**Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date Due:**

**Algebra 1 Regents Review Packet #7**

***Directions:*** *Choose the best answer.  Answer ALL questions. Show ALL work in column 2.* ***If there is no mathematical work to be shown, write an explanation or definition to support your answer!***

|  |  |
| --- | --- |
| 1. A construction worker needs to move 120 ft3 of dirt by using a wheelbarrow. One wheelbarrow load holds 8 ft3 of dirt and each load takes him 10 minutes to complete. One correct way to figure out the number of hours he would need to complete this job is
2. 120 cubic feet per 1, times 1 minutes per 1 load, times 60 minutes per 1 hour, times 1 load per 8 cubic feet
3. 120 cubic feet per 1, times 60 minutes per 1 hour, times 8 cubic feet per 10 minutes, times 1 per 1 load
4. 120 cubic feet per 1, times 1 load per 10 minutes, times 8 cubic feet per 1 load, times 1 hour per 60 minutes
5. 120 cubic feet per 1, times 1 load per 8 cubic feet, times 10 minutes per 1 load, times 1 hour per 60 minutes
 |  |
| 1. Boyle’s Law involves the pressure and volume of gas in a container. It can be represented by the formula *P*1*V*1 = *P*2*V*2. When the formula is solved for *P*2, the result is
2. *P*1*V*1*V*2 3. V 2 over P 1 V 1
3. P 1 V 1 over V 2 4. P 1 V 2 over V 1
 |  |
| 1. A typical cell phone plan has a fixed base fee that includes a certain amount of data and an overage charge for data use beyond the plan. A cell phone plan charges a base fee of $62 and an overage charge of $30 per gigabyte of data that exceed 2 gigabytes. If *C* represents the cost and *g* represents the total number of gigabytes of data, which equation could represent this plan when more than 2 gigabytes are used?
2. *C* = 30 + 62(2 - *g*)
3. *C* = 30 + 62(*g* - 2)
4. *C* = 62 + 30(2 - *g*)
5. *C* = 62 + 30(*g* - 2)
 |  |
| 1. Last week, a candle store received $355.60 for selling 20 candles. Small candles sell for $10.98 and large candles sell for $27.98. How many large candles did the store sell?
2. 6 3. 8
3. 10 4. 12
 |  |
| 1. Joey enlarged a 3-inch by 5-inch photograph on a copy machine. He enlarged it four times. The table below shows the area of the photograph after each enlargement.

https://cl.castlelearning.com/Review/Courses/math/q-135818.gif?v=20150827044052What is the average rate of change of the area from the original photograph to the fourth enlargement, to the *nearest tenth*?1. 4.3 3.  4.5
2. 5.4 4.  6.0
 |  |
| 1. https://cl.castlelearning.com/Review/Courses/math/q142368.gif?v=20161011022530The graph below shows the distance in miles, *m*, hiked from a camp in *h*hours.

Which hourly interval had the greatest rate of change?1. hour 0 to hour 1
2. hour 1 to hour 2
3. hour 2 to hour 3
4. hour 3 to hour 4
 |  |
| 1. In attempting to solve the system of equations *y*= 3*x*− 2 and 6*x*− 2*y*= 4, John graphed the two equations on his graphing calculator. Because he saw only one line, John wrote that the answer to the system is the empty set. Is he correct? Explain your answer.
 |  |
| 1. Which graph represents the solution of *y* ≤ *x* + 3 and *y* ≥ −2*x* − 2?
2. 1. https://cl.castlelearning.com/Review/Courses/math/q-135971-a.gif?v=201512150247582. https://cl.castlelearning.com/Review/Courses/math/q-135971-b.gif?v=20151215024758
3. 3. https://cl.castlelearning.com/Review/Courses/math/q-135971-c.gif?v=201512150247584. https://cl.castlelearning.com/Review/Courses/math/q-135971-d.gif?v=20151215024810
 |  |
| 1. Which point is a solution to the system below?

2*y*< −12*x*+ 4*y <*−6*x*+ 41. (1, 1 half) 3. (0,6)
2. (−1 half,5) 4. (−3,2)
 |  |
| 10. A company that manufactures radios first pays a start-up cost, and then spends a certain amount of money to manufacture each radio. If the cost of manufacturing *r* radios is given by the function*c*(*r*) = 5.25*r* + 125, then the value 5.25 best represents1. the start-up cost
2. the profit earned from the sale of one radio
3. the amount spent to manufacture each radio
4. the average number of radios manufactured
 |  |
| 1. The function *f* has a domain of {1, 3, 5, 7} and a range of {2, 4, 6}.

Could *f* be represented by {(1, 2), (3, 4), (5, 6), (7, 2)}? Justify your answer. |  |
| 1. https://cl.castlelearning.com/Review/Courses/math/q145262.gif?v=20170825115936A mapping is shown in the diagram below.

