HW 5/28

ALGEBRA 1
Next Generation Learning Standards
Test 4
Part I

Answer all 24 questions in this part. Each correct answer will receive 2 credits. No partial credit will be allowed. For each question, write on the space provided the numeral preceding the word or expression that best completes the statement or answers the question.

1. In the expression $5x^3 - 4x^2 + 2x + 3$, what is the coefficient of the cubic term?
(1) -4 (2) 2 (3) -3 (4) 5 1 4

2. The graph of the equation $y = 3^x$ contains which point?
(1) (1, 9) (2) $(-2, \frac{1}{9})$ (3) (2, 6) (4) $(-3, -\frac{1}{9})$ 2 2

3. What is an equation of the line that passes through the points (2, 7) and (–1, 3)?
(1) $y - 2 = \frac{3}{4}(x - 7)$ (3) $y - 7 = \frac{3}{4}(x - 2)$
(2) $y - 2 = \frac{4}{3}(x - 7)$ (4) $y - 7 = \frac{4}{3}(x - 2)$ 3 4

4. Add and simplify $(3x^3 - 2x^2 - x + 2) + (4x^2 + 3x - 6)$.
(1) $3x^3 - 2x^2 + 4x - 8$ (3) $3x^3 + 2x^2 + 2x - 4$
(2) $x^3 - 2x^2 + 4x - 8$ (4) $x^3 + 2x^2 + 4x - 4$ 4 3

5. What are the zeros of the polynomial $x^3 - 9x = 0$?
(1) 9 (2) 0, 9 (3) 3, –3 (4) 0, 3, –3 5 4

6. Over the x-intervals(not y) find the average rate of change between –4 and –1 in the function $f(x) = x^2 + 2x - 8$.
(1) –9 (2) –3 (3) 3 (4) 9 6 2

7. As the value of x increases, which of the following functions would eventually exceed the other three?
(1) $f(x) = 1000x$ (2) $f(x) = 100x^2$ (3) $f(x) = 50x^3$ (4) $f(x) = 2^x$ 7 4

8. Solve for x in the following equation: $ax + 5x - 4 = 10$.
(1) $x = \frac{9}{a}$ (2) $x = \frac{6}{5}$ (3) $x = \frac{14}{a+5}$ (4) $x = \frac{14}{5a}$ 8 3

9. Ashley only has 7 quarters and some dimes in her purse. She needs at least \$3.00 to pay for lunch. Which inequality could be used to determine the number of dimes, d, she needs in her purse to be able to pay for lunch?
(1) $1.75 + d \geq 3.00$ (3) $1.75 + d \leq 3.00$
(2) $1.75 + 0.10d \geq 3.00$ (4) $1.75 + 0.10d \leq 3.00$ 9 2

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ALGEBRA 1 - NGLS
Test 4

22. Which two variables have the strongest causal relationship?
(1) Height and income
(2) Air temperature and number of cars on the road
(3) Speed and time it takes to reach one's destination
(4) Hours spent watching television and size of one's home 22 3

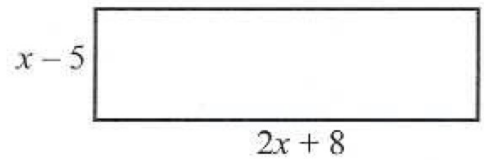
23. What is the value of the range in the data set below?
Test scores: 68, 72, 90, 93, 75, 78, 91, 67
(1) 8 (2) 12 (3) 26 (4) 67 23 3

24. Given the polynomial function $y = x^2 + 8x + 15$, what are the zeros of the polynomial?
(1) $x = -3, x = -5$ (3) $x = 3, x = -5$
(2) $x = -3, x = 5$ (4) $x = 3, x = 5$ 24 1

Part II

Answer all 6 questions in this part. Each correct answer will receive 2 credits. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. For all questions in this part, a correct numerical answer with no work shown will receive only 1 credit. All answers should be written in the space provided. [16]

25. What is the trinomial that represents the area of a rectangular box whose sides are $x - 5$ and $2x + 8$?



$A = lw$
$A = (x-5)(2x+8)$
$A = x(2x+8) - 5(2x+8)$
$A = 2x^2 + 8x - 10x - 40$
$A = 2x^2 - 2x - 40$ or

	2x	+8
x	$2x^2$	+8x
−5	−10x	−40

$2x^2 - 2x - 40$

26. Determine and state whether the sequence 1,3,9,27,. . . displays exponential behavior. Explain how you arrived at your decision.

×3 ×3

$r = 3$ exponential b/c it has a common ratio of 3.

$a_n = a_1 \cdot r^{(n-1)}$
$a_n = 1 \cdot 3^{(n-1)}$

HW: Green Regents Review p.31 & p.34

2) $y = 3^x$ ← exponential

x	y
-3	0.3704
-2	0.1
1	3
2	9

3) point-slope formula $y - y_1 = m(x - x_1)$

x y
$-3 < (2, 7) > -4$
$(-1, 3)$

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

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

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

5) $x^3 - 9x = 0$

factor gcf: $x(x^2 - 9) = 0$

DOTS: $(x + 3)(x - 3) = 0$

$x = 0 \mid x = -3 \mid x = 3$

3 zeros: 0, -3, 3

6) $f(x) = x^2 + 2x - 8$

x
-4
-1

$-3 <$

choice 2

8) $ax + 5x - 4 = 10$
$+4 \quad +4$

$ax + 5x = 14$

$\frac{x(a+5)}{a+5} = \frac{14}{a+5}$

$x = \frac{14}{a+5}$

9) Let d = dimes

$7(0.25) + 0.05d \geq 3$

$1.75 + 0.05d \geq 3.00$

p.34

23) range
$93 - 67 = 26$

24) $y = x^2 + 8x + 15$

$0 = (x + 5)(x + 3)$

$x = -5 \mid x = -3$