Final Review Part 2

Date_____ Period____

Evaluate each expression using order of operations (PEMDAS).

1) $6 + 1 - 5 \div 5$

   A) 6   B) 2

   C) 0   D) 1

2) $\left(14 - \left(1 + 1\right)\right) \div 4$

   A) 6   B) 3

   C) 0   D) 1

Write each expression in radical form.

3) $n^{\frac{3}{5}}$

   A) $\left(\sqrt[5]{n}\right)^3$ B) $\left(\sqrt[3]{6n}\right)^5$

   C) $\left(\sqrt[4]{2n}\right)^7$ D) $\left(\sqrt[3]{6n}\right)^2$

4) $\left(7n\right)^{\frac{2}{3}}$

   A) $\left(\sqrt{6n}\right)^3$ B) $\left(\sqrt{2n}\right)^5$

   C) $\left(\sqrt{5n}\right)^5$ D) $\left(\sqrt[3]{7n}\right)^2$

Write each expression in exponential form.

5) $\left(\sqrt{7x}\right)^5$

   A) $x^{\frac{7}{5}}$ B) $x^{\frac{7}{6}}$

   C) $\left(5x\right)^{\frac{1}{3}}$ D) $\left(7x\right)^{\frac{5}{2}}$

6) $\left(\sqrt[4]{10p}\right)^7$

   A) $p^{\frac{2}{3}}$ B) $\left(10p\right)^{\frac{7}{4}}$

   C) $\left(5p\right)^{\frac{5}{3}}$ D) $\left(7p\right)^{\frac{2}{3}}$

Simplify using rules of exponents.

7) $\left(\left(2x\right)^3 \cdot x^0\right)^2$

   A) $64x^6$ B) $3x^5$

   C) $54x^{11}$ D) $4x^8$

8) $\left(3x^2\right)^2 \cdot x$

   A) $4x^4$ B) $9x^5$

   C) $8x^5$ D) $8x^{12}$

Add or subtrract the polynomials.

9) $\left(6x^4 - 7x^2\right) + \left(5x^3 - 5x^2\right)$

   A) $-5x^4 + 6x^3 - 12x^2$

   B) $-5x^4 + 5x^3 - 12x^2$

   C) $x^4 + 5x^3 - 12x^2$

   D) $6x^4 + 5x^3 - 12x^2$

10) $\left(6a^4 - 7a^3\right) - \left(8a^4 - 6a^3\right)$

   A) $-2a^4 - 3a^3$ B) $-2a^4 - a^3$

   C) $-7a^4 - 3a^3$ D) $-5a^4 - 3a^3$

Multiply the polynomials.

11) $\left(4n - 2\right)\left(3n + 6\right)$

   A) $21n^2 - 62n + 16$

   B) $12n^2 - 30n + 12$

   C) $12n^2 + 18n - 12$

   D) $21n^2 + 16$

12) $5\left(3p + 2\right)$

   A) $24p - 20$ B) $16p - 32$

   C) $15p + 10$ D) $28p + 16$

Factor each quadratic.

13) $x^2 + 5x - 24$

   A) $\left(x - 8\right)\left(x - 3\right)$

   B) $\left(x + 7\right)\left(x - 10\right)$

   C) $\left(x + 8\right)\left(x - 3\right)$

   D) $\left(x + 4\right)\left(x - 6\right)$

14) $x^2 + 19x + 90$

   A) $\left(x + 30\right)\left(x + 3\right)$

   B) $\left(x + 9\right)\left(x + 10\right)$

   C) $\left(x + 9\right)\left(x - 10\right)$

   D) $\left(x - 9\right)\left(x + 10\right)$

Solve each equation by factoring. (Factor and then find the zeros)

15) $n^2 + 4n = 0$

   A) $\{-4\}$ B) $\{-2, 0\}$
   C) $\{-4, 0\}$ D) $\{-5, 1\}$

16) $p^2 - 5p = 0$

   A) $\{5, 0\}$ B) $\{-1, 3\}$
   C) $\{-8, 0\}$ D) $\{-4, -6\}$

17) $5x^2 - 17x + 14 = 0$

   A) $\left\{\dfrac{5}{2}, 0\right\}$ B) $\left\{-\dfrac{7}{5}, -2\right\}$
   C) $\left\{-\dfrac{8}{5}, -2\right\}$ D) $\left\{\dfrac{7}{5}, 2\right\}$

18) $7x^2 + x - 6 = 0$

   A) $\left\{\dfrac{6}{7}, -1\right\}$ B) $\left\{\dfrac{8}{5}, 1\right\}$
   C) $\left\{-\dfrac{6}{7}, 6\right\}$ D) $\left\{-\dfrac{6}{7}, -8\right\}$

Evaluate each function.

19) $k(x) = x^3 + 3x^2$; Find $k(2)$

   A) 200   B) 20
   C) 4   D) 54

20) $k(x) = 2x - 4$; Find $k(-3)$

   A) 4   B) 8
   C) −10   D) 6

Solve each equation by taking square roots.

21) $v^2 = 25$

   A) $\{9, -9\}$ B) $\{25, -25\}$
   C) $\{5, -5\}$ D) $\{9\}$

22) $v^2 + 10 = 2$

   A) $\{2\sqrt{3}\}$
   B) $\{12, -12\}$
   C) $\{2i\sqrt{3}, -2i\sqrt{3}\}$
   D) $\{2i\sqrt{2}, -2i\sqrt{2}\}$

Solve each equation with the quadratic formula.

23) $12n^2 + 9 = -10n$

   A) $\{9, 1\}$

   B) $\left\{\dfrac{-5 + i\sqrt{83}}{12}, \dfrac{-5 - i\sqrt{83}}{12}\right\}$

   C) $\left\{\dfrac{2 + i\sqrt{23}}{9}, \dfrac{2 - i\sqrt{23}}{9}\right\}$

   D) $\left\{\dfrac{-5 + \sqrt{133}}{12}, \dfrac{-5 - \sqrt{133}}{12}\right\}$

Find the discriminant (b^2 -4ac) of each quadratic equation then state the number and type of solutions.

24) $5a^2 - 4a + 9 = 0$

   A) −164; two imaginary solutions
   B) −164; two real solutions
   C) 196; two real solutions
   D) 132; two imaginary solutions

25) $7b^2 - 10b + 4 = 0$

   A) 72; one real solution
   B) −12; two imaginary solutions
   C) 128; two real solutions
   D) 72; two imaginary solutions