Algebra I Regents Exam Questions at Random Worksheet # 1 NAME:_____
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Algebra I Regents at Random Worksheets

1 A ball was launched into the air, and its height above the ground was recorded each second, as shown in the table below.

Time (sec)	0	1	2	3	4
Height (ft)	11	59	75	59	11

Based on these data, which statement is a valid conclusion?

1) The ball lands on the ground at 4 seconds.
2) The ball reaches a maximum height of 11 feet.
3) The ball was launched from a height of 0 feet.
4) The ball reaches its maximum height at 2 seconds.

2 The expression $-2(x^2 - 2x + 1) + (3x^2 + 3x - 5)$ is equivalent to

1) $x^2 + x - 4$
2) $x^2 - x - 7$
3) $x^2 + 7x - 4$
4) $x^2 + 7x - 7$

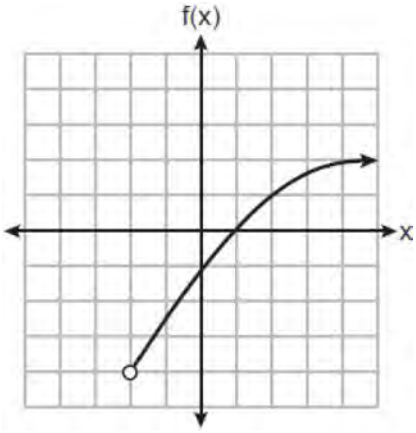
3 Nancy has just been hired for her first job. Her company gives her four choices for how she can collect her annual salary over the first eight years of employment. Each function below represents the four choices she has for her annual salary in thousands of dollars, where t represents the number of years after she is hired.

$a(t) = 2^t + 25$
$b(t) = 10t + 75$
$c(t) = \sqrt{400t} + 80$
$d(t) = 2(t+1)^2 - 10t + 50$

Which pay plan should Nancy choose in order to have the highest salary in her eighth year?

1) $a(t)$
2) $b(t)$
3) $c(t)$
4) $d(t)$

4 A function is graphed on the set of axes below.



The domain of this function is

1) $\{x|x > -2\}$
2) $\{x|x \geq -2\}$
3) $\{x|x > -4\}$
4) $\{x|x \geq -4\}$

5 Use the method of completing the square to determine the exact values of x for the equation $x^2 + 10x - 30 = 0$.

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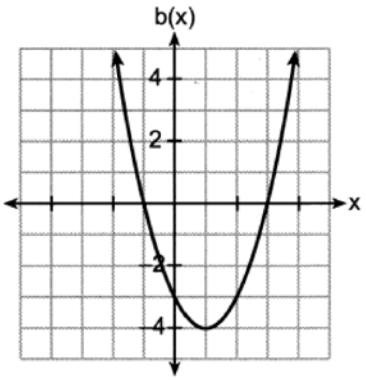
6 Four quadratic functions are represented below.

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

I

$c(x) = x^2 + 6x + 3$

III



II

x	d(x)
–4	–1
–3	–4
–2	–5
–1	–4
0	–1

IV

Which function has the *smallest* minimum value?

1) I
2) II
3) III
4) IV

7 Courtney went to a coffee shop to purchase lattes and donuts for her friends. One day she spent a total of \$15.50 on four lattes and two donuts. The next day she spent a total of \$18.10 on three lattes and five donuts. All prices included tax. If x represents the cost of one latte and y represents the cost of one donut, write a system of equations that can be used to model this situation. Courtney thinks that one latte costs \$2.75 and one donut costs \$2.25. Is Courtney correct? Justify your answer. Use your equations to determine algebraically the exact cost of one latte and the exact cost of one donut.

8 Solve $5(x-2) \le 3x + 20$ algebraically.

9 The equation that represents the sequence $-2, -5, -8, -11, -14, \ldots$ is

1) $a_n = -3 + (-2)(n-1)$
2) $a_n = -2 + (-3)(n-1)$
3) $a_n = 3 + (-2)(n-1)$
4) $a_n = -2 + (3)(n-1)$

10 Which equation represents the line that passes through the points $(-1, 8)$ and $(4, -2)$?

1) $y = -2x + 6$
2) $y = -2x + 10$
3) $y = -0.5x + 7.5$
4) $y = -0.5x + 8.5$

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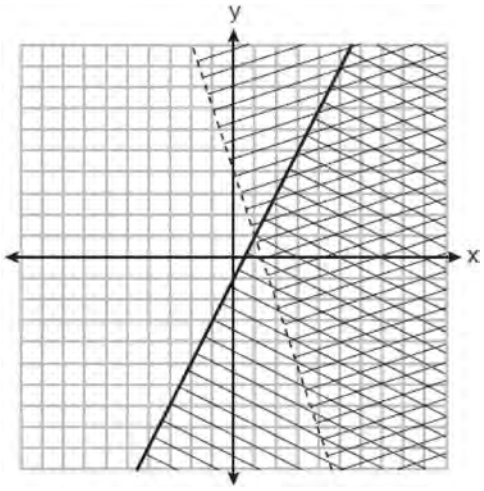
11 A survey of 150 students was taken. It was determined that $\frac{2}{3}$ of the students play video games. Of the students that play video games, 85 also use social media. Of the students that do not play video games, 20% do not use social media. Complete the two-way frequency table.

