguntas en esta parte, una respuesta numérica correcta sin demostrar el trabajo recibirá solamente 1 crédito. Todas las respuestas deben escribirse con bolígrafo de tinta permanente, con excepción de los gráficos y los dibujos, que deben hacerse con lápiz grafito. [9]

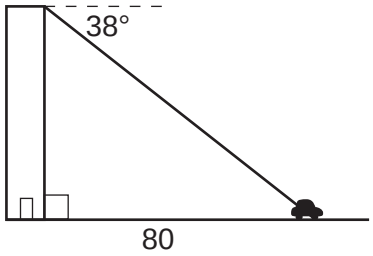
34 Grafique y marque las funciones $y = |x|$ e $y = |2x|$ en el siguiente conjunto de ejes.



Explique cómo al aumentar el coeficiente de x afecta el gráfico de $y = |x|$.

35 Terry estima que la longitud del borde de un cubo es de 5 cm. La longitud actual del lado es 5.2 cm. Encuentre el error relativo del área de la superficie del cubo, a la *milésima más cercana*.

36 Desde la parte superior de un edificio de departamentos, el ángulo de depresión hasta un automóvil estacionado en la calle de abajo es de 38 grados, como se muestra en el diagrama a continuación. El automóvil está estacionado a 80 pies de la base del edificio. Encuentre la altura del edificio, a la *décima más cercana de un pie.*

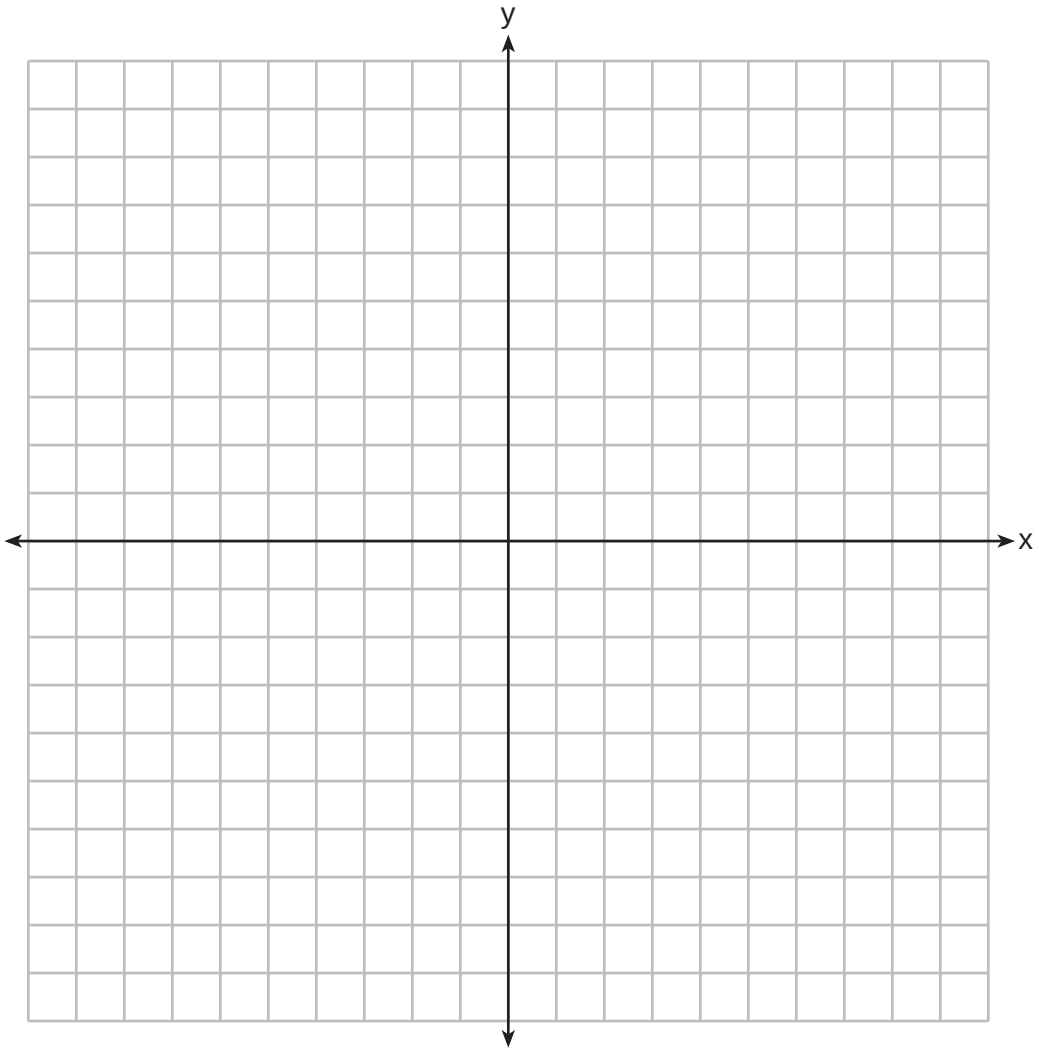


Parte IV

Responda las 3 preguntas de esta parte. Cada respuesta correcta recibirá 4 créditos. Indique claramente los pasos necesarios, incluyendo apropiadamente las sustituciones de fórmulas, diagramas, gráficos, tablas, etc. Para todas las preguntas en esta parte, una respuesta numérica correcta sin demostrar el trabajo recibirá solamente 1 crédito. Todas las respuestas deben escribirse con bolígrafo de tinta permanente, con excepción de los gráficos y los dibujos, que deben hacerse con lápiz grafito. [12]

37 En el siguiente conjunto de ejes, resuelva gráficamente el siguiente sistema de ecuaciones para todos los valores de x e y. Enuncie las coordenadas de todas las soluciones.

$$y = x^2 + 4x - 5$$
$$y = 2x + 3$$



38 Resuelva algebraicamente para todos los valores de x: $\frac{3}{x+5} = \frac{2x}{x^2-8}$

39 Doug tiene cuatro gorros de baseball: uno café claro, uno azul, uno rojo y uno verde. Él también tiene tres chaquetas: una azul, una roja y una blanca. Dibuje un diagrama de árbol o enumere el espacio muestral para demostrar todos los conjuntos posibles que constan de un gorro de baseball y una chaqueta.

Encuentre el número de conjuntos de Doug que consisten de un gorro y una chaqueta que son de diferentes colores.

En el Día del Espiritu Escolar, Doug quiere usar o verde o blanco, que son los colores de su escuela. Encuentre el número de conjuntos de entre los cuales puede elegir.

Desprender por la línea perforada

Desprender por la línea perforada

Papel cuadriculado de borrador — Esta hoja *no* será calificada.

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Desprender por la línea perforada

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Hoja de referencia

Razones trigonométricas		$\text{sen A} = \frac{opuesto}{hipotenusa}$
		$\cos \text{A} = \frac{adyacente}{hipotenusa}$
		$\tan \text{A} = \frac{opuesto}{adyacente}$

Área	trapecio	$\text{A} = \frac{1}{2}h(b_1 + b_2)$

Volumen	cilindro	$\text{V} = \pi r^2 h$

Área de superficie	prisma rectangular	$\text{SA} = 2lw + 2hw + 2lh$
	cilindro	$\text{SA} = 2\pi r^2 + 2\pi rh$

Geometría analítica	$m = \frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1}$

Desprender por la línea perforada

INTEGRATED ALGEBRA SPANISH EDITION

Desprender por la línea perforada

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Impreso en papel reciclado

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FOR TEACHERS ONLY

The University of the State of New York
REGENTS HIGH SCHOOL EXAMINATION

INTEGRATED ALGEBRA

Thursday, January 30, 2014 — 9:15 a.m. to 12:15 p.m., only

SCORING KEY AND RATING GUIDE

Mechanics of Rating

The following procedures are to be followed for scoring student answer papers for the Regents Examination in Integrated Algebra. More detailed information about scoring is provided in the publication *Information Booklet for Scoring the Regents Examinations in Mathematics*.

Do *not* attempt to correct the student's work by making insertions or changes of any kind. In scoring the open-ended questions, use check marks to indicate student errors. Unless otherwise specified, mathematically correct variations in the answers will be allowed. Units need not be given when the wording of the questions allows such omissions.

Each student's answer paper is to be scored by a minimum of three mathematics teachers. No one teacher is to score more than approximately one-third of the open-ended questions on a student's paper. Teachers may not score their own students' answer papers. On the student's separate answer sheet, for each question, record the number of credits earned and the teacher's assigned rater/scorer letter.

Schools are not permitted to rescore any of the open-ended questions on this exam after each question has been rated once, regardless of the final exam score. Schools are required to ensure that the raw scores have been added correctly and that the resulting scale score has been determined accurately.

Raters should record the student's scores for all questions and the total raw score on the student's separate answer sheet. Then the student's total raw score should be converted to a scale score by using the conversion chart that will be posted on the Department's web site at: http://www.p12.nysed.gov/assessment/ on Thursday, January 30, 2014. Because scale scores corresponding to raw scores in the conversion chart may change from one administration to another, it is crucial that, for each administration, the conversion chart provided for that administration be used to determine the student's final score. The student's scale score should be entered in the box provided on the student's separate answer sheet. The scale score is the student's final examination score.

If the student's responses for the multiple-choice questions are being hand scored prior to being scanned, the scorer must be careful not to make any marks on the answer sheet except to record the scores in the designated score boxes. Marks elsewhere on the answer sheet will interfere with the accuracy of the scanning.

Part I

Allow a total of 60 credits, 2 credits for each of the following.

(1) 4	(11) 2	(21) . . . . . 3 . . . . .
(2) 3	(12) 4	(22) . . . . . 3 . . . . .
(3) 1	(13) 3	(23) . . . . . 4 . . . . .
(4) 3	(14) 3	(24) . . . . . 3 . . . . .
(5) 4	(15) 2	(25) . . . . . 1 . . . . .
(6) 1	(16) 1	(26) . . . . . 4 . . . . .
(7) 2	(17) 2	(27) . . . . . 4 . . . . .
(8) 3	(18) 1	(28) . . . . . 3 . . . . .
(9) 2	(19) 2	(29) . . . . . 4 . . . . .
(10) 2	(20) 3	(30) . . . . . 4 . . . . .

Updated information regarding the rating of this examination may be posted on the New York State Education Department's web site during the rating period. Check this web site at: http://www.p12.nysed.gov/assessment/ and select the link "Scoring Information" for any recently posted information regarding this examination. This site should be checked before the rating process for this examination begins and several times throughout the Regents Examination period.

Beginning in January 2013, the Department is providing supplemental scoring guidance, the "Sample Response Set," for the Regents Examination in Integrated Algebra. This guidance is not required as part of the scorer training. It is at the school's discretion to incorporate it into the scorer training or to use it as supplemental information during scoring. While not reflective of all scenarios, the sample student responses selected for the Sample Response Set illustrate how less common student responses to open-ended questions may be scored. The Sample Response Set will be available on the Department's web site at http://www.nysedregents.org/IntegratedAlgebra/.

General Rules for Applying Mathematics Rubrics

I. General Principles for Rating

The rubrics for the constructed-response questions on the Regents Examination in Integrated Algebra are designed to provide a systematic, consistent method for awarding credit. The rubrics are not to be considered all-inclusive; it is impossible to anticipate all the different methods that students might use to solve a given problem. Each response must be rated carefully using the teacher's professional judgment and knowledge of mathematics; all calculations must be checked. The specific rubrics for each question must be applied consistently to all responses. In cases that are not specifically addressed in the rubrics, raters must follow the general rating guidelines in the publication *Information Booklet for Scoring the Regents Examinations in Mathematics*, use their own professional judgment, confer with other mathematics teachers, and/or contact the State Education Department for guidance. During each Regents Examination administration period, rating questions may be referred directly to the Education Department. The contact numbers are sent to all schools before each administration period.

II. Full-Credit Responses

A full-credit response provides a complete and correct answer to all parts of the question. Sufficient work is shown to enable the rater to determine how the student arrived at the correct answer.

When the rubric for the full-credit response includes one or more examples of an acceptable method for solving the question (usually introduced by the phrase "such as"), it does not mean that there are no additional acceptable methods of arriving at the correct answer. Unless otherwise specified, mathematically correct alternative solutions should be awarded credit. The only exceptions are those questions that specify the type of solution that must be used; e.g., an algebraic solution or a graphic solution. A correct solution using a method other than the one specified is awarded half the credit of a correct solution using the specified method.

III. Appropriate Work

Full-Credit Responses: The directions in the examination booklet for all the constructed-response questions state: "Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc." The student has the responsibility of providing the correct answer ***and*** showing how that answer was obtained. The student must "construct" the response; the teacher should not have to search through a group of seemingly random calculations scribbled on the student paper to ascertain what method the student may have used.

Responses With Errors: Rubrics that state "Appropriate work is shown, but…" are intended to be used with solutions that show an essentially complete response to the question but contain certain types of errors, whether computational, rounding, graphing, or conceptual. If the response is incomplete; i.e., an equation is written but not solved or an equation is solved but not all of the parts of the question are answered, appropriate work has ***not*** been shown. Other rubrics address incomplete responses.

