Algebra 2: Powers, Roots, (Not covering Complex Numbers!)
Practice test

1. There are <u>30</u> multiple choice questions in this test. Each question is worth 1-point.
2. Extra-credit: There are two extra-credit question, worth 1pt each as well.
3. You have 50 minutes (one block) to complete the test (more if you have accommodations).
4. You can get credit on partial answer, so please DO show your work.

Calculators are NOT allowed in this test.

Good luck!!
 -Zachi

'Calculator' replacement:

$2^0 = 1$; $2^1 = 2$; $2^2 = 4$; $2^3 = 8$; $2^4 = 16$; $2^5 = 32$; $2^6 = 64$;
$\qquad\qquad 2^7 = 128$; $2^8 = 256$; $2^9 = 512$; $2^{10} = 1024$
$3^0 = 1$; $3^1 = 3$; $3^2 = 9$; $3^3 = 27$; $3^4 = 81$; $3^5 = 243$
$4^0 = 1$; $4^1 = 4$; $4^2 = 16$; $4^3 = 64$; $4^4 = 256$; $4^5 = 1024$
$5^0 = 1$; $5^1 = 5$; $5^2 = 25$; $5^3 = 125$; $5^4 = 625$
$6^0 = 1$; $6^1 = 6$; $6^2 = 36$; $6^3 = 216$
$7^0 = 1$; $7^1 = 7$; $7^2 = 49$; $7^3 = 343$
$8^0 = 1$; $8^1 = 8$; $8^2 = 64$; $8^3 = 512$
$9^0 = 1$; $9^1 = 9$; $9^2 = 81$; $9^3 = 729$

=== Start of test

1. Simplify: $\sqrt{128r^2x^3n^8}$

(A) *Answer1*   (B) *Answer2*   (C) *Answer3*   (D) *Answer4*

(E) Other
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2. Simplify: $\sqrt[4]{x^5y^6 \cdot 32}$

(A) $8|x|y^2$ (B) $2x|y| \cdot \sqrt[4]{2xy^2}$ (C) $8\sqrt[4]{x^5y^6}$ (D) $2xy^2 \cdot \sqrt[4]{2xy^2}$

(E) Other
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3. Simplify: $\sqrt[4]{128x^7y^8w^4}$

(A) *Answer1*   (B) *Answer2*   (C) *Answer3*   (D) *Answer4*

(E) Other
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4. Simplify: $\sqrt{12y} \cdot 2\sqrt{24y}$

(A) *Answer1*   (B) *Answer2*   (C) *Answer3*   (D) *Answer4*   (E) Other
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5. Simplify: $\left(3\sqrt{5x}\right)\left(\sqrt{15x}\right)$

(A) $3\sqrt{20}|x|$ (B) $15x\sqrt{5}$ (C) $15x\sqrt{3}$ (D) $4\sqrt{20x}$ (E) Other

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6. Simplify: $\left(-7 + \sqrt{3x}\right) \cdot \left(4 + \sqrt{3x}\right)$

(A) $Answer1$ (B) $Answer2$ (C) $Answer3$ (D) $Answer4$ (E) Other

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7. Simplify: $\left(\sqrt{3} + \sqrt{5x}\right)\left(\sqrt{3} - 5\sqrt{5x}\right)$

(A) $Answer1$ (B) $Answer2$ (C) $Answer3$ (D) $Answer4$ (E) Other

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8. Simplify: $\left(7 + \sqrt{6}\right)\left(1 + \sqrt{6}\right)$

(A) $Answer1$ (B) $Answer2$ (C) $Answer3$ (D) $Answer4$ (E) Other

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9. Simplify: $-\sqrt[3]{320} - 4\sqrt[3]{5} + 2\sqrt[3]{135} + 2\sqrt[3]{16}$

(A) $Answer1$ (B) $Answer2$ (C) $Answer3$ (D) $Answer4$ (E) Other

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10. Simplify: $-2\sqrt{45} - 3\sqrt{20} - 2\sqrt{6}$