	Play Video Games	**Do Not Play Video Games**	**Total**
Social Media			
No Social Media			
Total			

12 A system of inequalities is graphed on the set of axes below.



Which point is a solution to this system?
1) $(1,1)$
2) $(2,-2)$
3) $(1,8)$
4) $(4,2)$

13 Using the quadratic formula, solve $x^2 + 4x - 3 = 0$. Express your solution in simplest radical form.

14 Factor $5x^3 - 80x$ completely.

15 The sum of $2\sqrt{54}$ and $2\sqrt{6}$ is
1) $4\sqrt{60}$
2) $8\sqrt{15}$
3) $7\sqrt{6}$
4) $8\sqrt{6}$

16 When solving $-2(3x - 5) = \frac{9}{2}x - 2$ for x, the solution is
1) $\frac{8}{7}$
2) $\frac{10}{11}$
3) $-\frac{16}{21}$
4) $-\frac{16}{3}$

17 Use the quadratic formula to determine the exact roots of the equation $x^2 + 3x - 6 = 0$.

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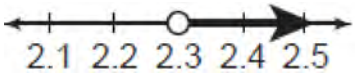
18 The owner of an ice cream stand kept track of the number of ice cream cones that were sold each day of the first week in June. She compared the ice cream sales to the average daily temperature. The data are shown in the table below.

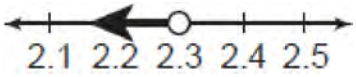
Average Daily Temp. (x)	72	75	81	78	77	76	80
Daily Ice Cream Cone Sales (y)	126	183	263	229	200	185	249

State the linear regression equation for these data, rounding all values to the *nearest hundredth*. State the correlation coefficient, to the *nearest hundredth*, for the line of best fit for these data. State what this correlation coefficient indicates about the linear fit of the data.

19 Which graph is the solution to the inequality $6.4 - 4x \geq -2.8$?

1) 

2) 

3) 

4) 

20 The number of fish in a pond is eight more than the number of frogs. The total number of fish and frogs in the pond is at least 20. If x represents the number of frogs, which inequality can be used to represent this situation?

1) $x + 8x \geq 20$
2) $2x + 8 \geq 20$
3) $x + 8x \leq 20$
4) $2x + 8 \leq 20$

21 Given the relation $R = \{(-1,1),(0,3),(-2,-4),(x,5)\}$. State a value for x that will make this relation a function. Explain why your answer makes this a function.

22 Wayde van Niekerk, a runner from South Africa, ran 400 meters in 43.03 seconds to set a world record. Which calculation would determine his average speed, in miles per hour?

1) $\frac{400\text{ m}}{43.03\text{ sec}} \cdot \frac{1000\text{ m}}{0.62\text{ mi}} \cdot \frac{1\text{ hr}}{3600\text{ sec}}$
2) $\frac{400\text{ m}}{43.03\text{ sec}} \cdot \frac{0.62\text{ mi}}{1000\text{ m}} \cdot \frac{1\text{ hr}}{3600\text{ sec}}$
3) $\frac{400\text{ m}}{43.03\text{ sec}} \cdot \frac{0.62\text{ mi}}{1000\text{ m}} \cdot \frac{3600\text{ sec}}{1\text{ hr}}$
4) $\frac{400\text{ m}}{43.03\text{ sec}} \cdot \frac{1000\text{ m}}{0.62\text{ mi}} \cdot \frac{3600\text{ sec}}{1\text{ hr}}$

23 What is an equation of the line that passes through the points $(2,7)$ and $(-1,3)$?

1) $y - 2 = \frac{3}{4}(x - 7)$
2) $y - 2 = \frac{4}{3}(x - 7)$
3) $y - 7 = \frac{3}{4}(x - 2)$
4) $y - 7 = \frac{4}{3}(x - 2)$

24 Given $g(x) = x^3 + 2x^2 - x$, evaluate $g(-3)$.

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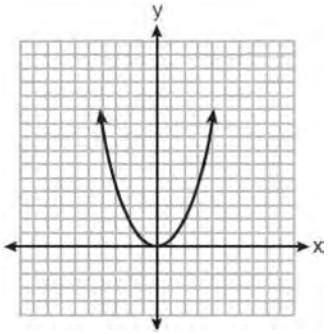
25 The function $f(x) = x^2$ is multiplied by k, where $k < -1$. Which graph could represent $g(x) = kf(x)$?

1)



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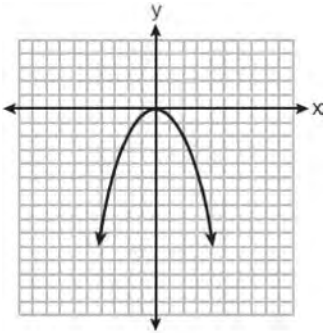

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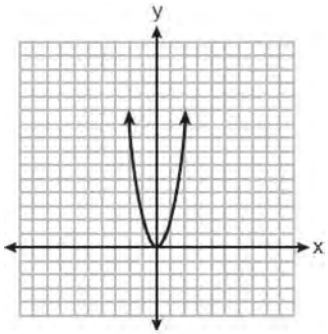
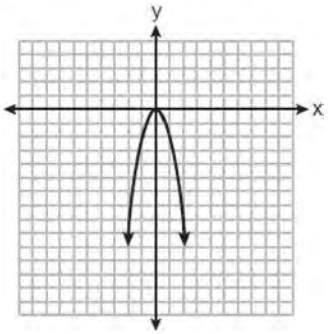


4)

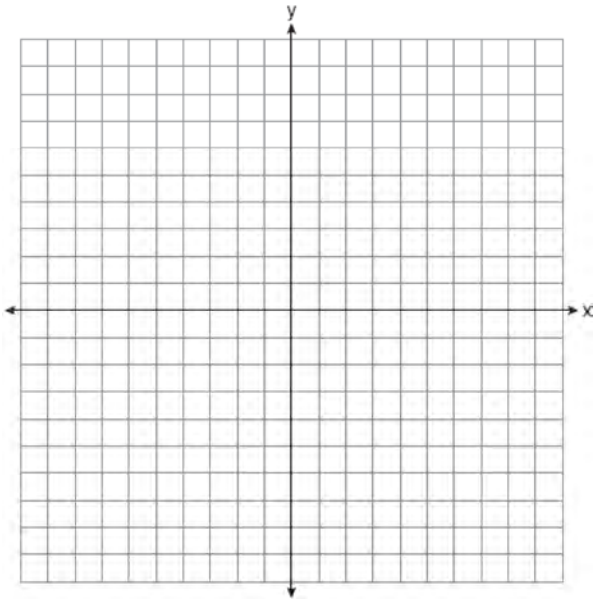


26 Solve algebraically for x: $0.05(x - 3) = 0.35x - 7.5$

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

$$3y + 2x \leq 15$$

$$y - x > 1$$



State the coordinates of a point in the solution to this system. Justify your answer.