IV. Multiple Errors

Computational Errors, Graphing Errors, and Rounding Errors: Each of these types of errors results in a 1-credit deduction. Any combination of two of these types of errors results in a 2-credit deduction. No more than 2 credits should be deducted for such mechanical errors in any response. The teacher must carefully review the student's work to determine what errors were made and what type of errors they were.

Conceptual Errors: A conceptual error involves a more serious lack of knowledge or procedure. Examples of conceptual errors include using the incorrect formula for the area of a figure, choosing the incorrect trigonometric function, or multiplying the exponents instead of adding them when multiplying terms with exponents. A response with one conceptual error can receive no more than half credit.

If a response shows repeated occurrences of the same conceptual error, the student should not be penalized twice. If the same conceptual error is repeated in responses to other questions, credit should be deducted in each response.

If a response shows two (or more) different major conceptual errors, it should be considered completely incorrect and receive no credit.

If a response shows one conceptual error and one computational, graphing, or rounding error, the teacher must award credit that takes into account both errors; i.e., awarding half credit for the conceptual error and deducting 1 credit for each mechanical error (maximum of two deductions for mechanical errors).

Part II

For each question, use the specific criteria to award a maximum of 2 credits. Unless other wise specified, mathematically correct alternative solutions should be awarded appropriate credit.

(31) **[2]** $\sqrt{7}$, and correct work is shown.

[1] Appropriate work is shown, but one computational or simplification error is made. An appropriate answer is stated.

or

[1] Appropriate work is shown, but one conceptual error is made. An appropriate answer is stated.

or

[1] Appropriate work is shown, but the answer is not in simplest radical form. An appropriate answer is stated.

or

[1] $\sqrt{7}$, but no work is shown.

[0] The answer is expressed as a decimal, but no work is shown.

or

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

(32) **[2]** 71–80, and a correct justification is given.

[1] One computational error is made, but an appropriate justification is given.

or

[1] One conceptual error is made, such as stating 41–80 as the interval, but an appropriate justification is given.

or

[1] 71–80, but the justification is missing.

or

[1] 71–80, but the justification is incorrect.

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

(33) **[2]** 1159.27 and correct work is shown.

[1] Appropriate work is shown, but one computational or rounding error is made. An appropriate monetary value is stated.

or

[1] Appropriate work is shown, but one conceptual error is made, such as using simple interest. An appropriate monetary value is stated.

or

[1] $A = 1000(1 + .03)^5$ or an equivalent equation is written, but no further correct work is shown.

or

[1] 1159.27, but no work is shown.

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

Part III

For each question, use the specific criteria to award a maximum of 3 credits. Unless otherwise specified, mathematically correct alternative solutions should be awarded appropriate credit.

(34) **[3]** Both equations are graphed correctly, and at least one is labeled. A correct explanation is given.

[2] Appropriate work is shown, but one graphing or labeling error is made. An appropriate explanation is given.

or

[2] Both equations are graphed correctly and at least one is labeled, but no explanation or an incorrect explanation is given.

or

[2] Both equations are graphed correctly, but neither is labeled. An appropriate explanation is given.

or

[2] One equation is graphed and labeled correctly, and an appropriate explanation is given.

[1] One conceptual error is made, but appropriate graphs are drawn, and at least one is labeled. An appropriate explanation is given.

or

[1] One equation is graphed and labeled correctly, but no further correct work is shown.

or

[1] Appropriate work is shown, but one graphing or labeling error is made. No explanation or an incorrect explanation is given.

or

[1] Appropriate work is shown, but two or more graphing or labeling errors are made. An appropriate explanation is given.

or

[1] A correct explanation is given, but no graphs are drawn.

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

(35) **[3]** 0.075, and correct work is shown.

[2] Appropriate work is shown, but one computational or rounding error is made. An appropriate relative error is stated.

or

[2] $\frac{162.24 - 150}{162.24}$ or equivalent, but the relative error is not found or is found incorrectly, such as expressing it as a percent.

[1] Appropriate work is shown, but two or more computational or rounding errors are made. An appropriate relative error is stated.

or

[1] Appropriate work is shown, but one conceptual error is made, such as dividing by 150. An appropriate relative error is stated.

or

[1] Appropriate work is shown to find 162.24 and 150, but the relative error is not found or is found incorrectly.

or

[1] 0.075, but no work is shown.

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

(36) **[3]** 62.5, and correct work is shown.

[2] Appropriate work is shown, but one computational or rounding error is made. An appropriate number of feet is stated.

or

[2] $\tan 38 = \frac{x}{80}$ or $\tan 52 = \frac{80}{x}$ is written, but no further correct work is shown.

[1] Appropriate work is shown, but two or more computational or rounding errors are made. An appropriate number of feet is stated.

or

[1] Appropriate work is shown, but one conceptual error is made, such as using an incorrect trigonometric function. An appropriate number of feet is stated.

or

[1] 62.5, but no work is shown.

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

Part IV

For each question, use the specific criteria to award a maximum of 4 credits. Unless otherwise specified, mathematically correct alternative solutions should be awarded appropriate credit.

(37) **[4]** Both equations are graphed correctly, and $(-4,-5)$ and $(2,7)$ are stated.

[3] Appropriate work is shown, but one computational or graphing error is made. Appropriate solutions are stated.

or

[3] Both equations are graphed correctly, but only $(-4,-5)$ or $(2,7)$ is stated.

or

[3] Both equations are graphed correctly. The solutions are indicated, but the coordinates are not stated.

[2] Appropriate work is shown, but two or more computational or graphing errors are made. Appropriate solutions are stated.

or

[2] Appropriate work is shown, but one conceptual error is made. Appropriate solutions are stated.

or

[2] Both equations are graphed correctly, but the points of intersection are not stated or are stated incorrectly.

or

[2] One equation is graphed correctly and appropriate solution(s) are stated.

or

[2] $(-4,-5)$ and $(2,7)$ or equivalent answers are found, but a method other than graphic is used.

[1] Appropriate work is shown, but one conceptual error and one computational or graphing error are made. Appropriate solutions are stated.

or

[1] One of the equations is graphed correctly, but no further correct work is shown.

or

[1] $(-4,-5)$ and $(2,7)$ are stated, but no work is shown.

[0] $(-4,-5)$ or $(2,7)$ is stated, but no work is shown or a method other than graphic is used.

or

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

(38) **[4]** -2 and 12, and correct algebraic work is shown.

[3] Appropriate work is shown, but one computational or factoring error is made. Appropriate values are stated.

or

[3] Appropriate work is shown to find either -2 or 12, but no further correct work is shown.

[2] Appropriate work is shown, but two or more computational or factoring errors are made. Appropriate values are stated.

or

[2] Appropriate work is shown, but one conceptual error is made. Appropriate values are stated.

or

[2] A correct quadratic equation in standard form (set equal to zero) is written, but no further correct work is shown.

or

[2] -2 and 12, but a method other than algebraic is used.

[1] Appropriate work is shown, but one conceptual error and one computational or factoring error are made. Appropriate values are stated.

or

[1] $3x^2 - 24 = 2x^2 + 10x$ is written, but no further correct work is shown.

or

[1] -2 and 12, but no work is shown.

[0] -2 or 12, but no work is shown or a method other than algebraic is used.

or

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

(39) **[4]** A correct tree diagram or sample space is shown, and 10 and 6 are stated.

[3] A partially correct tree diagram or sample space containing at least eight correct outcomes is shown. Appropriate solutions are stated.

or

[3] A correct tree diagram or sample space is shown. Either 10 or 6 is stated.

or

[3] A correct tree diagram or sample space is shown, but $\frac{10}{12}$ and $\frac{6}{12}$ are given for outfit selections.

[2] A correct tree diagram or sample space is shown. No further correct work is shown.

or

[2] Appropriate work is shown to find 10 and 6. A tree diagram or sample space of all possible outfits is not shown.

or

[2] A partially correct tree diagram or sample space containing at least eight correct outcomes is shown. Only one appropriate solution is stated.

[1] Appropriate work is shown to find 10 or 6. A tree diagram or sample space of all possible outfits is not shown.

or

[1] A partially correct tree diagram or sample space containing at least eight correct outcomes is shown, but no appropriate solutions are stated.

or

[1] 10 and 6, but no work is shown.

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

Map to Core Curriculum

Content Strands	Item Numbers
Number Sense and Operations	21, 31
Algebra	1, 2, 3, 6, 9, 10, 12, 13, 16, 17, 18, 20, 24, 25, 26, 27, 28, 29, 30, 33, 36, 38
Geometry	5, 7, 22, 23, 34, 37
Measurement	19, 35
Statistics and Probability	4, 8, 11, 14, 15, 32, 39

Regents Examination in Integrated Algebra
January 2014
Chart for Converting Total Test Raw Scores to Final Examination Scores (Scale Scores)

The *Chart for Determining the Final Examination Score for the January 2014 Regents Examination in Integrated Algebra* will be posted on the Department's web site at: http://www.p12.nysed.gov/assessment/ on Thursday, January 30, 2014. Conversion charts provided for previous administrations of the Regents Examination in Integrated Algebra must NOT be used to determine students' final scores for this administration.

Online Submission of Teacher Evaluations of the Test to the Department

Suggestions and feedback from teachers provide an important contribution to the test development process. The Department provides an online evaluation form for State assessments. It contains spaces for teachers to respond to several specific questions and to make suggestions. Instructions for completing the evaluation form are as follows:

1. Go to http://www.forms2.nysed.gov/emsc/osa/exameval/reexameval.cfm.

2. Select the test title.

3. Complete the required demographic fields.

4. Complete each evaluation question and provide comments in the space provided.

5. Click the SUBMIT button at the bottom of the page to submit the completed form.

The University of the State of New York

REGENTS HIGH SCHOOL EXAMINATION

INTEGRATED ALGEBRA

Thursday, January 30, 2014 — 9:15 a.m.

SAMPLE RESPONSE SET

Table of Contents

Question 31

31 Express $\frac{\sqrt{84}}{2\sqrt{3}}$ in simplest radical form.

$\frac{\sqrt{84}}{2\sqrt{3}} = \frac{1}{2}\sqrt{28} = \frac{1}{2} \cdot \sqrt{4}\sqrt{7} = \sqrt{7}$

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

Question 31

31 Express $\frac{\sqrt{84}}{2\sqrt{3}}$ in simplest radical form.

$\sqrt{84}$

$\sqrt{4}\ \sqrt{21}$

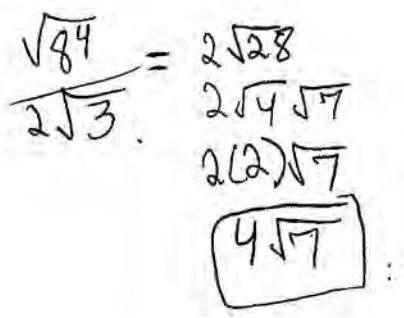
$2\sqrt{21}$

$\frac{2\sqrt{21}}{2\sqrt{3}} = \sqrt{7}$

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

Question 31

31 Express $\frac{\sqrt{84}}{2\sqrt{3}}$ in simplest radical form.



Score 1: The student made one conceptual error by moving the 2 from the denominator to the numerator.

Question 31

31 Express $\frac{\sqrt{84}}{2\sqrt{3}}$ in simplest radical form.

$84 \div 3 = 28$

$\frac{\sqrt{28}}{2}$

2.645751311

Score 1: The student showed appropriate work, but did not express the answer in simplest radical form.

Question 31

31 Express $\frac{\sqrt{84}}{2\sqrt{3}}$ in simplest radical form.

2.645751311

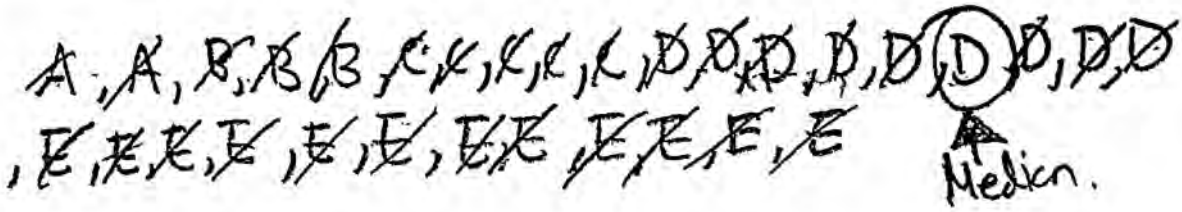
Score 0: The student expressed the answer as a decimal and showed no work.

Question 32

32 The cumulative frequency table below shows the number of minutes 31 students spent text messaging on a weekend.

	Text-Use Interval (minutes)	Cumulative Frequency	
A)	41–50	2	13
B)	41–60	5	15
C)	41–70	10	9
D)	41–80	19	12
E)	41–90	31	

Determine which 10-minute interval contains the median. Justify your choice.



The Answer: 71-80, because when you list all of them out using variables to substitute them, and you cross both sides out evenly until there is only one variable left, You can find letter D only surviving.