This mapping is1. a function, because Feb has two outputs, 28 and 29
2. a function, because two inputs, Jan and Mar, result in the output 31
3. not a function, because Feb has two outputs, 28 and 29
4. not a function, because two inputs, Jan and Mar, result in the output 31
 |  |
| 1. Let *f* be a function such that*f*(*x*) = 2*x* − 4 is defined on the domain 2 ≤ *x*≤ 6. The range of this function is
2. 0 ≤  *y*≤ 8 3. 0 ≤  *y*< ∞
3. 2 ≤  *y*≤ 6 4. −∞ < *y*< ∞
 |  |
| 1. The function*h*(*t*) = -16*t*2 +144 represents the height, *h*(*t*), in feet, of an object from the ground at *t* seconds after it is dropped. A realistic domain for this function is
2. -3 ≤ *t*≤ 3 3. 0 ≤ *t*≤ 3
3. 0 ≤ *h*(*t*) ≤ 144 4. all real numbers
 |  |
| 1. If *f*(*x*)*=*the square root of 2 x plus 3 over 6 x minus 5, then *f*(of one half) =
2. 1 3. −2
3. −1 4. −13 thirds
 |  |
| 1. https://cl.castlelearning.com/Review/Courses/integratedalgebra/q123790.gif?v=20141028102454A ball is thrown into the air from the edge of a 48-foot-high cliff so that it eventually lands on the ground. The graph below shows the height, *y*, of the ball from the ground after *x* seconds.

For which interval is the ball’s height always *decreasing*?1. 0 ≤ *x* ≤ 2.5
2. 0 < *x* < 5.5
3. 2.5 <*x* < 5.5
4. *x* ≥ 2
 |  |
| 1. https://cl.castlelearning.com/Review/Courses/integratedalgebra/q124763.gif?v=20141219111610Let *f* be the function represented by the graph below.

Let *g* be a function such that *g*(*x*) = −1 half*x*2 + 4*x* + 3.Determine which function has the larger maximum value. Justify your answer. |  |
| 1. How does the graph of *f*(*x*) = 3(*x* − 2)2 + 1 compare to the graph of *g*(*x*) = *x*2?
2. The graph of *f*(*x*) is wider than the graph of *g*(*x*), and its vertex is moved to the left 2 units and up 1 unit.
3. The graph of *f*(*x*) is narrower than the graph of *g*(*x*), and its vertex is moved to the right 2 units and up 1 unit.
4. The graph of *f*(*x*) is narrower than the graph of *g*(*x*), and its vertex is moved to the left 2 units and up 1 unit.
5. The graph of *f*(*x*) is wider than the graph of *g*(*x*), and its vertex is moved to the right 2 units and up 1 unit.
 |  |
| 1. https://cl.castlelearning.com/Review/Courses/math/q142594.gif?v=20161025025326In the diagram below, *f*(*x*) = *x*3 + 2*x*2 is graphed. Also graphed is *g*(*x*), the result of a translation of *f*(*x*).

Determine an equation of *g*(*x*). Explain your reasoning. |  |
| 20.The expression http://www.castlelearning.com/review/Courses/algebraii/sqrt-200.gif?v=20020728124922is equivalent to1. 2http://www.castlelearning.com/review/Courses/algebraii/sqrt-10.gif?v=20020527110014 3) 10http://www.castlelearning.com/review/Courses/algebraii/sqrt-2.gif?v=20010802015954
2. 100http://www.castlelearning.com/review/Courses/algebraii/sqrt-2.gif?v=20010802015954 4) 2http://www.castlelearning.com/review/Courses/algebraii/sqrt-100.gif?v=20020728124806
 |  |

**Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date Due:**

**Algebra 1 Regents Review Packet Sub Plans.**

***Directions:*** *Choose the best answer.  Answer ALL questions. Show ALL work in column 2.* ***If there is no mathematical work to be shown, write an explanation or definition to support your answer!***

|  |  |
| --- | --- |
| 1.Which trinomial is equivalent to $3(x-2)^{2}$ -2(x-1)?$$1)3x^{2}-2x-10 3)3x^{2}-14x+10$$$$2) 3x^{2}-2x-14 4)3x^{2}-14x+14$$ |  |
| 2.Factor the following quadratic trinomial *x*2 – *x* – 61. (*x* – 3) (*x* + 2) 3) (*x* + 3) (*x* – 2)
2. (*x* – 1) (*x* – 6) 4) (*x* – 6) (*x* – 1)
 |  |
| 3.The expression http://www.castlelearning.com/review/Courses/algebraii/sqrt-200.gif?v=20020728124922is equivalent to1. 2http://www.castlelearning.com/review/Courses/algebraii/sqrt-10.gif?v=20020527110014 3) 10http://www.castlelearning.com/review/Courses/algebraii/sqrt-2.gif?v=20010802015954
2. 100http://www.castlelearning.com/review/Courses/algebraii/sqrt-2.gif?v=20010802015954 4) 2http://www.castlelearning.com/review/Courses/algebraii/sqrt-100.gif?v=20020728124806
 |  |
| 4.Factor: 2*x*2 – 5*x* + 21. (2*x* – 1)(*x* – 2) 3) (*x* – 1)(2*x* – 2)
2. (2*x* + 1)(*x* – 2) 4) (*x* – 1)(2*x* + 2)
 |  |
|