28 The amount of money a plumber charges is represented by the function $p(h) = 45 + 90h$. The best interpretation of the y-intercept of this function is that the plumber charges

1) \$45 to come to the house
2) \$45 per hour that he works
3) \$90 to come to the house
4) \$90 per hour that he works

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29 Explain why the relation shown in the table below is a function.

x	–1	0	1	2
y	2	4	4	5

Complete the table below with values for both x and y so that this new relation is *not* a function.

x	–1	0	1	2	
y	2	4	4	5	

30 The dot plot below shows the number of goals Jessica scored in each lacrosse game last season.

Goals Scored per Game

Which statement about the dot plot is correct?

1) mean > mode
2) mean = median
3) mode = median
4) median > mean

31 What is the y-intercept of the line that passes through the points $(-1,5)$ and $(2,-1)$?

1) –1
2) –2
3) 3
4) 5

32 Use the quadratic formula to solve the equation $3x^2 - 10x + 5 = 0$. Express the answer in simplest radical form.

33 Alex had \$1.70 in nickels and dimes on his desk. There were 25 coins in all. Write a system of equations that could be used to determine both the number of nickels, n, and the number of dimes, d, that Alex had. Use your system of equations to algebraically determine both the number of nickels and the number of dimes that he had.

34 If $f(x) = \frac{-3x-5}{2}$, algebraically determine the value of x when $f(x) = -22$.

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35 A bookstore owner recorded the number of books sold and the profit made selling the books.

Books Sold	Profit
100	$50.00
250	$275.00
300	$350.00
350	$425.00

What is the average rate of change, in dollars per book, between 100 and 350 books sold?

1) 0.50
2) 0.67
3) 1.50
4) 2.00

36 Which ordered pair is a solution to the equation $y - 1 = 2\left(x + \frac{1}{4}\right)$?

1) $(0.75, 0)$
2) $(1.25, 4)$
3) $(2.5, -6.5)$
4) $(4, -9.5)$

37 The third term in a sequence is 25 and the fifth term is 625. Which number could be the common ratio of the sequence?

1) $\frac{1}{5}$
2) 5
3) $\frac{1}{25}$
4) 25

38 Which expression is equivalent to $(5x^2 - 2x + 4) - (3x^2 + 3x - 1)$?

1) $2x^2 + x + 3$
2) $2x^2 - 5x + 5$
3) $2x^4 + x^2 + 3$
4) $2x^4 - 5x^2 + 5$

39 Which expression results in an irrational number?

1) $\sqrt{3} \cdot \sqrt{3}$
2) $-\frac{2}{3} + \frac{1}{4}$
3) $5 \cdot \sqrt{81}$
4) $\frac{1}{3} + \sqrt{3}$

40 Which situation can be modeled by a linear function?

1) A printer can print one page every three seconds.
2) A bank account earns 0.5% interest each year, compounded annually.
3) The number of cells in an organism doubles every four days.
4) The attendance at a professional sports team's games decreases by 1.5% each year.

41 The solution to $\frac{4(x-5)}{3} + 2 = 14$ is

1) 15
2) 14
3) 6
4) 4

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42 The inputs and outputs of a function are shown in the table below.

x	f(x)
0	0.0625
1	0.125
2	0.25
3	0.5
4	1
5	2

This function can best be described as
1) linear
2) quadratic
3) exponential
4) absolute value

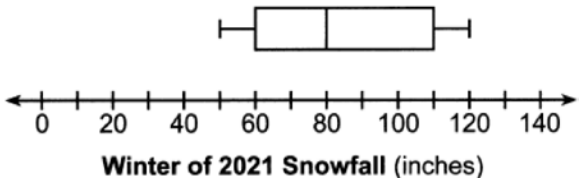
43 Which sum is irrational?
1) $-2\sqrt{12}+\sqrt{100}$
2) $-\sqrt{4}+\frac{1}{3}\sqrt{900}$
3) $\frac{1}{2}\sqrt{25}+\sqrt{64}$
4) $\sqrt{49}+3\sqrt{121}$

44 Which expression is equivalent to $3(x^2-2x+3)-(4x^2+3x-1)$?
1) $-x^2+x+2$
2) $-x^2-8x+7$
3) $-x^2-3x+8$
4) $-x^2-9x+10$

45 The functions $f(x)=x^2-5x-14$ and $g(x)=x+2$ are graphed on the same set of axes. What are the solutions to the equation $f(x)=g(x)$?
1) −14 and 0
2) 0 and 2
3) −2 and 8
4) −2 and 7

46 Use the method of completing the square to determine the exact values of x for the equation $x^2+6x-41=0$. Express your answer in simplest radical form.

47 The box plot below summarizes the data for the amount of snowfall, in inches, during the winter of 2021 for 12 locations in western New York.