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

Question 32

32 The cumulative frequency table below shows the number of minutes 31 students spent text messaging on a weekend.

31 total

Text-Use Interval (minutes)	Cumulative Frequency
41–50	2
41–60	5
41–70	10
41–80	19
41–90	31

2 3 5 9 12

Determine which 10-minute interval contains the median. Justify your choice.

71–80 contains median

because it contains ~~10–14~~ or the middle frequency

~~12–27 frequencies~~

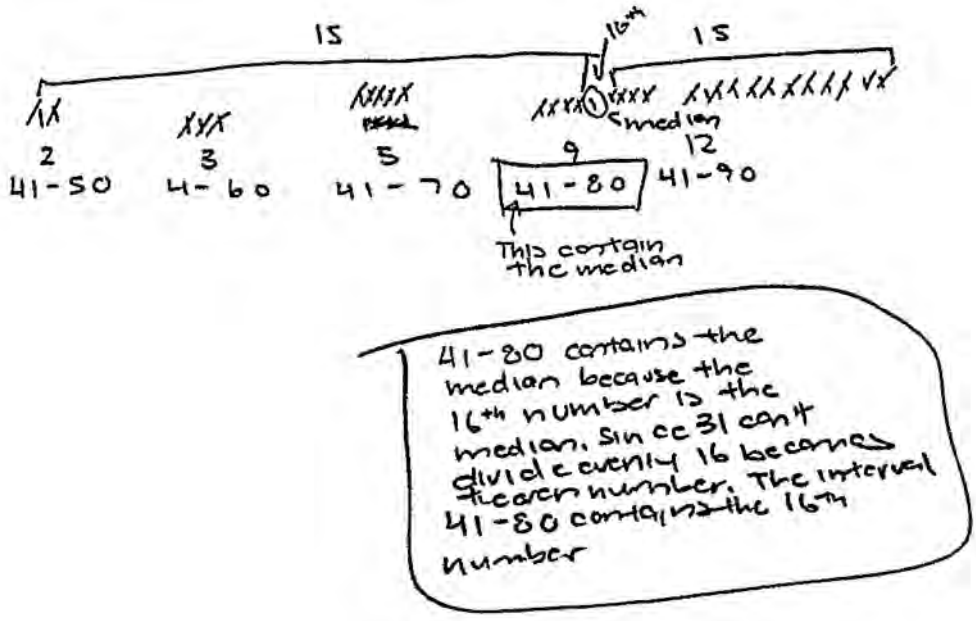
Score 2: The student has a complete and correct response.

Question 32

32 The cumulative frequency table below shows the number of minutes 31 students spent text messaging on a weekend.

Text-Use Interval (minutes)	Cumulative Frequency
41–50	2
41–60	5
41–70	10
41–80	19
41–90	31

Determine which 10-minute interval contains the median. Justify your choice.



Score 1: The student made one conceptual error by stating 41-80.

Question 32

32 The cumulative frequency table below shows the number of minutes 31 students spent text messaging on a weekend.

Text-Use Interval (minutes)	**Cumulative Frequency**
41–50	2 2
41–60	3 5
41–70	7 10
41–80	9 19
41–90	12 31

Determine which 10-minute interval contains the median. Justify your choice.

41-80 minutes has the median. Half of 31 is between 15 and 16, and this interval contains the data that is 15th and 16th in the list.

Score 1: The student made one conceptual error by stating 41-80 instead of 71-80. The student made a computational error in calculating the frequency of the 61-70 interval, but that value is not relevant to the answer.

Question 32

32 The cumulative frequency table below shows the number of minutes 31 students spent text messaging on a weekend.

Text-Use Interval (minutes)	Cumulative Frequency
41–50	2
41–60	5
41–70	10
41–80	19
41–90	31

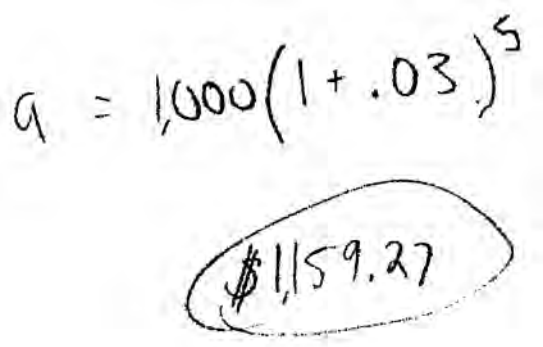
Determine which 10-minute interval contains the median. Justify your choice.

41-70 minutes c. which has cumulative frequency of 10 and it's the median because it's the middle number

Score 0: The student made two conceptual errors. The student gave the cumulative interval (41-70) and chose the median of the cumulative frequency instead of the median student.

Question 33

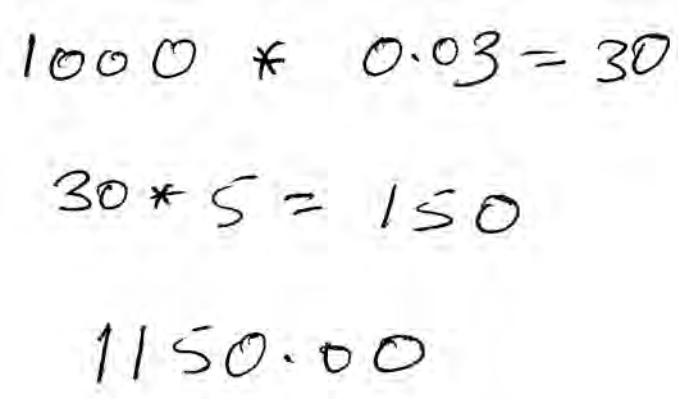
33 Kirsten invested $1000 in an account at an annual interest rate of 3%. She made no deposits or withdrawals on the account for 5 years. The interest was compounded annually. Find the balance in the account, to the *nearest cent*, at the end of 5 years.



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

Question 33

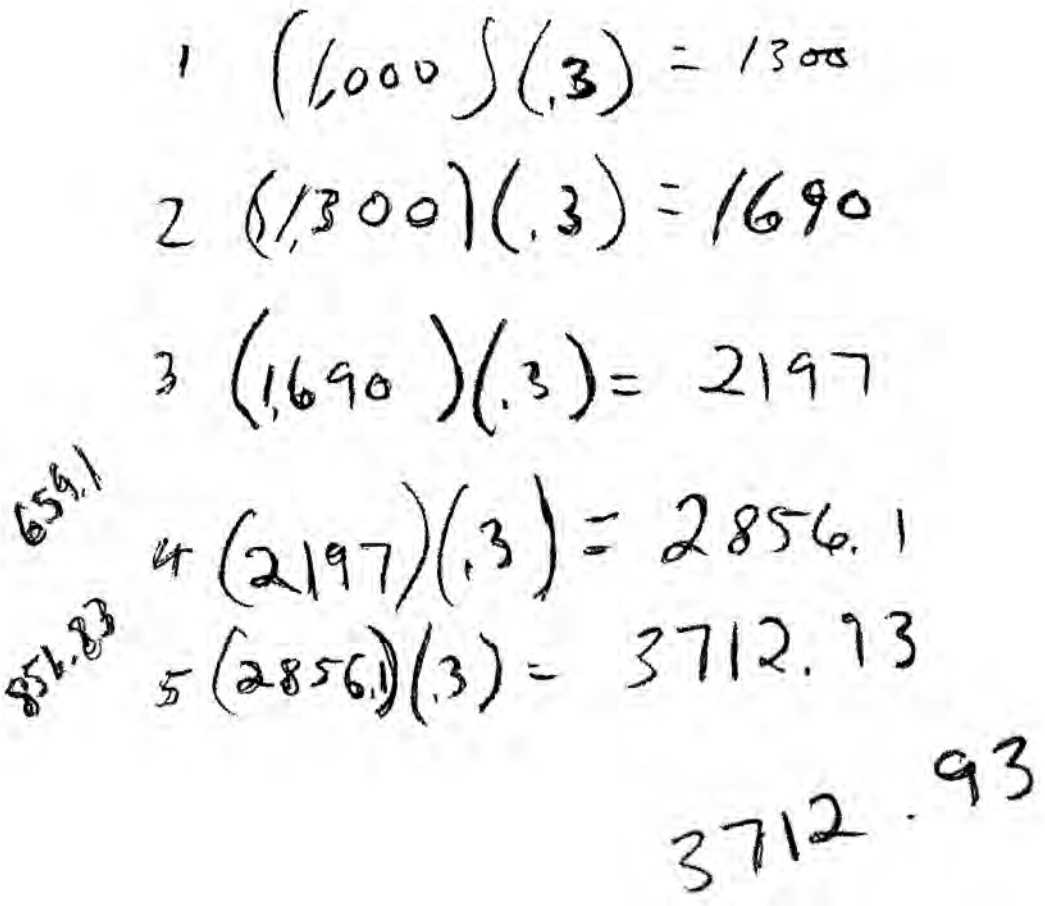
33 Kirsten invested $1000 in an account at an annual interest rate of 3%. She made no deposits or withdrawals on the account for 5 years. The interest was compounded annually. Find the balance in the account, to the *nearest cent*, at the end of 5 years.



Score 1: The student made a conceptual error by using simple interest. The student found an appropriate answer.

Question 33

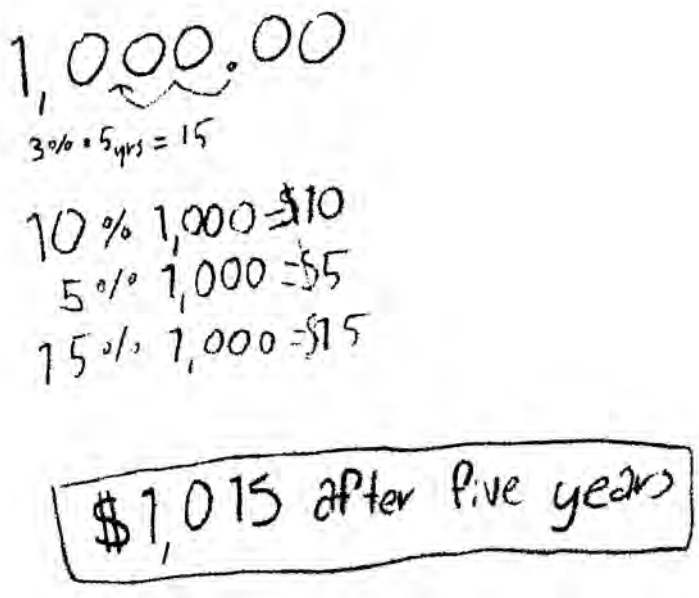
33 Kirsten invested $1000 in an account at an annual interest rate of 3%. She made no deposits or withdrawals on the account for 5 years. The interest was compounded annually. Find the balance in the account, to the *nearest cent*, at the end of 5 years.



Score 1: The student made one conceptual error by using 30%, but found an appropriate answer.

Question 33

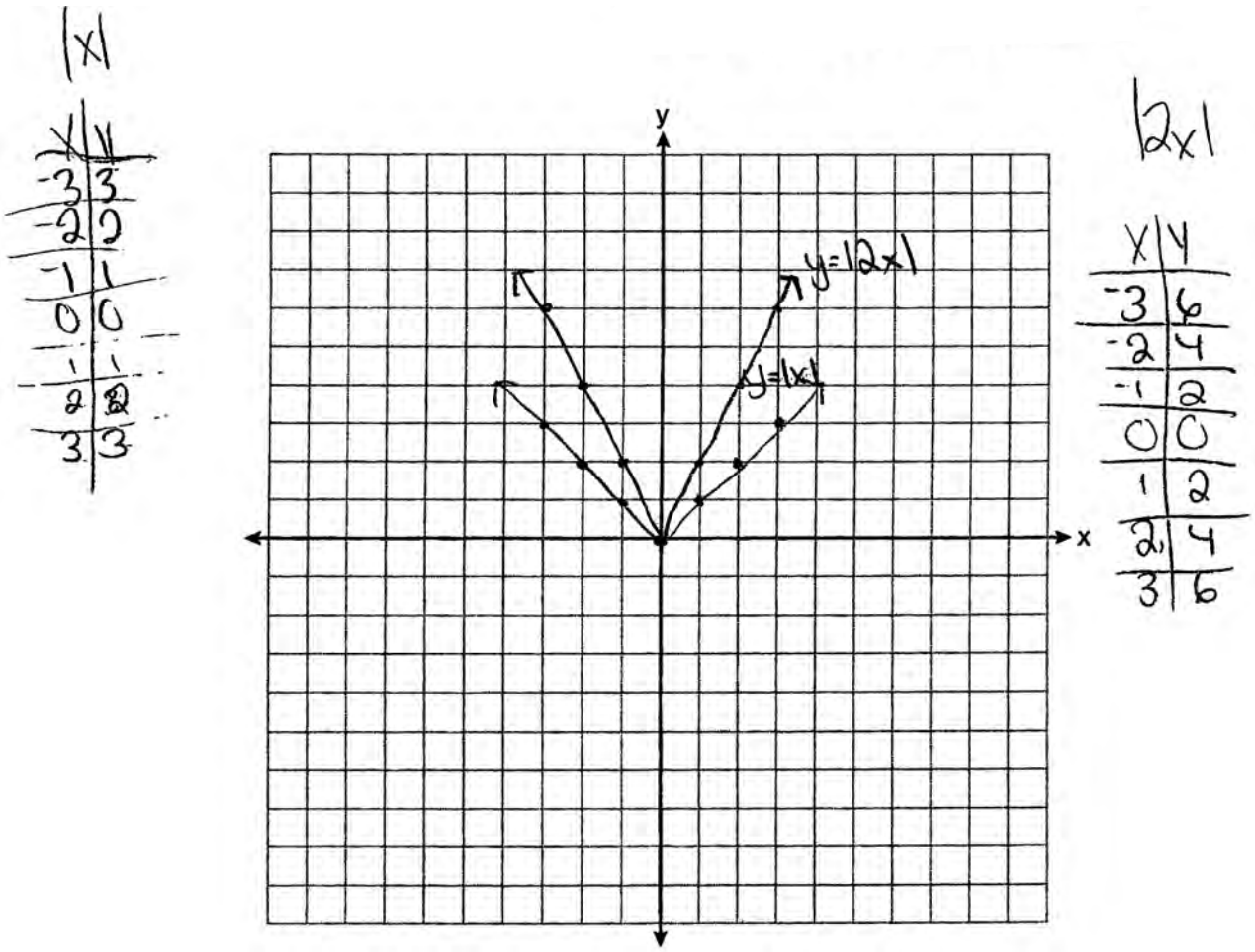
33 Kirsten invested $1000 in an account at an annual interest rate of 3%. She made no deposits or withdrawals on the account for 5 years. The interest was compounded annually. Find the balance in the account, to the *nearest cent*, at the end of 5 years.