(A) $Answer1$ (B) $Answer2$ (C) $Answer3$ (D) $Answer4$ (E) Other

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11. Simplify: $\sqrt[6]{(-2)^6}$

(A) *Answer*1   (B) *Answer*2   (C) *Answer*3   (D) *Answer*4   (E) Other

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12. Simplify: $\sqrt[5]{(-7)^5}$

(A) *Answer*1   (B) *Answer*2   (C) *Answer*3   (D) *Answer*4   (E) Other

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13. Simplify: $\sqrt[8]{64}$

(A) *Answer*1   (B) *Answer*2   (C) *Answer*3   (D) *Answer*4   (E) Other

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14. Simplify: $\sqrt{\dfrac{9}{16}}$

(A) $\dfrac{3}{4}$ (B) $-\dfrac{3}{4}$ (C) $2\dfrac{1}{4}$ (D) $\dfrac{2}{3}$ (E) Other

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15. Simplify: $\sqrt{45}$

(A) $5\sqrt{2}$ (B) $5\sqrt{3}$ (C) $3\sqrt{15}$

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16. Simplify: $\dfrac{\sqrt{15}}{\sqrt{12}}$

(A) $Answer1$ (B) $Answer2$ (C) $Answer3$ (D) $Answer4$ (E) Other
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17. Rationalize the denominator: $\sqrt{\dfrac{3}{5}}$

(A) $Answer1$ (B) $Answer2$ (C) $Answer3$ (D) $Answer4$ (E) Other
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18. Rationalize the denominator: $\sqrt{\dfrac{3}{x+2}}$

(A) $Answer1$ (B) $Answer2$ (C) $Answer3$ (D) $Answer4$ (E) Other
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19. Rationalize the denominator: $\dfrac{\sqrt{3}}{-1-\sqrt{5}}$

(A) $Answer1$ (B) $Answer2$ (C) $Answer3$ (D) $Answer4$ (E) Other
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20. Find the equal to: $36^{\frac{3}{2}}$

(A) $Answer1$ (B) $Answer2$ (C) $Answer3$ (D) $Answer4$ (E) Other
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21. Find the equal to: $(64n^{12})^{-\frac{1}{6}}$

(A) *Answer1*   (B) *Answer2*   (C) *Answer3*   (D) *Answer4*   (E) Other
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22. Find the equal to: $(9r^4)^{-0.5}$

(A) *Answer1*   (B) *Answer2*   (C) *Answer3*   (D) *Answer4*   (E) Other
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23. Find the equal to: $\sqrt[7]{y^5 \cdot 128 \cdot x^{14} \cdot \sqrt[4]{y^8}}$

(A) *Answer1*   (B) *Answer2*   (C) *Answer3*   (D) *Answer4*   (E) Other
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24. Solve: $\sqrt{8k} = k$
(Show your work!)

(A) *Answer1*   (B) *Answer2*   (C) *Answer3*   (D) *Answer4*   (E) Other
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25. Solve: $\sqrt[3]{16k} = k$
(Show your work!)

(A) *Answer1*   (B) *Answer2*   (C) *Answer3*   (D) *Answer4*   (E) Other
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26. Solve: $\sqrt{x-7} = \sqrt{x} - 1$

(Show your work!)

(A) $Answer1$ (B) $Answer2$ (C) $Answer3$ (D) $Answer4$ (E) Other

==== Review questions!!

5-question. Short, just to verify you remember the material.

Specifically, this time there will be questions on some of these:

Simplify rational expressions (common denominator): $\dfrac{1}{x+2} - \dfrac{2}{2x+3}$

Factor binomial (MATH method or any other)

Solve rational expression: $\dfrac{6}{x-2} - \dfrac{4}{x} = \dfrac{8}{x}$

Solve by factoring: $x^2 + 10x = -21$

Function composition : $f\big(g(x)\big)$

Lines, perpendicular lines, slope

System of equations: Solve two equations with two unknowns

Extra-credit

Surprise: Definitely doable.

=== End of test