What is the interquartile range?
1) 30
2) 50
3) 80
4) 110

48 Factor $20x^3-45x$ completely.

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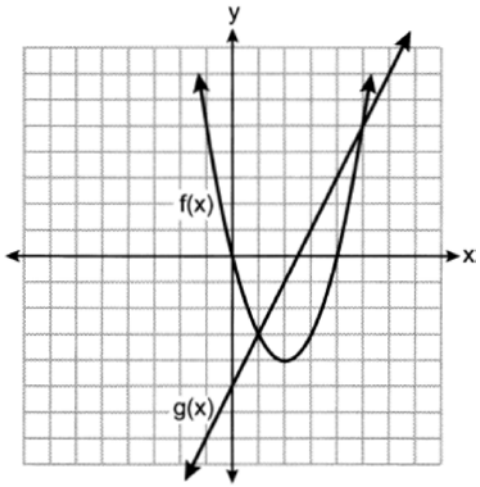
49 Market Street Pizza kept a record of pizza sales for the month of February. The results are shown in the table below.

Type	Plain	Veggie	Meat Only	The Works
Thin Crust	300	80	120	100
Deep-dish	200	25	105	70

Of all the pizzas sold in February, what percent were plain, deep-dish pizzas?

1) 20%
2) 30%
3) 40%
4) 50%

50 The functions $f(x)$ and $g(x)$ are graphed on the set of axes below.



What is the solution to the equation $f(x) = g(x)$?

1) 1 and 5
2) –5 and 0
3) –3 and 5
4) 0 and 4

51 A geometric sequence with a common ratio of –3 is

1) $-10, -7, -4, -1, \ldots$
2) $14, 11, 8, 5, \ldots$
3) $-2, -6, -18, -54, \ldots$
4) $4, -12, 36, -108, \ldots$

52 A geometric sequence is shown below.

$$\frac{1}{2}, 2, 8, 32, \ldots$$

What is the common ratio?

1) $\frac{1}{4}$
2) 2
3) $\frac{1}{2}$
4) 4

53 When solving the equation $4x^2 - 16 = 0$, Laura wrote $4x^2 = 16$ as her first step. Which property justifies Laura's first step?

1) distributive property of multiplication over addition
2) multiplication property of equality
3) commutative property of addition
4) addition property of equality

54 The expression 5^{a+2b} is equivalent to

1) $5^a \bullet 5^2 \bullet 5^b$
2) $5^a \bullet 25^b$
3) 25^{2ab}
4) 25^{a+2b}

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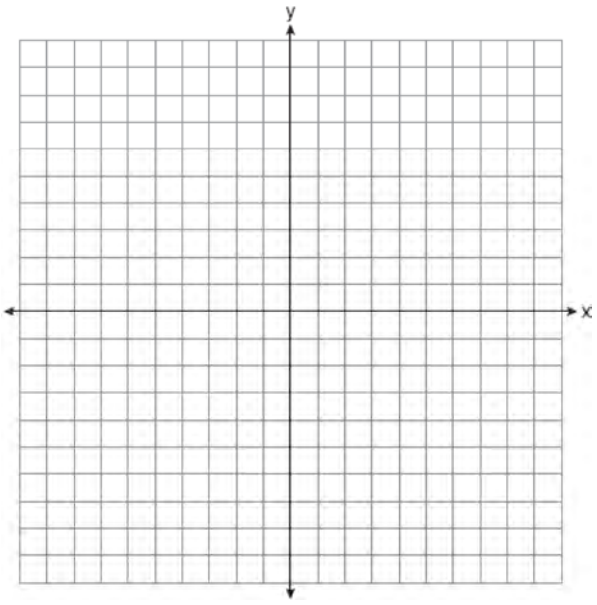
55 Which function has the zeros –1, 3, and –4?

1) $f(x) = (x+1)(x-3)(x-4)$
2) $g(x) = (x-1)(x+3)(x-4)$
3) $h(x) = (x+1)(x-3)(x+4)$
4) $k(x) = (x-1)(x+3)(x+4)$

56 On the set of axes below, graph $f(x) = x^2 + 4x + 1$.



State the coordinates of the minimum.

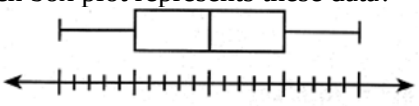
57 Elena's fastest time for the 50-meter dash is 7 seconds. She wants to know how fast this is in inches per minute. Which expression can Elena use for a correct conversion?

1) $\frac{7\text{ sec}}{50\text{ meters}} \bullet \frac{60\text{ sec}}{1\text{ min}} \bullet \frac{1\text{ meter}}{39.37\text{ in}}$
2) $\frac{7\text{ sec}}{50\text{ meters}} \bullet \frac{1\text{ min}}{60\text{ sec}} \bullet \frac{39.37\text{ in}}{1\text{ meter}}$
3) $\frac{50\text{ meters}}{7\text{ sec}} \bullet \frac{60\text{ sec}}{1\text{ min}} \bullet \frac{1\text{ meter}}{39.37\text{ in}}$
4) $\frac{50\text{ meters}}{7\text{ sec}} \bullet \frac{60\text{ sec}}{1\text{ min}} \bullet \frac{39.37\text{ in}}{1\text{ meter}}$

58 The heights, in inches, of eight football players are given below.

76, 70, 72, 70, 69, 71, 78, 74

Which box plot represents these data?

