$\frac{-b \pm \sqrt{b^2-4ac}}{2a}$ $x = \frac{-b}{2a}$ ax^2+bx+c

$(x-h)^2+k$ $(x-p)(x-q)$ $h(t) = -16t^2+vt+s$

Name:_____

Final Exam BONUS Review

- Unit 5
  - 8.1: +/- polynomials
  - 8.2: multiply monomials
  - 8.3: multiply polynomials (DD, foil, box, horizontal, vert)
  - 8.4: special products
  - 8.5: factor GCF
  - 8.6: Salt-N-Pepa
  - 8.7: Slide and divide & solve (zeros, solutions, roots, x-intercepts)
  - 8.8: Difference of 2 Squares
  - 8.9: Perfect Squares
- **Unit 6 (part 1)**
  - **9.1: Graphing Quads in Standard, Intercept and Vertex form (reflection, translation, dialation)**
  - **9.2: Solve by graphing**
  - **9.3: Transforming from standard to intercept; Domain/Range**
- Unit 6 (part 2)
  - 10.2: Simplifying Radicals
  - 9.4: Completing the Square
  - 9.5: Quadratic Formula, Discriminant & applications
  - 9.6: Linear, Quadratic or Exponential?
- *Unit 7*
  - *10·1: Graphing square root functions*
  - *10·3: Operations with radicals (+/-/·)*
  - *10·4: Radical Equations; extraneous*
  - *11·2: Graphing Rational Functions (H/V asymptotes)*
  - *11·8: Rational Equations (LCD)*

1) [8.5]

Multiple Choice Which expression shows the greatest common factor removed from $24x^4 - 48x^3 + 60x^2$?

(A) $12(2x^4 - 4x^3 - 5x^2)$
(B) $12x^2(2x^2 - 4x - 5)$
(C) $12x(2x^3 - 4x^2 - 5x)$
(D) $x^2(24x^2 - 48x + 60)$
(E) $6x^2(8x^2 - 8x - 10)$

2) [9.5]

Multiple Choice Choose the correct values of a, b, and c in the equation $5x^2 - x + 6 = 0$.

(A) $a = 5,\ b = 1,\ c = 6$
(B) $a = -5,\ b = -1,\ c = -6$
(C) $a = 5,\ b = 0,\ c = 6$
(D) $a = 5,\ b = -1,\ c = 0$
(E) $a = 5,\ b = -1,\ c = 6$

3) [8.7]

Multiple Choice Which of the following is the complete factorization of $21y^4 + 49y^3 + 14y^2$?

(A) $y^2(7y + 14)(3y + 1)$
(B) $7y(y + 2)(3y^2 + y)$
(C) $7y^2(y + 2)(3y + 1)$
(D) $y^2(7y + 2)(3y + 7)$
(E) $7y^2(y + 1)(3y + 2)$

4) [9.2/8.7/9.5]

Multiple Choice What are the x-intercepts of the graph of $y = 2x^2 - x - 15$?

(A) $\frac{5}{2}, \frac{-5}{2}$ (B) $-\frac{5}{2}, 3$ (C) $\frac{5}{3}, -3$
(D) $-5, 3$ (E) $-5, \frac{15}{2}$

Multiple Choice Which of the following is a solution of $2x^2 - 3x - 5 = 0$?

(A) 1 (B) $-\frac{5}{2}$ (C) $\frac{5}{2}$
(D) $\frac{2}{5}$ (E) 2

Multiple Choice Which of the following is a solution of $6x^2 - 7x - 5 = 0$?

(A) $\frac{1}{2}$ (B) $\frac{5}{3}$ (C) -2
(D) $-\frac{3}{5}$ (E) -1

5) [8.7]

Multiple Choice The length of a box is 5 inches less than twice the width. The height is 4 inches more than three times the width. The box has a volume of 520 cubic inches. Which of the following equations can be used to find the height of the box?

(A) $w(2l - 5)(3h + 4) = 520$
(B) $w(2w - 5)(3w + 4) = 520$
(C) $w(2w + 5)(3w - 4) = 520$
(D) $w(2w - 5)(3w - 4) = 520$
(E) $l(5 - 2w)(3h + 4) = 520$

6) [10.2]

Multiple Choice Simplify the expression $\sqrt{500} - \sqrt{180} + \sqrt{80}$.

(A) $12\sqrt{2}$ (B) $5\sqrt{8}$ (C) $20\sqrt{5}$
(D) $8\sqrt{5}$ (E) 20

7) [8.7/9.5]

. ***Multiple Choice*** Which of the following is a solution of $7x^2 + 5x + 8 = 10$?