Score 0: The student showed a completely incorrect response.

Question 34

34 Graph and label the functions $y = |x|$ and $y = |2x|$ on the set of axes below.



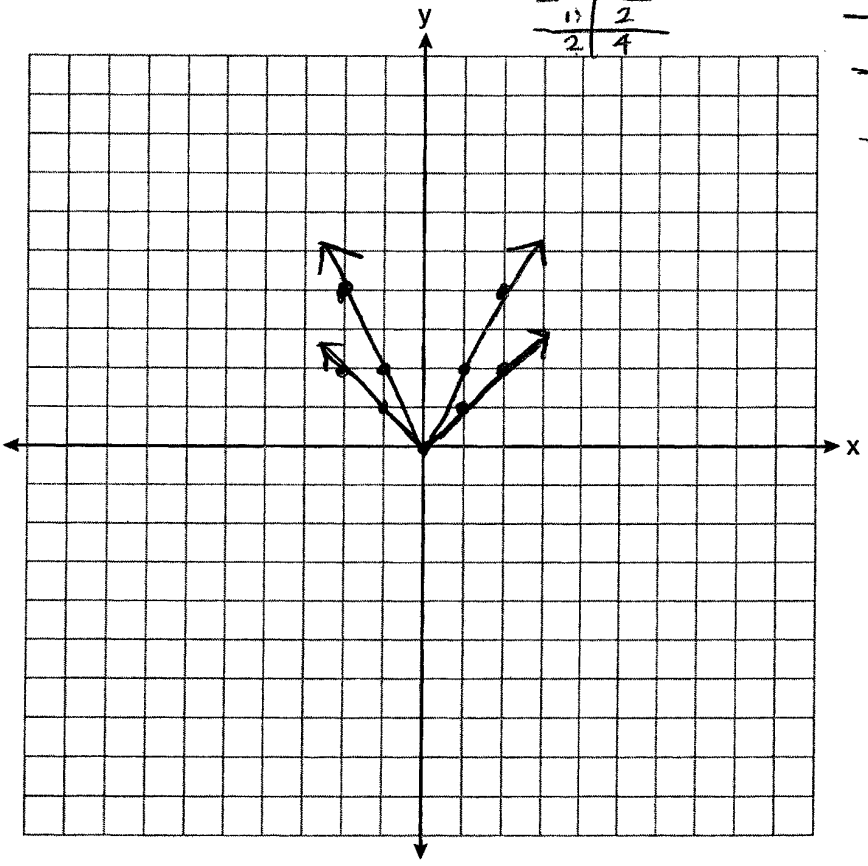
Explain how increasing the coefficient of x affects the graph of $y = |x|$.

The increasing coefficent makes the function more narrow.

Score 3: The student has a complete and correct response.

Question 34

34 Graph and label the functions $y = |x|$ and $y = |2x|$ on the set of axes below.



$y = |2x|$

y	x
−2	−1
−1	−0.5
0	0
1	0.5
2	1

$y = |x|$

y	x
−1	1
0	0
1	1
2	2

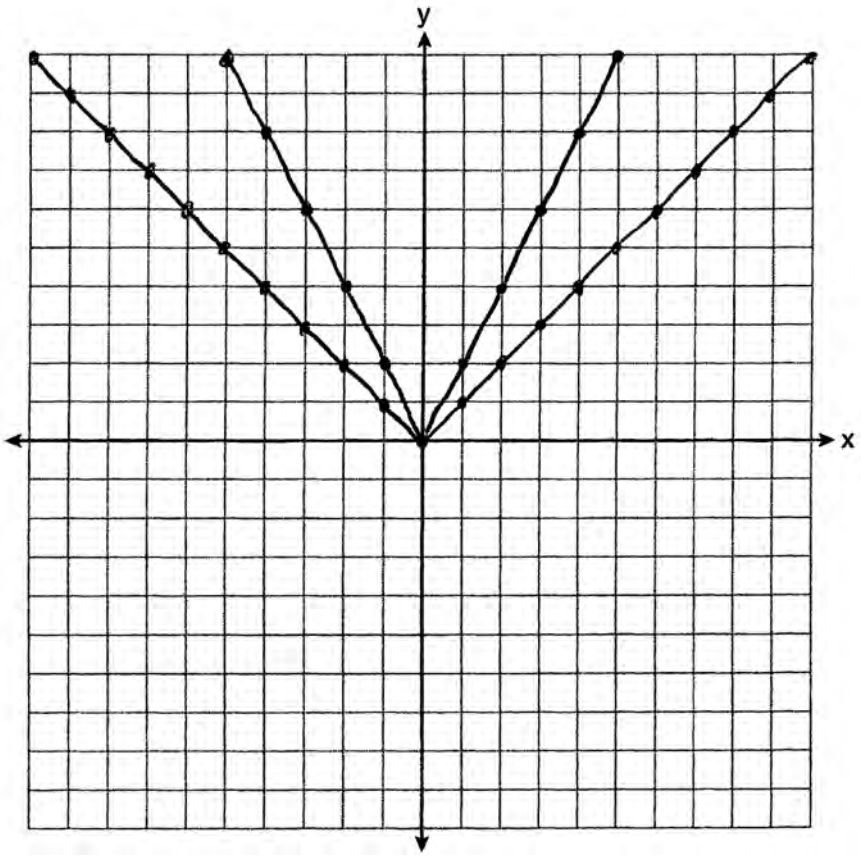
Explain how increasing the coefficient of x affects the graph of $y = |x|$.

Increasing the coefficient makes the result on the graph come out narrower.

Score 2: The student graphed both equations correctly and provided a correct explanation, but did not label either graph.

Question 34

34 Graph and label the functions $y = |x|$ and $y = |2x|$ on the set of axes below.



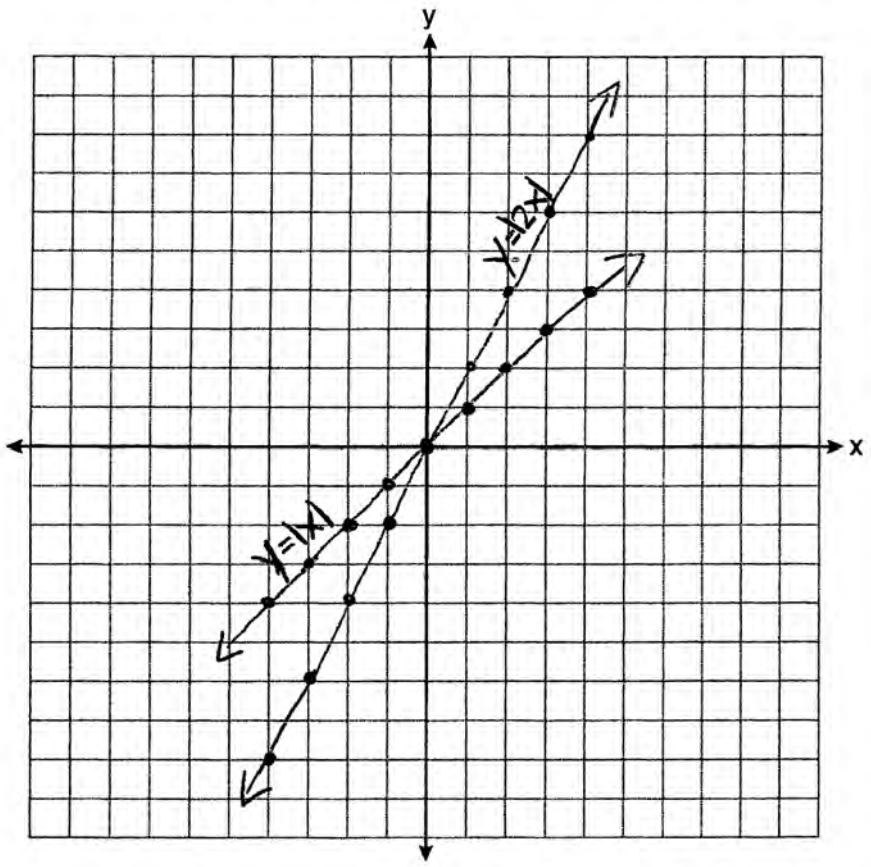
Explain how increasing the coefficient of x affects the graph of $y = |x|$.

When the coefficient of x increases, the graph of y=|x| increases as well.

Score 1: The student graphed both equations correctly, but neither graph was labeled. The student provided an insufficient explanation.

Question 34

34 Graph and label the functions $y = |x|$ and $y = |2x|$ on the set of axes below.

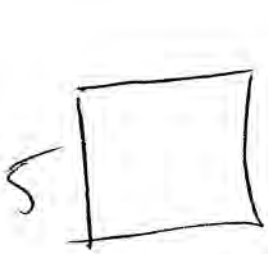


Explain how increasing the coefficient of x affects the graph of $y = |x|$.

Score 0: The student made one conceptual error in graphing lines instead of absolute value functions. The student appropriately labeled the graphs. The student provided no explanation.

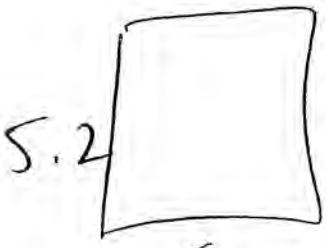
Question 35

35 Terry estimated the length of the edge of a cube to be 5 cm. The actual length of the side is 5.2 cm. Find the relative error of the surface area of the cube, to the *nearest thousandth.*



$SA = 6(5^2)$

150



$6(5.2)^2$

162.24

162.24
−150
12.24

$$\frac{12.24}{162.24} = .075444 \rightarrow .075$$

Score 3: The student has a complete and correct response.

Question 35

35 Terry estimated the length of the edge of a cube to be 5 cm. The actual length of the side is 5.2 cm. Find the relative error of the surface area of the cube, to the *nearest thousandth.*

$5 \times 5 = 25$

$\times 6$

$SA = 150$

$5.2 \times 5.2 = 27.04$

$\times 6$

162.24

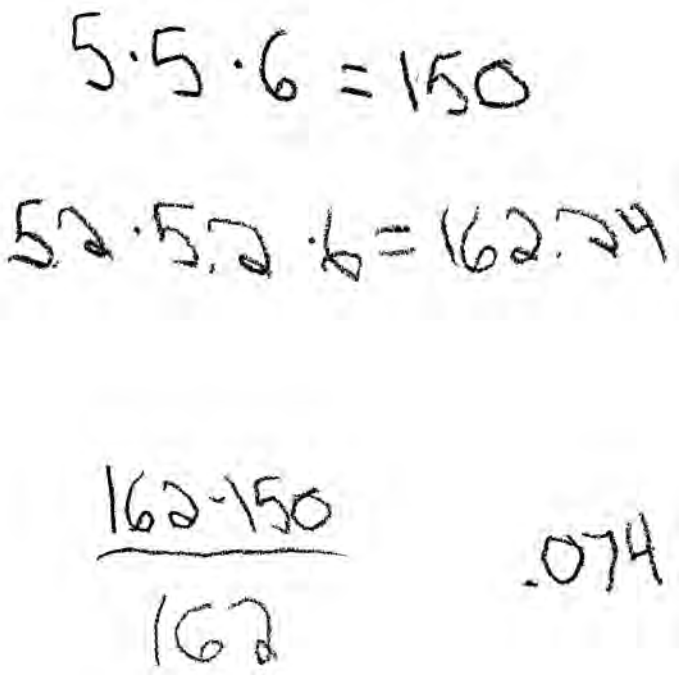
$$\frac{\text{Act.} - \text{est.}}{\text{Act.}}$$

$$\frac{162.24 - 150}{162.24}$$

Score 2: The student showed correct work to find the expression, but did not find the relative error.