1)


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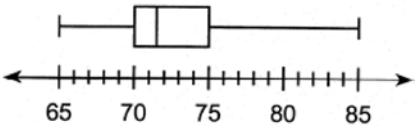

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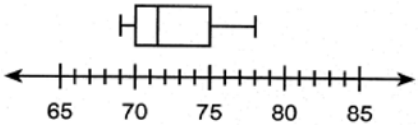

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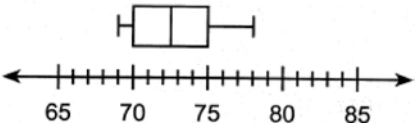
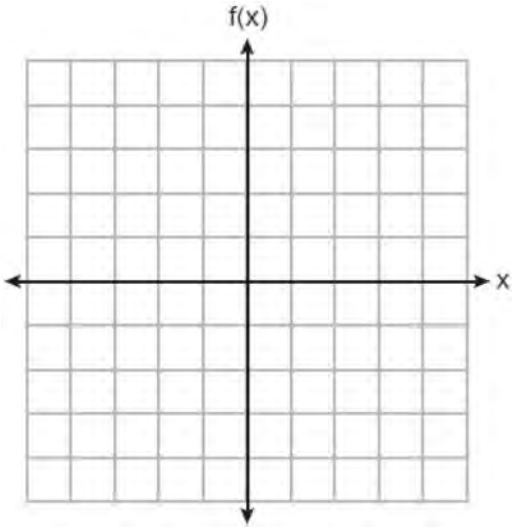


59 Graph the function $f(x) = x^2 + 4x + 3$.



State the equation of the axis of symmetry of $f(x)$.

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60 What is an equation of the line that passes through $(3,7)$ and has a slope of 2?
1) $y-7=2(x-3)$
2) $y-3=2(x-7)$
3) $y+7=2(x+3)$
4) $y+3=2(x+7)$

61 Jen joined the Fan Favorite Movie Club at the local movie theater. At this theater, the cost of admission in May and June remains the same. In May, she saw 2 matinees and 3 regular-priced shows and spent $38.50. In June, she went to 6 matinees and one regular-priced show and spent $47.50. Write a system of equations to represent the cost, *m*, of a matinee ticket and the cost, *r*, of a regular-priced ticket. Jen said she spent $5.75 on each matinee and $9 on each regular show. Is Jen correct? Justify your answer. Use your system of equations to algebraically determine both the actual cost of each matinee ticket and the actual cost of each regular ticket.

62 Solve the systems of equations algebraically for all values of *x* and *y*:

$$y=x^2+4x-1$$
$$y=2x+7$$

63 Solve the following systems of equations algebraically for all values of *x* and *y*:

$$y=x^2+5x-17$$
$$x-y=5$$

64 Rationalize: $\frac{3}{2\sqrt{6}}$

65 What is the constant term of the polynomial $2x^3-x+5+4x^2$?
1) 5
2) 2
3) 3
4) 4

66 Which function has a domain of all real numbers and a range greater than or equal to three?
1) $f(x)=-x+3$
2) $g(x)=x^2+3$
3) $h(x)=3^x$
4) $m(x)=|x+3|$

67 What is the sum of $3x\sqrt{7}$ and $2x\sqrt{7}$?
1) $5x\sqrt{7}$
2) $5x^2\sqrt{7}$
3) $5x\sqrt{14}$
4) $5x^2\sqrt{14}$

68 The expression x^{2a+b} is equivalent to
1) $x^{2a}+x^b$
2) x^a+x^{a+b}
3) $x^a \bullet x^{a+b}$
4) $x^{a+b} \bullet x^{a+b}$

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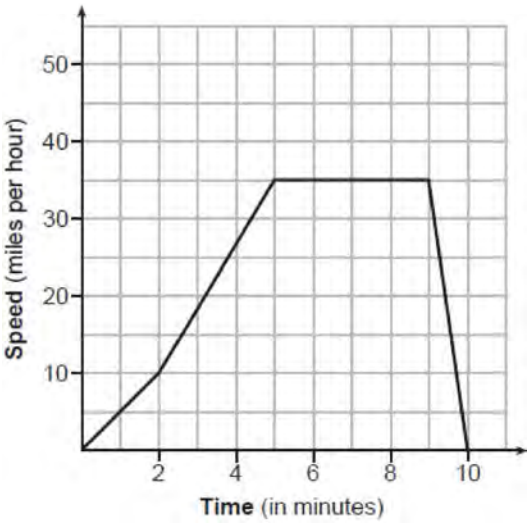
69 What is the correct factorization of $x^2 + 4x - 12$?
1) $(x+3)(x-4)$
2) $(x-3)(x+4)$
3) $(x+2)(x-6)$
4) $(x-2)(x+6)$

70 When the formula $p = 2l + 2w$ is solved for w, the result is
1) $w = \frac{2l+p}{2}$
2) $w = \frac{p-2l}{2}$
3) $w = \frac{p}{2} + l$
4) $w = l - \frac{p}{2}$

71 When babysitting, Nicole charges an hourly rate and an additional charge for gas. She uses the function $C(h) = 6h + 5$ to determine how much to charge for babysitting. The constant term of this function represents
1) the additional charge for gas
2) the hourly rate Nicole charges
3) the number of hours Nicole babysits
4) the total Nicole earns from babysitting

72 When factored, the expression $x^3 - 36x$ is equivalent to
1) $(x+6)(x-6)$
2) $(x+18)(x-18)$
3) $x(x+6)(x-6)$
4) $x(x+18)(x-18)$

73 The graph below models Sally's drive to the store.



State an interval when Sally is traveling at a constant speed. Explain your reasoning.