Ⓐ $\frac{2}{7}$ Ⓑ 1 Ⓒ $\frac{7}{2}$
Ⓓ $-\frac{2}{7}$ Ⓔ $\frac{3}{7}$

. ***Multiple Choice*** You drop a rock off a bridge 30 feet above the ground into a stream. How long does it take the rock to hit the water?

Ⓐ 1.45 sec Ⓑ 1.88 sec
Ⓒ 1.50 sec Ⓓ 2.10 sec
Ⓔ 1.37 sec

. ***Multiple Choice*** An eagle circling a field at a height of 250 feet sees a rabbit below. The eagle dives at an initial speed of 110 feet per second. Estimate the time the rabbit has to escape.

Ⓐ 1.7 sec Ⓑ 1.8 sec
Ⓒ 1.6 sec Ⓓ 1.9 sec
Ⓔ 2.0 sec

9) [9.1]

Multiple Choice What is the x-coordinate of the vertex for the graph of the equation $y = -x^2 + 4x - 6$?

Ⓐ -2 Ⓑ 2 Ⓒ $-\frac{1}{8}$
Ⓓ $\frac{1}{8}$ Ⓔ 0

Multiple Choice What is the x-coordinate of the vertex for the graph of the equation $y = \frac{1}{4}x^2 + 5x - 10$?

Ⓐ 0 Ⓑ -10 Ⓒ 10
Ⓓ -2 Ⓔ $-\frac{5}{4}$

Multiple Choice What is the equation for the axis of symmetry for the equation $y = 6x^2 - 4x + 3$?

Ⓐ $y = \frac{1}{3}$ Ⓑ $y = 3$ Ⓒ $x = \frac{1}{3}$
Ⓓ $x = 3$ Ⓔ $x = \frac{3}{4}$

Multiple Choice What is the y-coordinate of the vertex for the graph of the equation $y = -2x^2 + x - 5$?

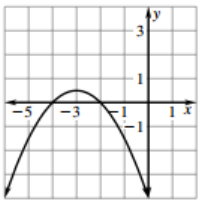
Ⓐ $-\frac{1}{4}$ Ⓑ $-6\frac{1}{4}$ Ⓒ $4\frac{1}{4}$
Ⓓ $5\frac{1}{4}$ Ⓔ $-4\frac{7}{8}$

Multiple Choice Which one of the following is the solution of $-2x^2 + 11x + 9 = y$ when $x = -2$?

Ⓐ $y = 21$ Ⓑ $y = 22$
Ⓒ $y = -21$ Ⓓ $y = 5$
Ⓔ $y = -5$

8) [9.1]

Multiple Choice Which of the following quadratic equations is represented by the graph?



Ⓐ $y = -2x^2 - 3x - 4$
Ⓑ $y = \frac{1}{2}x^2 - 3x - 4$
Ⓒ $y = 2x^2 - 3x - 4$
Ⓓ $y = -\frac{1}{2}x^2 - 3x - 4$
Ⓔ $y = \frac{1}{2}x^2 + 3x - 4$

10) [10.4]

Multiple Choice Which of the following is a solution of $3 - \sqrt{2x - 1} = 5$?

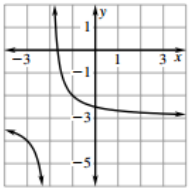
Ⓐ $\frac{2}{5}$ Ⓑ $\frac{5}{2}$ Ⓒ $\frac{3}{5}$
Ⓓ $\frac{5}{3}$ Ⓔ $\frac{3}{2}$

Multiple Choice Which of the following is a solution of $x = \sqrt{4x + 32}$?

Ⓐ 8 Ⓑ 4 Ⓒ -4
Ⓓ $8, 4$ Ⓔ $8, -4$

11) [11.2]

Multiple Choice Which function represents the graph?



Ⓐ $y = \frac{1}{x + 2} + 3$ Ⓑ $y = \frac{1}{x + 2} - 3$
Ⓒ $y = \frac{-1}{x + 2} + 3$ Ⓓ $y = \frac{-1}{x + 2} - 3$
Ⓔ $y = \frac{1}{x - 3} - 1$

12) [11.8]

. ***Multiple Choice*** What is a solution of $\frac{12}{x + 2} + 2 = \frac{3x}{x^2 - 3x - 10}$?

Ⓐ about 7.1 Ⓑ about 5.6
Ⓒ about -5.6 Ⓓ about -4.4
Ⓔ about 2.9