Question 35

35 Terry estimated the length of the edge of a cube to be 5 cm. The actual length of the side is 5.2 cm. Find the relative error of the surface area of the cube, to the *nearest thousandth.*



Score 2: The student found the correct surface areas, but inappropriately rounded 162.24 to 162 before calculating the relative error.

Question 35

35 Terry estimated the length of the edge of a cube to be 5 cm. The actual length of the side is 5.2 cm. Find the relative error of the surface area of the cube, to the *nearest thousandth.*

$SA = 2(5.2)(5.2) + 2(5.2)(5.2) + 2(5.2)(5.2)$

$SA = 162.240$

$SA = 2(5)(5) + 2(5)(5) + 2(5)(5)$

$SA = 150.000$

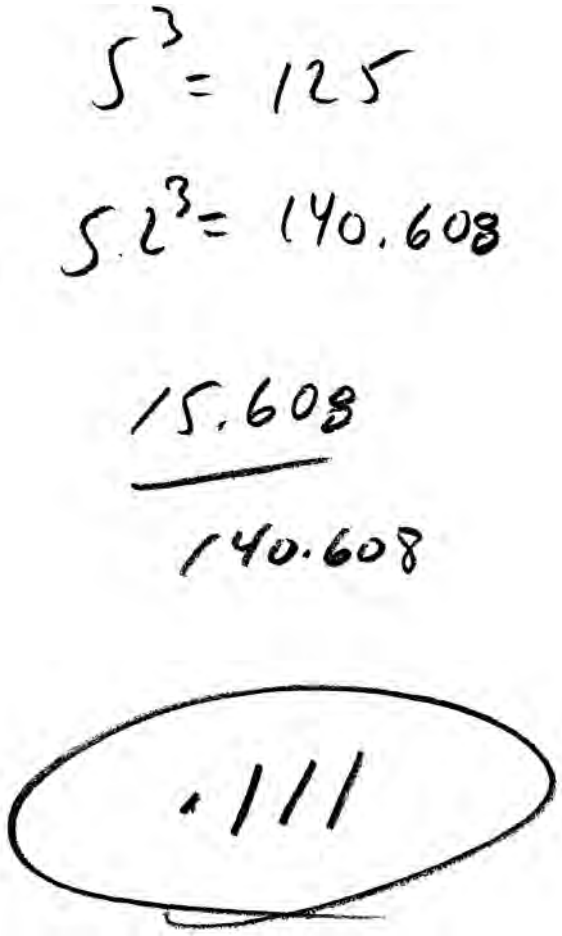
$SA = \frac{162.240}{150.000}$

$SA = 1.085$

Score 1: The student showed correct work to find 162.24 and 150, but found the relative error incorrectly.

Question 35

35 Terry estimated the length of the edge of a cube to be 5 cm. The actual length of the side is 5.2 cm. Find the relative error of the surface area of the cube, to the *nearest thousandth.*

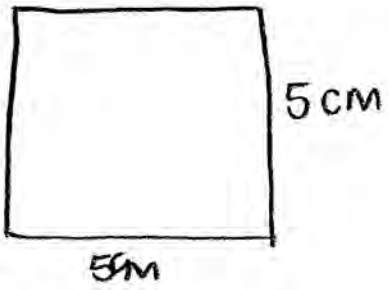


Score 1: The student made a conceptual error by calculating volume instead of surface area, but gave an appropriate answer.

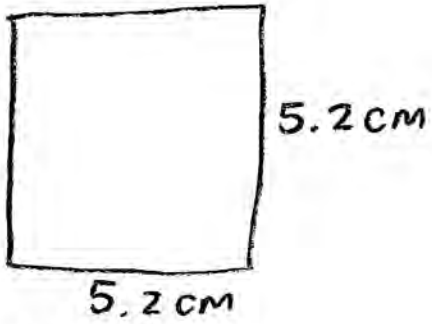
Question 35

35 Terry estimated the length of the edge of a cube to be 5 cm. The actual length of the side is 5.2 cm. Find the relative error of the surface area of the cube, to the *nearest thousandth.*

Terry's cube:



actual cube:



A = 5 · 5
A = 25cm

A = 5.2 · 5.2
A = 27.04

27.04
− 25
2.04

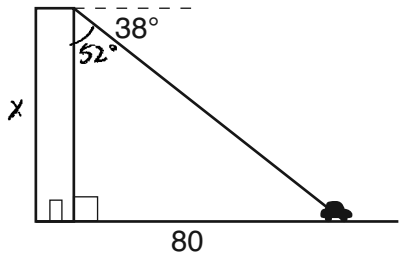
The relative error of the surface area of the cube to the nearest tenth is 2.04.

Score 0: The student made two conceptual errors.

Question 36

36 From the top of an apartment building, the angle of depression to a car parked on the street below is 38 degrees, as shown in the diagram below. The car is parked 80 feet from the base of the building. Find the height of the building, to the *nearest tenth of a foot*.

$90° - 38° = 52°$



$\tan = \frac{\text{opposite}}{\text{adjacent}}$

$\tan 52° = \frac{80}{x}$

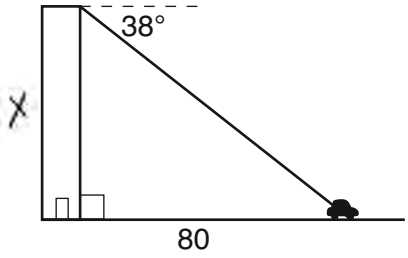
$\frac{x \tan 52°}{\tan 52°} = \frac{80}{\tan 52°}$

$x \approx 62.5 \text{ ft}$

Score 3: The student has a complete and correct response.

Question 36

36 From the top of an apartment building, the angle of depression to a car parked on the street below is 38 degrees, as shown in the diagram below. The car is parked 80 feet from the base of the building. Find the height of the building, to the *nearest tenth of a foot*.



$\tan 38 = \frac{X}{80}$

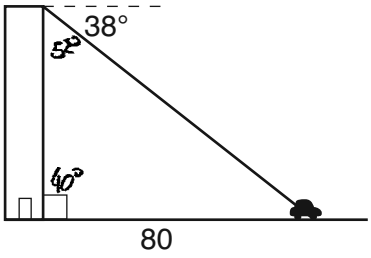
$80 \tan 38 = X$

$X = 62.5$ ft

Score 3: The student has a complete and correct response.

Question 36

36 From the top of an apartment building, the angle of depression to a car parked on the street below is 38 degrees, as shown in the diagram below. The car is parked 80 feet from the base of the building. Find the height of the building, to the *nearest tenth of a foot*.



40-38

$\tan 52 = \frac{80}{x}$

$(x)(1.3) = \frac{80}{x}(x)$

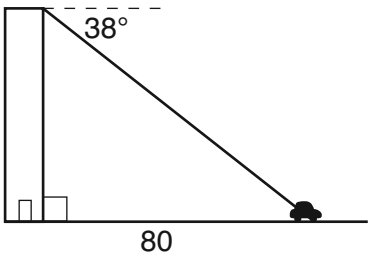
$\frac{1.3x}{1.3} = \frac{80}{1.3}$

$x = 61.5$ ft

Score 2: The student made one rounding error by using 1.3 for tan 52° instead of 1.279941632. The rounding should be done at the final step, not in the first step.

Question 36

36 From the top of an apartment building, the angle of depression to a car parked on the street below is 38 degrees, as shown in the diagram below. The car is parked 80 feet from the base of the building. Find the height of the building, to the *nearest tenth of a foot*.



$\tan 38 = \frac{x}{80}$

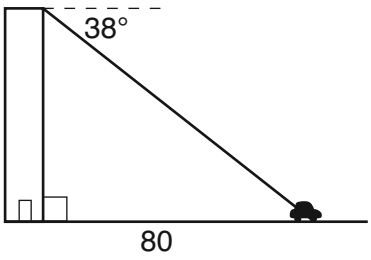
$80 \tan 38 = x$

$24.8 = x$

Score 2: The student wrote the correct tangent ratio, but used radian mode instead of degree mode.

Question 36

36 From the top of an apartment building, the angle of depression to a car parked on the street below is 38 degrees, as shown in the diagram below. The car is parked 80 feet from the base of the building. Find the height of the building, to the *nearest tenth of a foot*.



$\frac{\tan 38°}{1} = \frac{80}{x}$

$\frac{80}{\tan 38°} = \frac{\tan 38° \cdot x}{\tan 38°}$

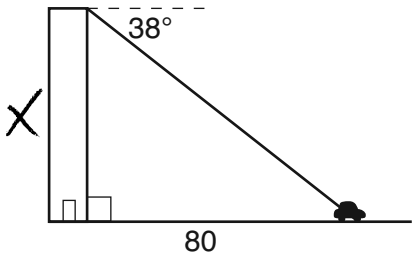
$x = 102.3953306$

$x = 102.4$ ft

Score 1: The student showed appropriate work, but made one conceptual error by using an incorrect trigonometric equation.

Question 36

36 From the top of an apartment building, the angle of depression to a car parked on the street below is 38 degrees, as shown in the diagram below. The car is parked 80 feet from the base of the building. Find the height of the building, to the *nearest tenth of a foot*.



$\frac{38}{80} = x$

$.475 = x$

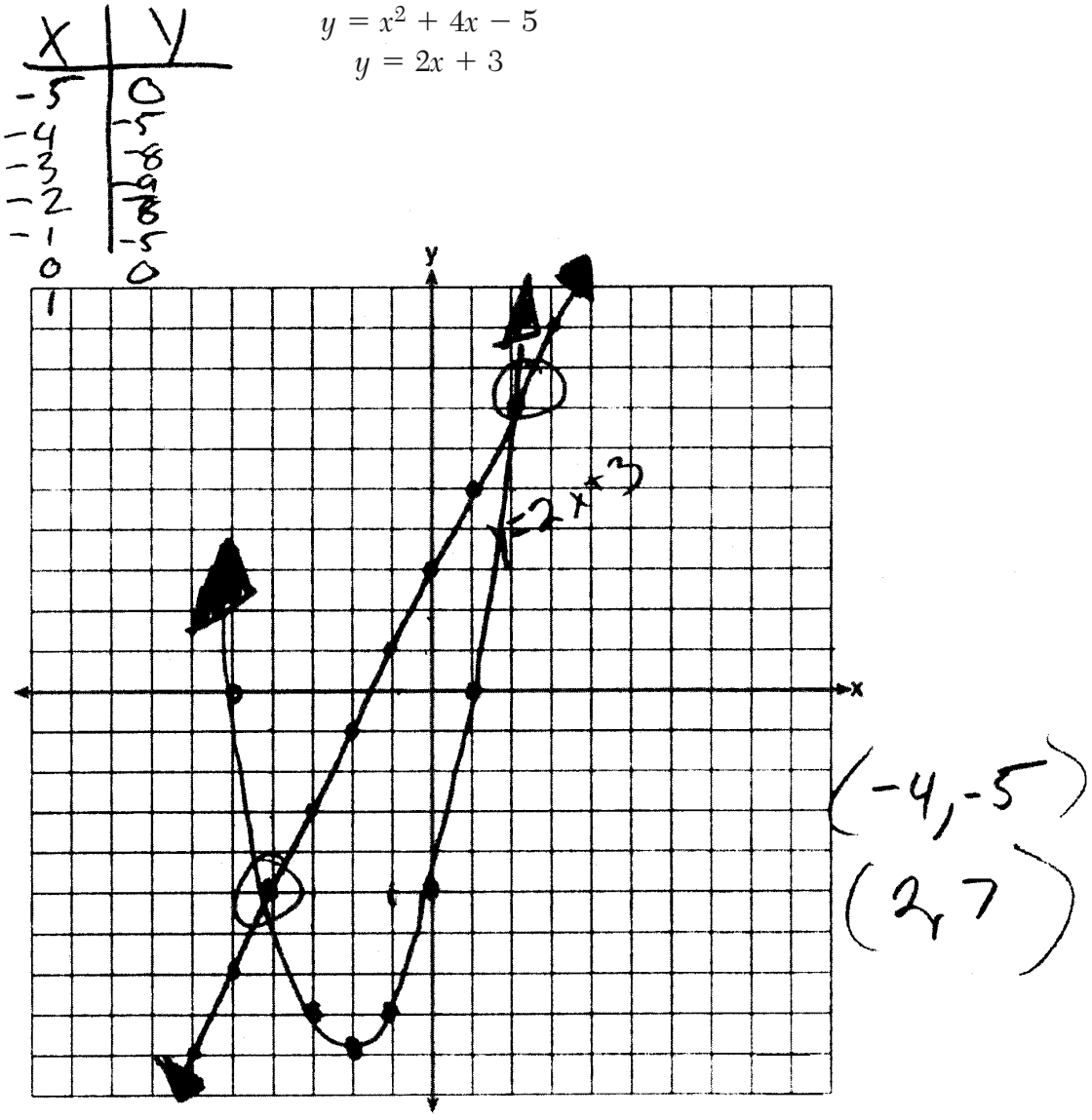
Score 0: The student gave a completely incorrect response.