74 Stephanie is solving the equation $x^2 - 12 = 7x - 8$. Her first step is shown below.

Given: $x^2 - 12 = 7x - 8$

Step 1: $x^2 - 4 = 7x$

Which property justifies her first step?
1) associative property
2) commutative property
3) distributive property
4) addition property of equality

75 What is the sum of $8\sqrt{3}$ and $\sqrt{3}$?
1) $8\sqrt{6}$
2) $9\sqrt{6}$
3) $7\sqrt{3}$
4) $9\sqrt{3}$

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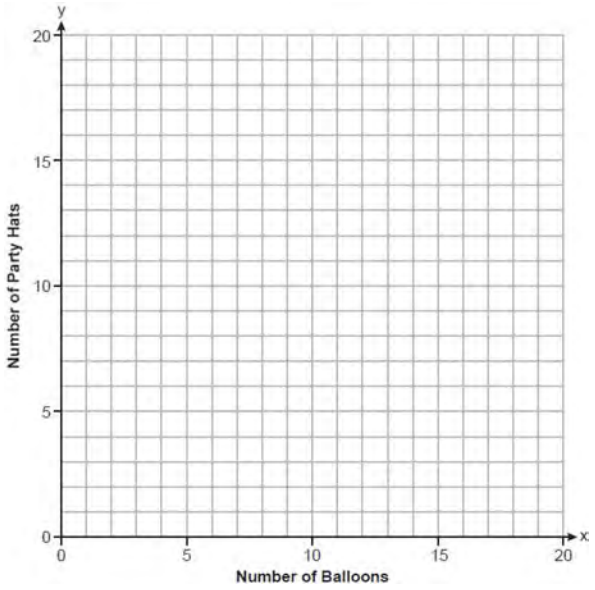
76 The table below shows the average heart rate, x, and Calories burned, y, for seven men on an Olympic rowing team during a one-hour workout class.

Average Heart Rate (x)	135	147	150	144	146	153	143
Calories Burned (y)	725	812	866	761	825	863	737

Write the linear regression equation that models these data, rounding all values to the *nearest tenth*. State the correlation coefficient, rounded to the *nearest tenth*. State what the correlation coefficient suggests about the linear fit of these data.

77 Anna plans to spend \$30 on balloons and party hats for her daughter's birthday party. Including tax, balloons cost \$2 each and party hats cost \$1.50 each. The number of party hats Anna needs is twice as many as the number of balloons. If x represents the number of balloons and y represents the number of party hats, write a system of equations that can be used to represent this situation. Graph your system of equations on the set of axes below.



State the coordinates of the point of intersection of your lines. Explain what each coordinate means in the context of the problem.

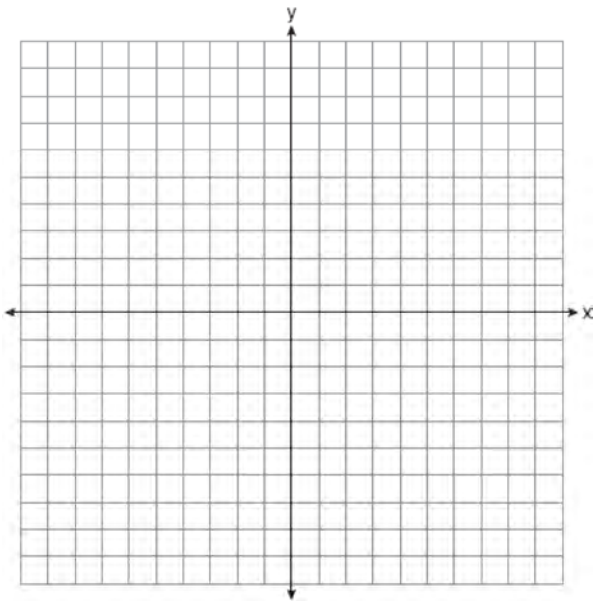
78 Graph the system of inequalities on the set of axes below:

$$y > 3x - 4$$

$$x + 2y \leq 6$$

Label the solution set S.

.



Is the point $(2,2)$ a solution to the system? Justify your answer.

79 Solve $x^2 + 8x = 33$ for x by completing the square.

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80 A survey of students at West High School was taken to determine a theme for the prom. The results of the survey are summarized in the table below.

	Beach Party	**Hollywood**	**Broadway**
Girls	86	112	68
Boys	123	77	79

Approximately what percentage of the students who chose the Broadway theme were girls?

1) 26
2) 27
3) 46
4) 68

81 If $f(x) = x^2$, then which function represents a shift of the graph of $f(x)$ 4 units to the right and 3 units down?

1) $g(x) = (x+4)^2 + 3$
2) $j(x) = (x+4)^2 - 3$
3) $h(x) = (x-4)^2 - 3$
4) $k(x) = (x-4)^2 + 3$

82 When solved for x in terms of a, the solution to the equation $3x - 7 = ax + 5$ is

1) $\frac{12}{3a}$
2) $\frac{12}{3-a}$
3) $\frac{3a}{12}$
4) $\frac{3-a}{12}$

83 In an arithmetic sequence, the first term is 4 and the third term is –2. What is the common difference?

1) –1
2) –2
3) –3
4) –6

84 If $f(x) = \frac{30x^2}{x+2}$, determine the value of $f\left(\frac{1}{2}\right)$.

85 What is the degree of the polynomial $2x - x^2 + 4x^3$?

1) 1
2) 2
3) 3
4) 4

86 In an arithmetic sequence, the first term is 25 and the third term is 15. What is the tenth term in this sequence?

1) –20
2) –25
3) 70
4) 75

87 What is the solution to the inequality $2m - 4 \le 3(2m + 4)$?

1) $m \le -2$
2) $m \ge -2$
3) $m \le -4$
4) $m \ge -4$

Algebra I Regents Exam Questions at Random Worksheet # 15 NAME:_____
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88 The table below shows the highest temperatures recorded in August for several years in one town.

