ALGEBRA 1 - NGLS
Test 6

15. The function $f(x) = \sqrt{x}$. Which function represents a shift of the graph left 3 units?
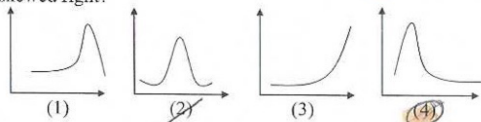
(1) $f(x-3) = \sqrt{x-3}$ (3) $f(x) + 3 = \sqrt{x} + 3$

(2) $f(x+3) = \sqrt{x+3}$ (4) $f(x) - 3 = \sqrt{x} - 3$

15 __2__

16. Which graph below shows a data set that is non-symmetric and skewed right?

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

16 __4__

17. Which statement is *not* always true?
(1) The product of two irrational numbers is irrational.
(2) The product of two rational numbers is rational.
(3) The sum of two rational numbers is rational.
(4) The sum of a rational number and an irrational number is irrational.

17 __1__

18. Which relation is a function?
(1) $\{(0, 1), (0, 2), (0, 3), (0, 4)\}$ (3) $\{(1, 5), (2, 6), (3, 7), (3, 8)\}$
(2) $\{(3, 4), (4, 3), (5, 6), (6, 5)\}$ (4) $\{(1, 1), (4, 4), (1, 4), (4, 1)\}$

18 __2__

19. What is the possible range for absolute value functions?
(1) negative real numbers and zero   (3) all real numbers
(2) positive real numbers and zero   (4) zero

19 __2__

20. Which of the following expressions can be written as the product of two binomial factors?
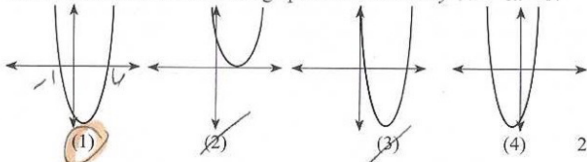(1) $x^2 - 16$ (2) $x^2 + 16$ (3) $x^2 - 16x$ (4) $x^2 + 16x$

20 __1__

21. Which sketch is the correct graph for the function $y = x^2 - 5x - 6$?

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

21 __1__

22. John has four more nickels than dimes in his pocket, for a total of $1.25. Which equation could be used to determine the number of dimes, x, in his pocket?
(1) $0.10(x + 4) + 0.05(x) = \$1.25$ (3) $0.10(4x) + 0.05(x) = \$1.25$
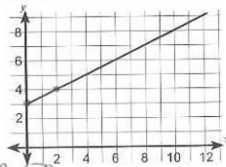(2) $0.05(x + 4) + 0.10(x) = \$1.25$ (4) $0.05(4x) + 0.10(x) = \$1.25$

22 __2__

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23. The graph represents the profit from a lemonade stand. The startup materials for the stand cost $3.00. How much is each cup of lemonade selling for?
(1) $0.10   (3) $0.50
(2) $0.25   (4) $1.00

$m = \frac{1}{2} = 0.50$

23 __3__

24. Which function represents exponential decay?
(1) $f(x) = 100(.9)^x$ (3) $f(x) = 1.9^x$
(2) $f(x) = 10(1.09)^x$ (4) $f(x) = \frac{1}{2}(9)^x$

growth

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. Find the polynomial when $x^2 - 2x + 5$ is subtracted from $3x^2 + x + 1$.

$$3x^2 + x + 1$$
$$- \quad x^2 + 2x - 5$$
$$2x^2 + 3x - 4$$

26. Solve the inequality: $\frac{4(x+2)}{-4} \geq \frac{(x-7)}{2} - 2$

flip $-4\left[\frac{4x+8}{-4} \geq \frac{x-7}{2}\right]$

$4x+8 \leq -2(x-7$

$4x+8 \leq -2x+14$

$+2x \qquad +2x$

$6x+8 \leq 14$

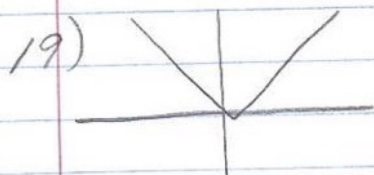$-8 \quad -8$

$\frac{6x}{6} \leq \frac{6}{6}$

$x \leq 1$

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Regents Review Book   5/16

15.) $f(x) = \sqrt{x+3}$
   ↑
   left

17.) (1) $\sqrt{3} \cdot \sqrt{3} = 3$

18.) function → x can't repeat

19)

20.) $x^2 - 16$
    $(x-4)(x+4)$

21.) $0 = x^2 - 5x - 6$
    $(x-6)(x+1) = 0$
    $x = 6 \mid x = -1$

22.) Nickels $= x + 4$
    Dimes $= x$
    $0.05(x+4) + 0.10x = 1.25$

23.) $m = \frac{1}{2} = 0.5$