Algebra2/Trig
Cumulative Review Units 1-4

<u>Directions</u>: Complete the following cumulative review. You may show work if needed. Fill out your final answers on the answer sheet provided. This WILL be collected.

1. Simplify: $\sqrt{72} - \sqrt{512}$
   a. $8\sqrt{2}$
   b. $10\sqrt{2}$
   c. $-10\sqrt{2}$
   d. $\sqrt{-440}$

2. Simplify: $\dfrac{1 - \sqrt{5}}{2 - \sqrt{2}}$

   a. $\dfrac{1 - \sqrt{5}}{2 - \sqrt{2}}$ b. $\dfrac{2 + \sqrt{2} - 2\sqrt{5} - \sqrt{10}}{2}$

   c. $\dfrac{2 + 3\sqrt{7} - \sqrt{10}}{2}$ d. $\dfrac{2 - \sqrt{3} - \sqrt{10}}{2}$

3. Simplify: $\dfrac{1 - i}{2 + 3i}$

   a. $\dfrac{1 - i}{2 + 3i}$ b. $\dfrac{2 - 3i - 2i + 3i^2}{4 - 9i^2}$ c. $\dfrac{-4 - 6i}{13}$ d. $\dfrac{-1 - 5i}{13}$

4. Simplify: $3i \cdot -2i^2$
   a. $-6i^3$ b. $6i$ c. i d. $-6i$

5. Rewrite using radical notation: $13^{2/3}$
   a. $\sqrt[3]{13^2}$ b. $\sqrt{13^3}$ c. $13^{\frac{2}{3}}$ d. $\sqrt[3]{13}$

6. Rewrite in exponential form: $\sqrt[5]{3^2}$
   a. $3^{5/2}$ b. 9 c. $3^{2/5}$ d. 9^5

7. Solve: $\sqrt{x - 2} + 3 = 7$

a.   48   b. 21   c. 18   d. 102

8. Solve: $\sqrt{x-3} = \sqrt{2x+5}$
   a.   8   b. -8   c. 10   d. -10

9. $3(x+1)^{4/3} = 48$
   a.   7   b. 12   c. -15   d. 143

10. Identify the zeros. $y = 3x^2 + 5x + 2$
    a.   -2/3, -1   b. 1, -2/3   c. 0, 0   d. 3, 2

11. Write the quadratic equation that has x-intercepts of $x = -3$ and $x = 2$
    a. $x^2 - x - 6$ b. $x^2 + x - 6$ c. $x^2 + 5x - 6$ d. $x^2 - 5x - 6$

12. Solve: $3(x+5)^2 = 6$
    a.   0, 2   b. $-5 \pm \sqrt{2}$ c. $5 \pm \sqrt{-2}$ d. $-5 + \sqrt{2}$

13. Solve: $x^2 + 3x - 7$
    a. $\frac{-3+i\sqrt{19}}{2}$ b. $\frac{3\pm\sqrt{-19}}{2}$ c. $\frac{-3\pm\sqrt{19}}{2}$ d. No Solutions

14. Determine the value of c that makes $x^2 + 14x + c$ a perfect square?
    a.   56   b. 14   c. 49   d. 28

15. Simplify: $\dfrac{x^2+3x-4}{x^2-9} \cdot \dfrac{x+3}{x^2-2x+1}$
    a. $\frac{x+3}{(x-3)(x+4)}$ b. $\frac{(x-1)(x-3)}{x+4}$ c. $\frac{(x^2+3x-4)}{x+3}$ d. $\frac{x+4}{(x-3)(x-1)}$

16. Simplify: $\dfrac{48x^2}{y} \div \dfrac{36xy^2}{5}$

a. $\frac{20x}{3y^3}$ b. $\frac{240x^2}{36xy^3}$ c. $\frac{1728x^3y}{5}$ d. No Solution

17. Simplify: $\frac{5}{3} - \frac{11}{4x}$

a. $\frac{-6}{3-4x}$ b. $\frac{20x-33}{12x}$ c. $\frac{-13x}{12x}$ d. $\frac{-23}{6}$

18. Solve: $\frac{4+x}{x} = \frac{-5}{x-2}$

a. 2, 4 b. -8, 1 c. 8, -1 d. -2, -4

19.
How does the equation y = |x + 3| − 2 compare to its parent graph, y =|x| ?

a. Up 3, Left 2 b. Down 2, Left 3 b. Down 2, Right 3 d. Reflect over x-axis

20. Using the parent graph $y = \sqrt{x}$, write the equation if it were reflected over the y-axis and shifted down 4 units.

a. $y = \sqrt{-x} + 4$ b. $y = -\sqrt{x} - 4$ c. $y = \sqrt{-x} - 4$ d. $y = -\sqrt{x} + 4$

21. Find the inverse of the given function, $f(x) = 2x^3 + 5$

a. $y = \sqrt{\frac{x-2}{5}}$ b. $y = \sqrt[3]{\frac{x-2}{5}}$ c. $y = \sqrt[3]{\frac{x-5}{2}}$ d. $x = 2y^3 - 5$

Formulas

Quadratic Formula: $x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

Answer Sheet   Name: _____

Fill in all of your answers on the sheet below. You may use this space for work as well.

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