Question 37

37 On the set of axes below, solve the following system of equations graphically for all values of x and y. State the coordinates of all the solutions.

$y = x^2 + 4x - 5$

$y = 2x + 3$



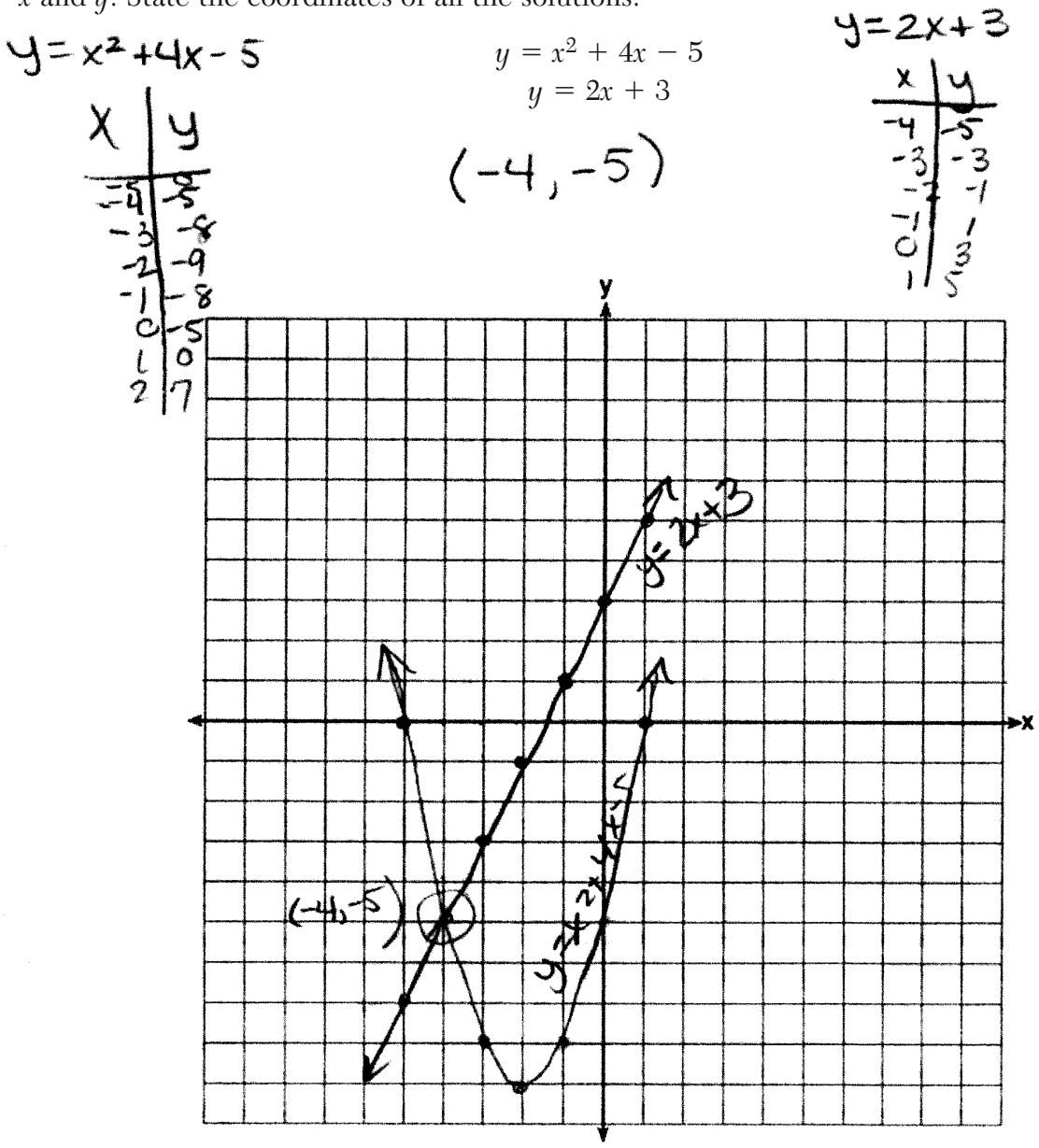
Score 4: The student has a complete and correct response.

Question 37

37 On the set of axes below, solve the following system of equations graphically for all values of x and y. State the coordinates of all the solutions.

$y = x^2 + 4x - 5$

$y = 2x + 3$



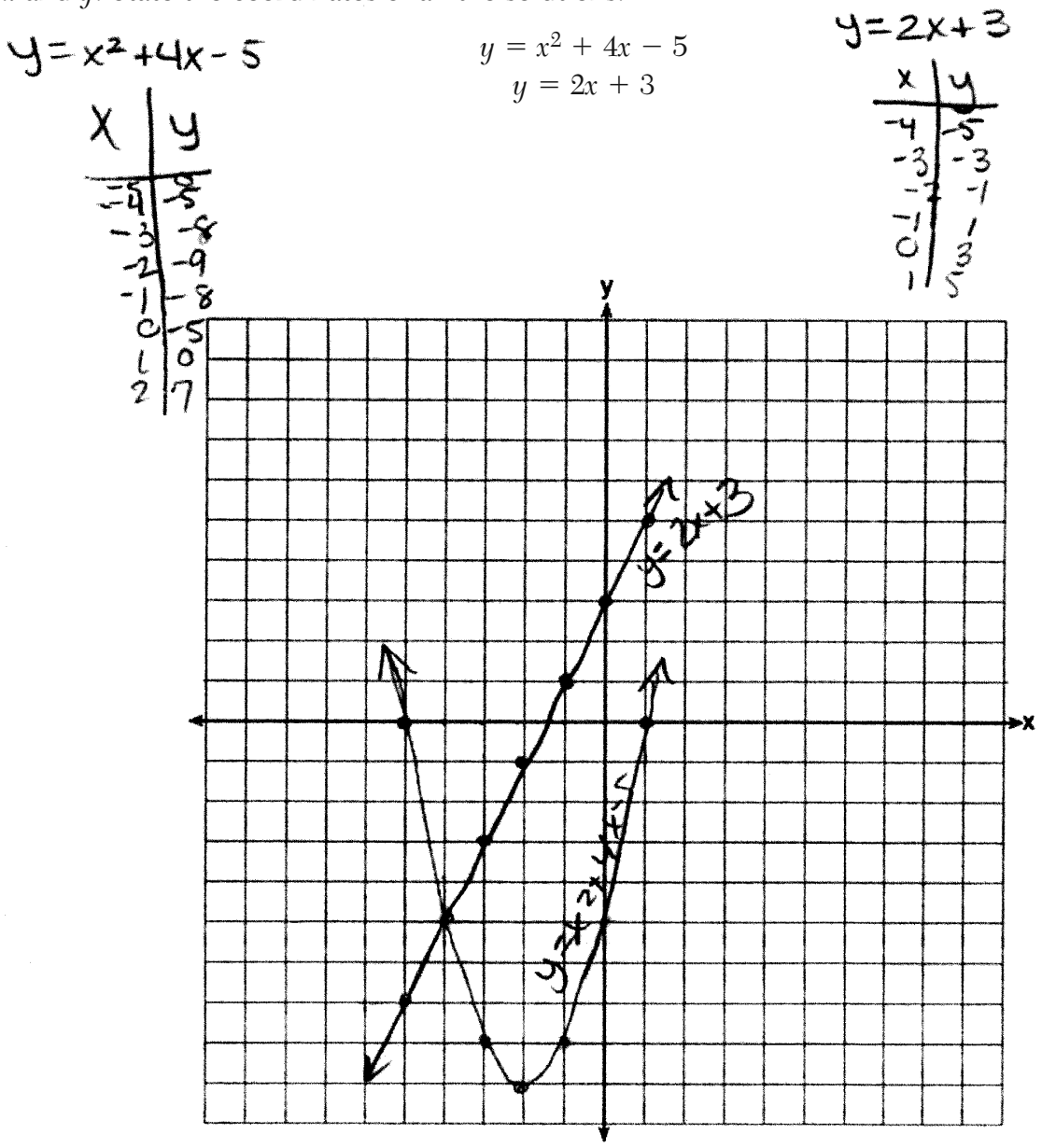
Score 3: The student graphed both equations correctly, but stated only one point.

Question 37

37 On the set of axes below, solve the following system of equations graphically for all values of x and y. State the coordinates of all the solutions.

$y = x^2 + 4x - 5$

$y = 2x + 3$

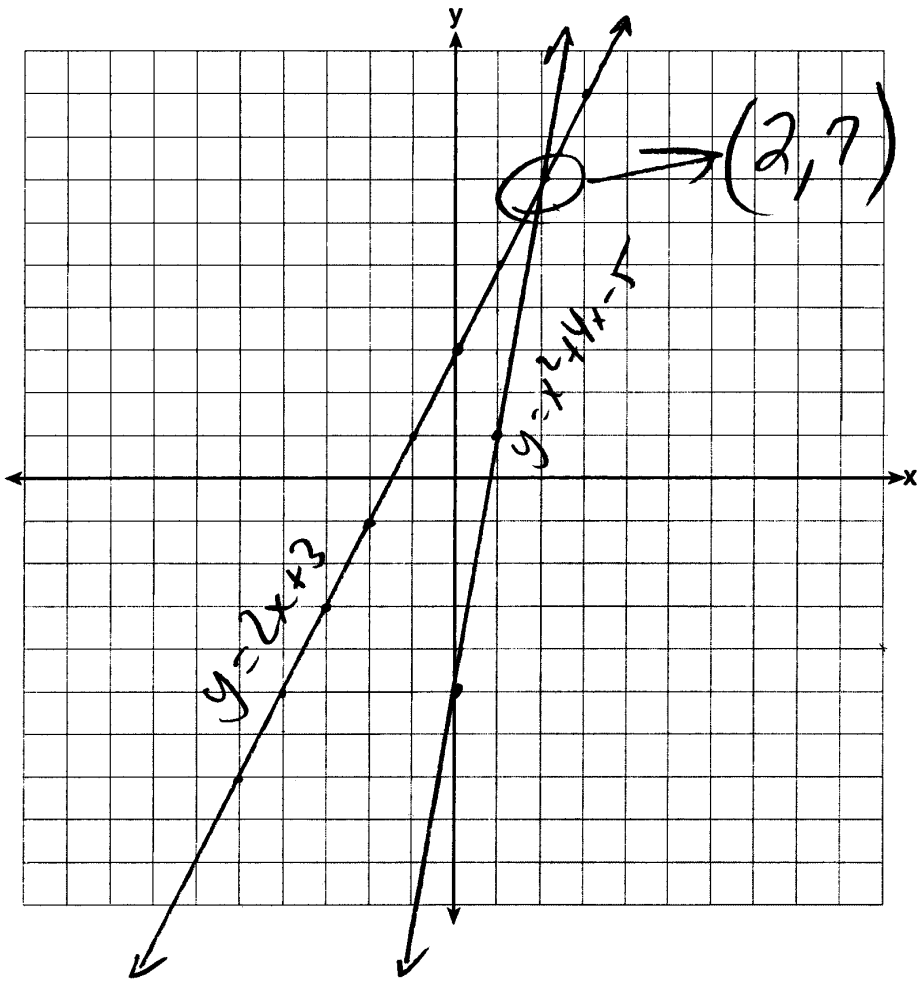


Score 2: The student graphed both equations correctly, but stated neither point.

Question 37

37 On the set of axes below, solve the following system of equations graphically for all values of x and y. State the coordinates of all the solutions.

$$y = x^2 + 4x - 5$$
$$y = 2x + 3$$



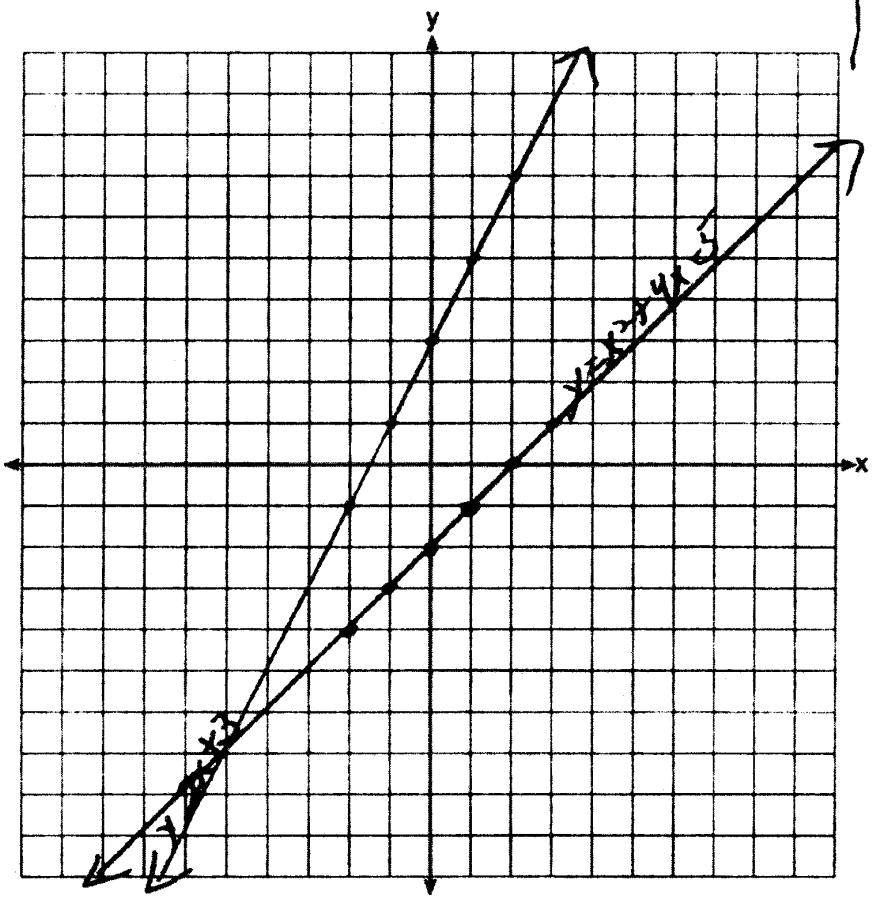
Score 2: The student made a conceptual error by graphing a line instead of a parabola, but stated an appropriate solution.