Year	**Temperature** (^{o}F)
1990	86
1991	78
1992	84
1993	95
1994	81
1995	77
1996	88
1997	93

The interquartile range of these data is
1) 7
2) 10
3) 11
4) 18

89 Which equation has the same solutions as $x^2 + 6x - 18 = 0$?
1) $(x+3)^2 = 24$
2) $(x+3)^2 = 27$
3) $(x+6)^2 = 24$
4) $(x+6)^2 = 27$

90 On an island, a rare breed of rabbit doubled its population each month for two years. Which type of function best models the increase in population at the end of two years?
1) linear growth
2) linear decay
3) exponential growth
4) exponential decay

91 Rationalize the denominator of the fraction below. Express the solution in simplest form.

$$\frac{4}{\sqrt{2}}$$

92 A student creates a fourth-degree trinomial with a leading coefficient of 2 and a constant value of 5. The trinomial could be
1) $2x^4 + 3x^2 + 5$
2) $2x^4 + 5x + 3$
3) $4x^2 - 3x + 5$
4) $4x^3 - 5x^2 + 3$

93 At Adelynn's first birthday party, each guest brought $1 in coins for her piggy bank. Guests brought nickels, dimes, and quarters for a total of $28. There were twice as many dimes as nickels and 12 more quarters than nickels. Which equation could be used to determine the number of nickels, x, that her guests brought to her party?
1) $.05x + .10x + .25x = 28$
2) $.05x + .10(2x) + .25(x + 12) = 28$
3) $.05(2x) + .10x + .25(x + 12) = 28$
4) $.05(x + 12) + .10(2x) + .25x = 28$

Algebra I Regents Exam Questions at Random Worksheet # 16 NAME:_____
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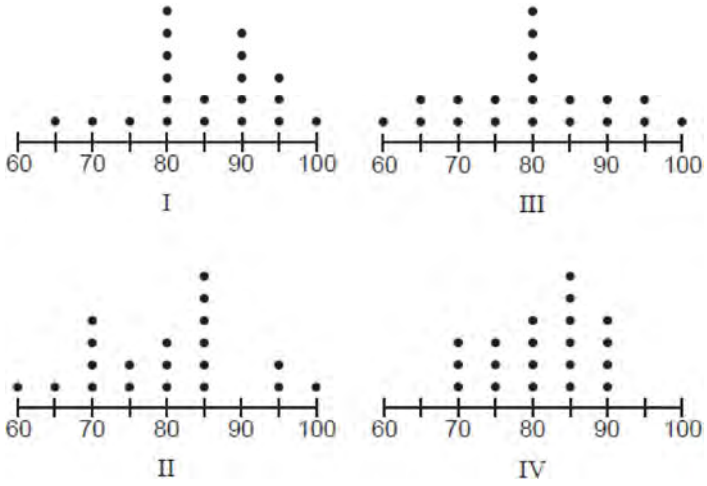
94 The dot plots below represent test scores for 20 students on a math test.



The mode for this math test is 80 and the median is 85. Which dot plot correctly represents this data?

1) I
2) II
3) III
4) IV

95 A tour bus can seat, at most, 48 passengers. An adult ticket costs \$18 and a child ticket costs \$12. The bus company must collect at least \$650 to make a profit. If a represents the number of adult tickets sold and c represents the number of child tickets sold, which system of inequalities models this situation if they make a profit?

1) $a + c < 48$
   $18a + 12c > 650$
2) $a + c \leq 48$
   $18a + 12c \geq 650$
3) $a + c < 48$
   $18a + 12c < 650$
4) $a + c \leq 48$
   $18a + 12c \leq 650$

96 Which equation is always true?

1) $x^2 \bullet x^3 = x^5$
2) $3^x \bullet 3^2 = 9^{2x}$
3) $-z^2 = z^2$
4) $7^a \bullet 7^b = 7^{ab}$

97 If $x = 4a^2 - a + 3$ and $y = a - 5$, then which polynomial is equivalent to the product of x and y?

1) $-17a^2 - 2a - 15$
2) $-17a^2 + 8a - 15$
3) $4a^3 - 21a^2 - 2a - 15$
4) $4a^3 - 21a^2 + 8a - 15$

Algebra I Regents Exam Questions at Random Worksheet # 17 NAME:_____
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98 The table below shows the amount of money a popular movie earned, in millions of dollars, during its first six weeks in theaters.

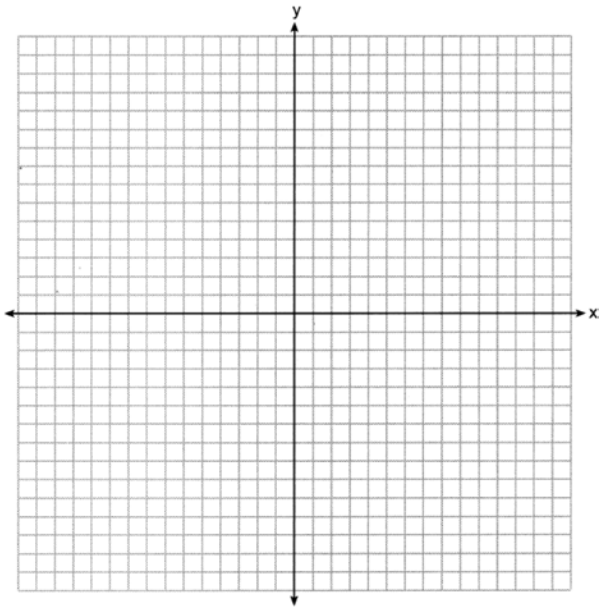
Week (x)	1	2	3	4	5	6
Dollars Earned, in Millions (y)	185	150	90	50	25	5

Write the linear regression equation for this data set, rounding all values to the *nearest hundredth*. State the correlation coefficient to the *nearest hundredth*. State what this correlation coefficient indicates about the linear fit of the data.

99 Graph the following system of equations on the set of axes below.

$$y = x^2 - 3x - 6$$

$$y = x - 1$$



State the coordinates of all solutions.

100 The zeros of the function $f(x) = x(x-5)(3x+6)$ are

1) 0,–5, and 2
2) 0, 5, and –2
3) –5 and 2, only
4) 5 and –2, only

101 Joe is ordering water for his swimming pool. He determines the volume of his pool to be about 3240 cubic feet. There are approximately 7.5 gallons of water in 1 cubic foot. A truck load holds 6000 gallons of water. Which expression would allow Joe to correctly calculate the number of truck loads of water he needs to fill his pool?