|  |  |
| --- | --- |
| 5.When factored completely, *x*3 – 9*x* is equivalent to |  |

 |  |
| 6. Graph $\left\{\begin{array}{c}\left|x\right| x<1\\\sqrt{x} x\geq 1\end{array}\right.$ Provide a table of values (4 Points) |  |
| 7.If $f\left(x\right)=\frac{\sqrt{2x+3}}{6x-5}$ , then $f\left(\frac{1}{2}\right)=$1. 1 3) -1
2. -2 4) $\frac{-13}{3}$
 |  |
| 8.The graph of the equation *y* = 10*x* lies entirely in Quadrants. 1. I and II
2. II and III
3. I and IV
4. III and IV
 | Must provide a sketch |
| 9.Which graph represents the equation *y* = −*x*2 + 4?

|  |  |
| --- | --- |
| 1. image
2. image
 | 1. image
2. image
 |
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| --- | --- |
| 10.The coordinates of the turning point of the graph of *y* = 2*x*2 − 4*x* + 1 are1. (1, −1)
2. (1, 1)
3. (−1, 5)
4. (2, 1)
 |  |

 | Sketch |
| 11. Rowan has $ 50 in a savings jar and is putting in $ 5 every week. Jonah has $ 10 in his own jar and is putting in $ 15 every week. Each of them plots his progress on a graph with time on the horizontal axis and amount in the jar on the vertical axis. Which statement about their graphs is true? (4 points)1) Rowan’s graph has a steeper slope than Jonha’s2) Rowan’s graph always lies above Jonah’s.3) Jonah’s graph has a steeper slope than Rowan’s.4) Jonah’s graph always lies above Rowan’s |  |
| * 1. Given the graph of the line represented by the equation f(x) = -2x + b, if b is increased by 4 units, the graph of the new line would be shifted 4 units:

1) right 3) left2) up 4) down |  |
| * 1. What is the domain of http://www.castlelearning.com/review/Courses/algebraii/q2249.GIF?v=20020716054030over the set of real numbers?
		1. {*x* | *x* ≤ 4} 2) {*x* | *x* ≥ 4}
1. {*x* | *x* > 4} 4) {*x* | *x* = 4}
 | Sketch: |
| http://www.castlelearning.com/review/Courses/algebraii/ma080017.gif?v=2001071810024814. 19.Which is an equation of the parabola shown in the accompanying diagram?1. *y* = -*x*2 + 2*x* + 3
2. *y* = -*x*2 - 2*x* + 3
3. *y* = *x*2 + 2*x* + 3
4. *y* = *x*2 - 2*x* + 3
 |  |
| 15. Factor: A  B. 5x – 30 C  |  |
| 16. The length of a rectangular door is 5 feet more than its width, *w*.  The area of the door is 36 square feet.  Write an equation which could be used to find the dimensions of the door?  |  |
| 17. Which interval notation describes $\{-3,-2, -1, 0, 1, 2, 3\}$* 1. $-3\leq x<2$ where x is an integer
	2. $-3<x\leq 2$ where x is an integer
	3. $-3<x<2$ where x is an integer
	4. $-3\leq x\leq 2$ where x is an integer
 |  |
| 18. If $C= 3x^{3}+4x^{2}-6$ and $z= 2x^{3}+5x^{2}-6x+7$, What it z - c: [1]  $-x^{3}+ x^{2}-6x+13$     [2]  $x^{3}- x^{2}+6x-13$ [3]   $-x^{6}+ x^{4}-6x+13$     [4]  $-x^{3}+ x^{2}-6x+1$ |  |
| 19.If  the product of (3*x* – 7*)* and (4*x* – 3), the result in standard form is : |  |
| 20) write an eyqation of a line that passes through the points ( 2, -4) and ( 6, -12) in point slope form |  |
| 21) **Given  *y* = 3( x – 4) evaluate *y* when *x* = - 3.** |  |
| 22**Wh**en solving the equation , Emily wrote  as her first step.

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

 | Which property justifies Emily's first step? |
| 23) Which statement is true about the line that passes through the points (9, 2) and (9, -4)?[1] Its slope is 9. [2] Its slope is . [3] Its slope is 0. [4] Its slope is undefined |  |
| 24. If , then  equals [1]       [2]      [3]        [4]   |  |