Question 37

37 On the set of axes below, solve the following system of equations graphically for all values of x and y. State the coordinates of all the solutions.

$y = x^2 + 4x - 5$

$y = 2x + 3$

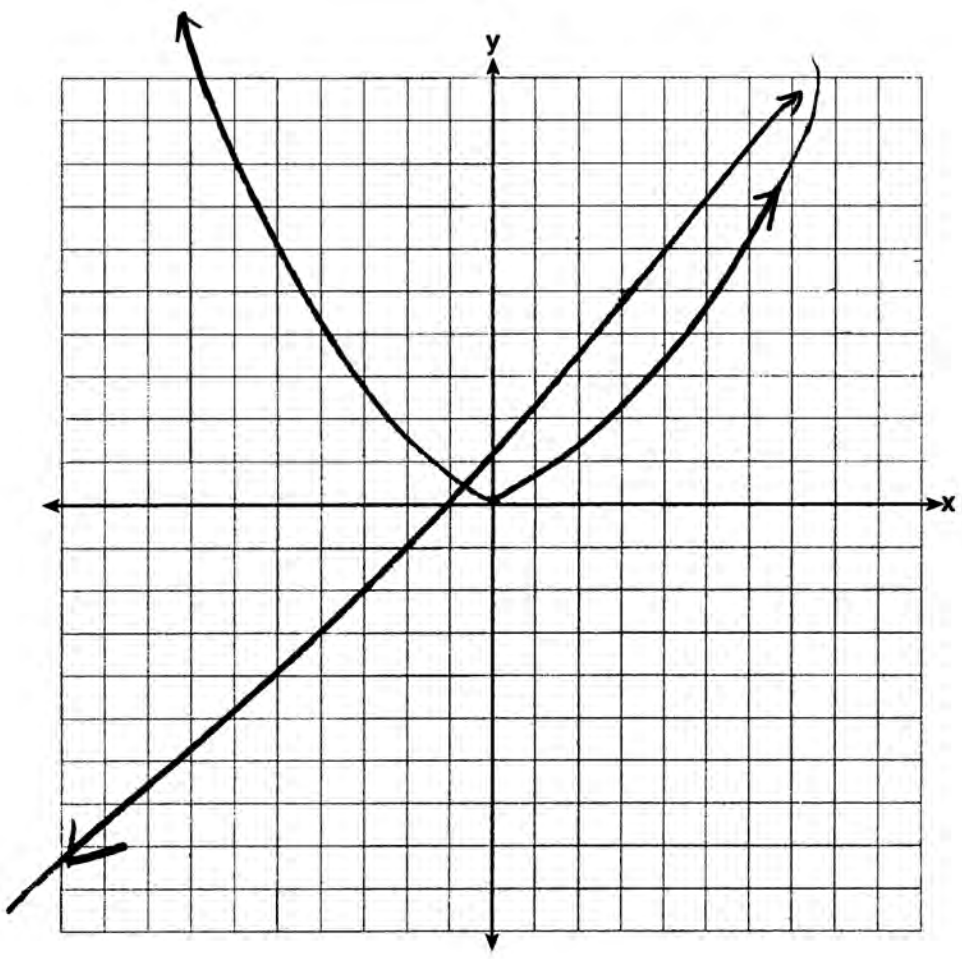


Score 1: The student graphed $y = 2x + 3$ correctly, but showed no further correct work.

Question 37

37 On the set of axes below, solve the following system of equations graphically for all values of x and y. State the coordinates of all the solutions.

$$y = x^2 + 4x - 5$$
$$y = 2x + 3$$



Score 0: The student showed completely incorrect work.

Question 38

38 Solve algebraically for all values of x: $\frac{3}{x+5} = \frac{2x}{x^2-8}$

$3(x^2-8) = 2x(x+5)$

$3x^2 - 24 = 2x^2 + 10x$

$-2x^2 \quad -2x^2$

$x^2 - 24 = 10x$

$-10x \quad -10x$

$x^2 - 10x - 24 = 0$

$(x-12)(x+2)$

$x = 12 \quad x = -2$

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

Question 38

38 Solve algebraically for all values of x: $\frac{3}{x+5} = \frac{2x}{x^2-8}$

$3(x^2-8) = 2x(x+5)$

$3x^2-24 = 2x^2+10x$

$-2x^2 \quad -2x^2$

$x^2-24 = 10x$

$-10x \quad -10x$

$x^2-24-10x = 0$

$(x-12)(x+2)$

$x=12$	$x=2$

Score 3: The student made one computational error.

Question 38

38 Solve algebraically for all values of x: $\frac{3}{x+5} = \frac{2x}{x^2-8}$

$3(x^2-8) = 2x(x+5)$

$3x^2-24 = 2x^2+10x$

$-2x^2 \quad -2x^2$

$1x^2-24 = 10x$

$1x^2-10x-24=0$

-24, -6, -4, -10

$(x+6)(x-4)=0$

$x+6=0$ | $x-4=0$

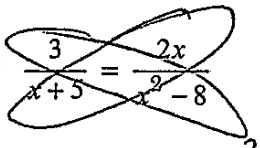
$-6 \ -6$ | $+4 \ +4$

$x=-6$ | $x=4$

Score 3: The student made one factoring error.

Question 38

38 Solve algebraically for all values of x: $\frac{3}{x+5} = \frac{2x}{x^2-8}$



$3x^2 - 24 = 2x^2 + 10x$

$9x - 24 = 4x + 10x$

$9x - 24 = 14x$

$-9x \quad -9x$

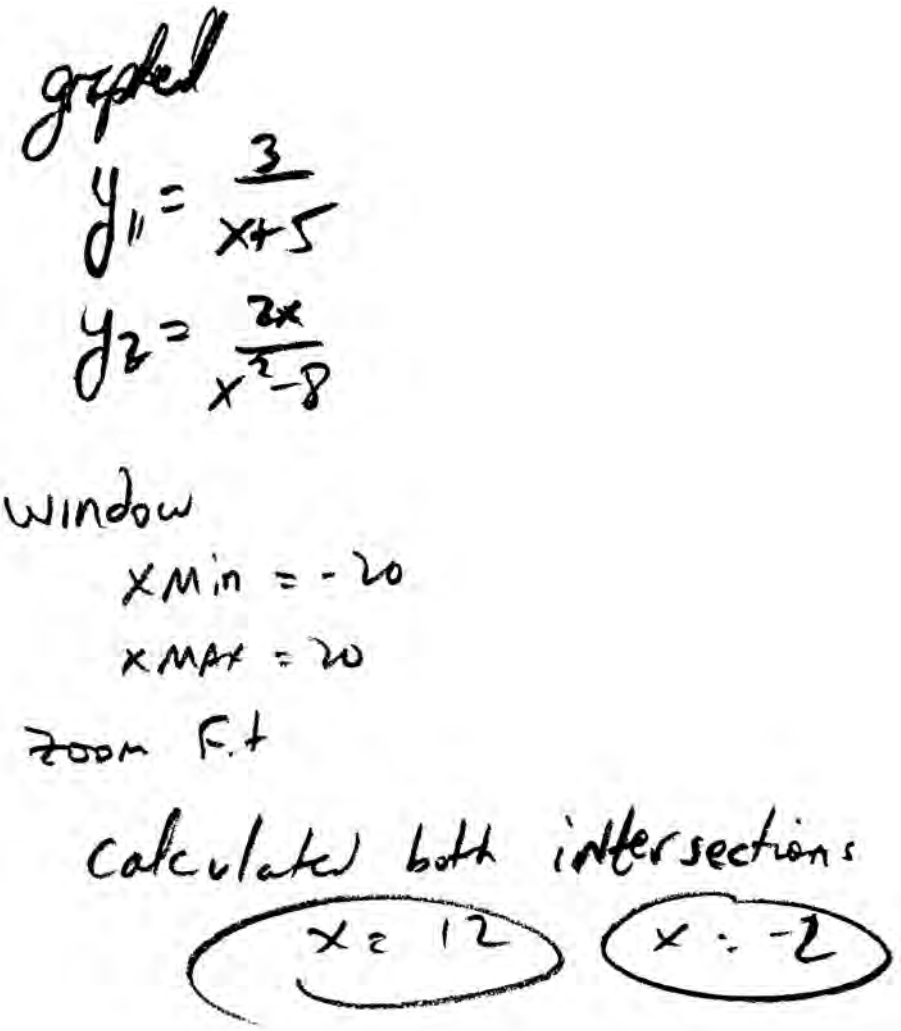
$\frac{-24}{5} = \frac{5x}{5}$

$-4.8 = x$

Score 2: The student made one conceptual error ($3x^2 \rightarrow 9x$, $2x^2 \rightarrow 4x$), but followed through and correctly solved $9x - 24 = 4x + 10x$ for an appropriate answer.

Question 38

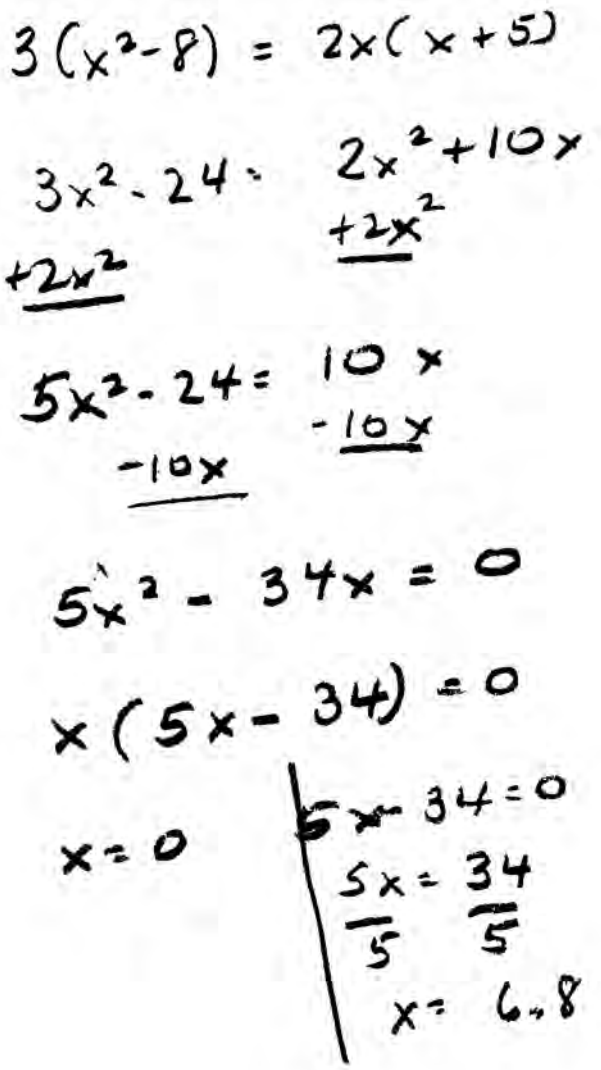
38 Solve algebraically for all values of x: $\frac{3}{x+5} = \frac{2x}{x^2-8}$



Score 2: The student found both 12 and −2, but used a method other than algebraic.

Question 38

38 Solve algebraically for all values of x: $\frac{3}{x+5} = \frac{2x}{x^2-8}$



Score 1: The student made one computational error (adds $2x^2$) and one conceptual error ($-24 + -10x = -34x$), but stated appropriate values.

Question 38

38 Solve algebraically for all values of x: $\frac{3}{x+5} = \frac{2x}{x^2-8}$

$2x(x+5) \quad 3(x^2-8)$

$2x^2+5 = 3x^2-8$

$-2x^2 \quad -2x^2$

$5 = x^2-8$

$8+ \quad +8$

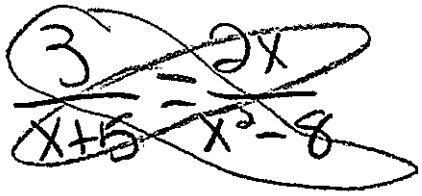
$\sqrt{13} = \sqrt{x^2}$

$x = \sqrt{13}$

Score 1: The student made one conceptual error by using distribution incorrectly and one computational error by not writing $\pm\sqrt{13}$.