1) $\frac{3240\ \text{ft}^3}{1\ \text{pool}} \bullet \frac{1\ \text{ft}^3}{7.5\ \text{gal}} \bullet \frac{6000\ \text{gal}}{1\ \text{truck load}}$

2) $\frac{3240\ \text{ft}^3}{1\ \text{pool}} \bullet \frac{1\ \text{ft}^3}{7.5\ \text{gal}} \bullet \frac{1\ \text{truck load}}{6000\ \text{gal}}$

3) $\frac{3240\ \text{ft}^3}{1\ \text{pool}} \bullet \frac{7.5\ \text{gal}}{1\ \text{ft}^3} \bullet \frac{6000\ \text{gal}}{1\ \text{truck load}}$

4) $\frac{3240\ \text{ft}^3}{1\ \text{pool}} \bullet \frac{7.5\ \text{gal}}{1\ \text{ft}^3} \bullet \frac{1\ \text{truck load}}{6000\ \text{gal}}$

Algebra I Regents Exam Questions at Random Worksheet # 18 NAME:_____
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102 The function $f(x)$ is shown in the table below.

x	0	3	2	6	1	5	4	m
f(x)	6	2	7	5	8	4	3	9

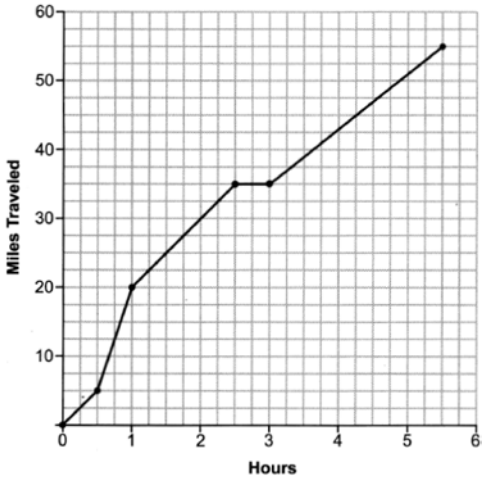
State an appropriate value for m in the table, so that $f(x)$ remains a function. Explain your reasoning.

103 Solve the following system of equations algebraically for all values of x and y:

$$y = x^2 - 7x + 12$$

$$y = 2x - 6$$

104 One Saturday, Dave took a long bike ride. The graph below models his trip.



What was Dave's average rate of change, in miles per hour, on this trip?

1) 10
2) 11
3) 11.6
4) 14.5

105 When the equation $6 - ax = ax - 2$ is solved for x in terms of a, and $a \neq 0$, the result is

1) $4a$
2) $\frac{4}{a}$
3) $2a$
4) $\frac{2}{a}$

106 The students in Mrs. Smith's algebra class were asked to describe the graph of $g(x) = 2(x-3)^2$ compared to the graph of $f(x) = x^2$. Which student response is correct?

1) Ashley said that the graph of $g(x)$ is wider and shifted left 3 units.
2) Beth said that the graph of $g(x)$ is narrower and shifted left 3 units.
3) Carl said that the graph of $g(x)$ is wider and shifted right 3 units.
4) Don said that the graph of $g(x)$ is narrower and shifted right 3 units.

Algebra I Regents Exam Questions at Random Worksheet # 19 NAME:_____
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107 An object is launched upward at 64 feet per second from a platform 80 feet above the ground. The function $s(t)$ models the height of the object t seconds after launch. If $s(t) = -16t^2 + 64t + 80$, state the vertex of $s(t)$, and explain in detail what each coordinate means in the context of the problem. After the object is launched, how many seconds does it take for the object to hit the ground? Justify your answer.

108 A landscaping company charges a set fee for a spring cleanup, plus an hourly labor rate. The total cost is modeled by the function $C(x) = 55x + 80$. In this function, what does the 55 represent?

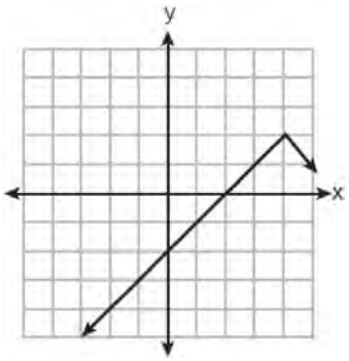
1) the set fee for the cleanup
2) the hourly labor rate for a cleanup
3) the profit earned by the company for one cleanup
4) the number of hours of labor required for one cleanup

109 Which expression is equivalent to $(x-5)(2x+7)-(x+5)$?

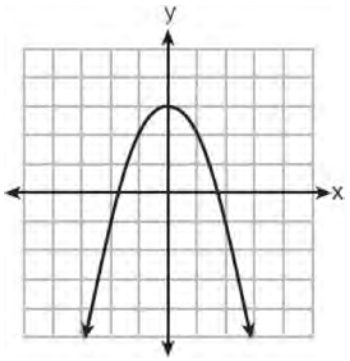
1) $2x^2 - 2x - 30$
2) $2x^2 - 2x - 40$
3) $2x^2 - 4x - 30$
4) $2x^2 - 4x - 40$

110 Which graph below represents a function that is always *decreasing* over the entire interval $-3 < x < 3$?

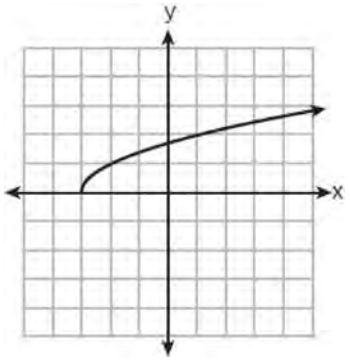
1)



2)



3)



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