Question 38

38 Solve algebraically for all values of x: $\frac{3}{x+5} = \frac{2x}{x^2-8}$



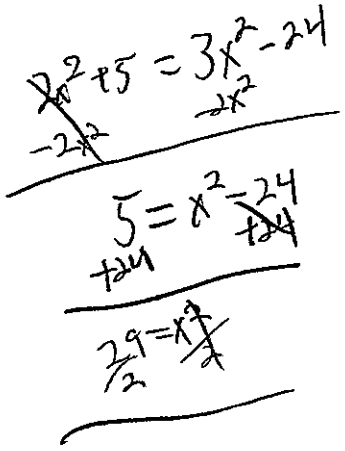
$3x^2 - 24$

$2x^2 + 10x$

Score 0: The student cross-multiplied, but expressed the result as a quotient, not an equation. The student showed no further work.

Question 38

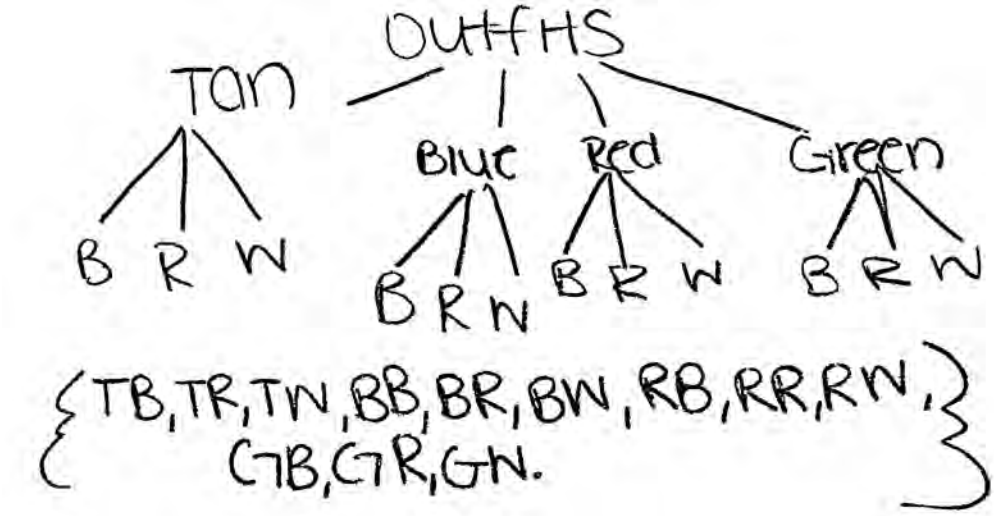
38 Solve algebraically for all values of x: $\frac{3}{x+5} = \frac{2x}{x^2-8}$



Score 0: The student made two conceptual errors. The student did not distribute correctly and solved $x^2 = 29$ by dividing by 2.

Question 39

39 Doug has four baseball caps: one tan, one blue, one red, and one green. He also has three jackets: one blue, one red, and one white. Draw a tree diagram or list a sample space to show all possible outfits consisting of one baseball cap and one jacket.



Find the number of Doug's outfits that consist of a cap and a jacket that are different colors.

10 OUTFITS.

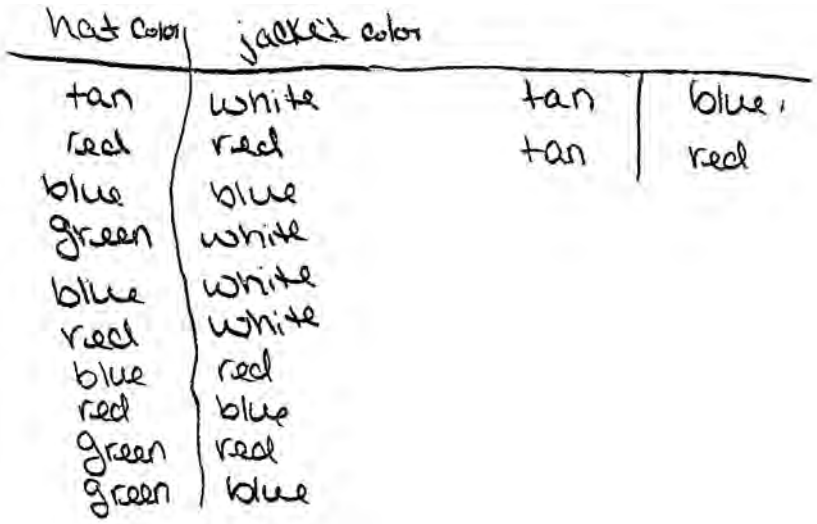
On Spirit Day, Doug wants to wear either green or white, his school's colors. Find the number of his outfits from which he can choose.

6 OUTFITS.

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

Question 39

39 Doug has four baseball caps: one tan, one blue, one red, and one green. He also has three jackets: one blue, one red, and one white. Draw a tree diagram or list a sample space to show all possible outfits consisting of one baseball cap and one jacket.



Find the number of Doug's outfits that consist of a cap and a jacket that are different colors.

$\frac{10}{12}$

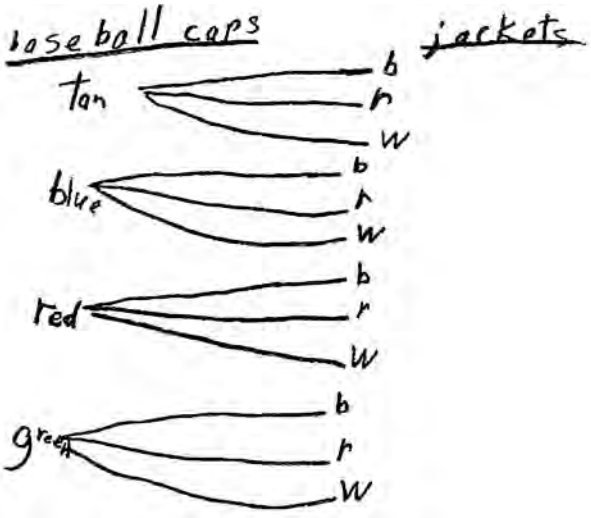
On Spirit Day, Doug wants to wear either green or white, his school's colors. Find the number of his outfits from which he can choose.

$\frac{6}{12}$

Score 3: The student showed a correct sample space, but $\frac{10}{12}$ and $\frac{6}{12}$ are given instead of 10 and 6.

Question 39

39 Doug has four baseball caps: one tan, one blue, one red, and one green. He also has three jackets: one blue, one red, and one white. Draw a tree diagram or list a sample space to show all possible outfits consisting of one baseball cap and one jacket.



Find the number of Doug's outfits that consist of a cap and a jacket that are different colors.

11

On Spirit Day, Doug wants to wear either green or white, his school's colors. Find the number of his outfits from which he can choose.

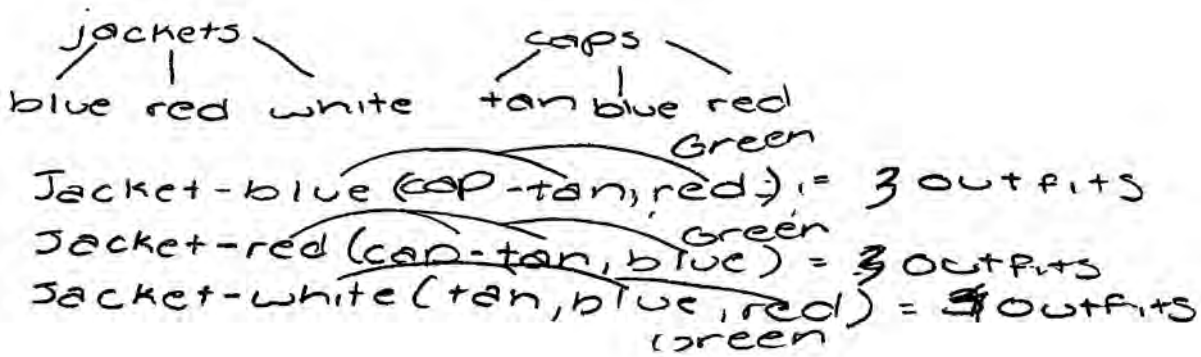
6

g, b
g, r
g, w
r, w
b, w
t, w

Score 3: The student drew a correct tree diagram, but only 6 is stated correctly.

Question 39

39 Doug has four baseball caps: one tan, one blue, one red, and one green. He also has three jackets: one blue, one red, and one white. Draw a tree diagram or list a sample space to show all possible outfits consisting of one baseball cap and one jacket.



Find the number of Doug's outfits that consist of a cap and a jacket that are different colors.

10 outfits

On Spirit Day, Doug wants to wear either green or white, his school's colors. Find the number of his outfits from which he can choose.

Score 2: The student drew a partially correct tree diagram and only 10 is stated correctly.

Question 39

39 Doug has four baseball caps: one tan, one blue, one red, and one green. He also has three jackets: one blue, one red, and one white. Draw a tree diagram or list a sample space to show all possible outfits consisting of one baseball cap and one jacket.

Find the number of Doug's outfits that consist of a cap and a jacket that are different colors.

9 outfits

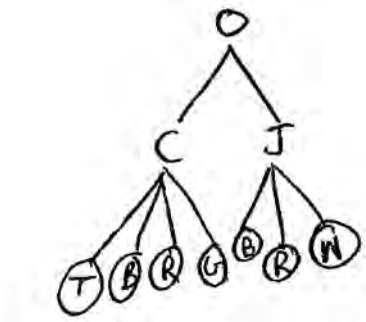
On Spirit Day, Doug wants to wear either green or white, his school's colors. Find the number of his outfits from which he can choose.

3 outfits

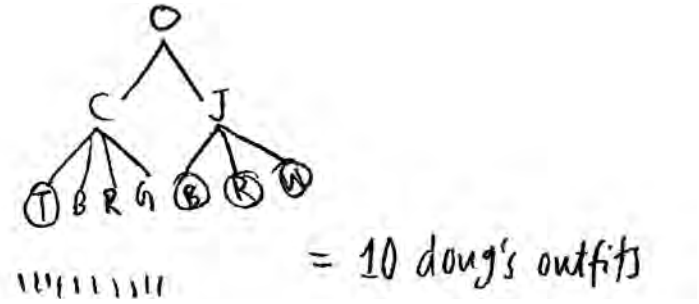
Score 1: The student drew a partially correct tree diagram. The student showed no further correct work.

Question 39

39 Doug has four baseball caps: one tan, one blue, one red, and one green. He also has three jackets: one blue, one red, and one white. Draw a tree diagram or list a sample space to show all possible outfits consisting of one baseball cap and one jacket.



Find the number of Doug's outfits that consist of a cap and a jacket that are different colors.



On Spirit Day, Doug wants to wear either green or white, his school's colors. Find the number of his outfits from which he can choose.

Score 0: The student drew an incorrect tree diagram, and gave one correct response based on an obviously incorrect procedure.

Regents Examination in Integrated Algebra – January 2014

Chart for Converting Total Test Raw Scores to Final Examination Scores (Scale Scores)

Raw Score	Scale Score	Raw Score	Scale Score	Raw Score	Scale Score	Raw Score	Scale Score
87	**100**	65	**85**	43	**75**	21	**53**
86	**99**	64	**84**	42	**75**	20	**52**
85	**98**	63	**84**	41	**74**	19	**50**
84	**97**	62	**84**	40	**73**	18	**48**
83	**96**	61	**83**	39	**73**	17	**47**
82	**95**	60	**83**	38	**72**	16	**45**
81	**95**	59	**82**	37	**71**	15	**43**
80	**94**	58	**82**	36	**70**	14	**41**
79	**93**	57	**82**	35	**69**	13	**39**
78	**92**	56	**81**	34	**69**	12	**37**
77	**92**	55	**81**	33	**68**	11	**35**
76	**91**	54	**81**	32	**67**	10	**33**
75	**90**	53	**80**	31	**66**	9	**30**
74	**90**	52	**80**	30	**65**	8	**28**
73	**89**	51	**79**	29	**63**	7	**25**
72	**88**	50	**79**	28	**62**	6	**22**
71	**88**	49	**79**	27	**61**	5	**19**
70	**87**	48	**78**	26	**60**	4	**16**
69	**87**	47	**78**	25	**59**	3	**12**
68	**86**	46	**77**	24	**57**	2	**9**
67	**86**	45	**77**	23	**56**	1	**5**
66	**86**	44	**76**	22	**55**	0	**0**

To determine the student's final examination score, find the student's total test raw score in the column labeled "Raw Score" and then locate the scale score that corresponds to that raw score. The scale score is the student's final examination score. Enter this score in the space labeled "Scale Score" on the student's answer sheet.

Schools are not permitted to rescore any of the open-ended questions on this exam after each question has been rated once, regardless of the final exam score. Schools are required to ensure that the raw scores have been added correctly and that the resulting scale score has been determined accurately.

Because scale scores corresponding to raw scores in the conversion chart change from one administration to another, it is crucial that for each administration the conversion chart provided for that administration be used to determine the student's final score. The chart above is usable only for this administration of the Regents Examination in Integrated Algebra.