Name:_____ Period:_____ Date:_____

Algebra Unit 3 Summative Review

Simplify. Circle your answers

1. $5\sqrt[3]{120x^2y^5z^3}$

$5\sqrt[3]{2\cdot2\cdot2\cdot3\cdot5}$

$10yz\sqrt[3]{15x^2y^2}$

2. $(x^6)^{-3}$

$\frac{1}{x^{18}}$

3. $(7x^3 - 5 + 7x^2) - (7x^2 + 9x - 9)$

$7x^3 - 9x + 4$

4. $(4x - 2)(3x + 8)$

$12x^2 + 32x - 6x - 16$

$12x^2 + 26x - 16$

5. $5\sqrt{5} \cdot -4\sqrt{8}$

$-20\sqrt{40}$

$-40\sqrt{10}$

6. $\frac{(5f^4g^5)^2(fg)}{f^7g^3} = \frac{25f^8g^{10}}{f^7g^3} = 25f^2g^8$

7. $3\sqrt{2}(4\sqrt{24} + 4\sqrt{6})$

$12\sqrt{48} + 12\sqrt{12}$

$48\sqrt{3} + 24\sqrt{3}$

$72\sqrt{3}$

8. $\frac{\sqrt{7}}{\sqrt{4}} \div \frac{\sqrt{10}}{\sqrt{8}}$

$\frac{\sqrt{7}}{\sqrt{4}} \cdot \frac{\sqrt{8}}{\sqrt{10}} = \frac{\sqrt{56}}{\sqrt{40}} \cdot \frac{\sqrt{40}}{\sqrt{40}} = \frac{8\sqrt{35}}{40}$

$\frac{\sqrt{35}}{5}$

9. $\left(\frac{12ab^4c^8}{16a^5bc^6}\right)^{-3}\left(\frac{ab^4c^5}{b^5c^2}\right)$

$\left(\frac{16a^5bc^6}{12ab^4c^8}\right)^3$

$\left(\frac{4a^4}{3b^3c^2}\right)^3$

$\frac{64a^{12}}{27b^9c^6} \cdot \frac{ab^4c^5}{b^5c^2} = \frac{64a^{13}b^4c^5}{27b^{14}c^8}$

$\frac{64a^{13}}{27b^{10}c^3}$

10. $\frac{3x^2+5x+2}{(x+1)}$

$(3x^2 + 3x) + 2x + 2$

$3x(x+1) + 2(x+1)$

$\frac{(3x+2)(x+1)}{x+1}$

$3x + 2$

11. $-2\sqrt{2} + 20\sqrt{18}$

18
9 2
3 3

$-2\sqrt{2} + 60\sqrt{2}$

$58\sqrt{2}$

12. $\frac{4\sqrt{10}}{3\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}} = \frac{4\sqrt{50}}{15} = \frac{20\sqrt{2}}{15}$

50
5 10
5

$\frac{4\sqrt{2}}{3}$

13. $\left(\frac{x^4y^2z}{xy^9z}\right)^{-2}$

$\left(\frac{x y^9 z}{x^4 y^2 z}\right)^2$

$\left(\frac{y^7}{x^3}\right)^2 = \frac{y^{14}}{x^6}$

14. $\left(\frac{abc}{ab^4}\right)^0 (-3a^4b^{-2}c)^{-2}$

$\frac{1}{(-3a^4b^{-2}c)^2} = \frac{b^4}{9a^8c^2}$

Factor completely. If not factorable, write, "prime."

15.. $x^2 - 13x + 30$

-13
-3 -10
30

$(x-3)(x-10)$

16. $30a^5b^2 + 15a^2b^2 - 3ab$

$3ab(10a^4b + 5ab - 1)$

17. $6x^2 + 7x - 10$

$(6x^2 - 5x)(12x - 10)$

7
-5 12
-60

$x(6x-5)\,2(6x-5)$

$(x+2)(6x-5)$

18. $81x^2 - 16$

$(9x+4)(9x-4)$

19. $(2x^3 - 3x^2) - 4x + 6$

$x^2(2x-3) - 2(2x-3)$

$(x^2-2)(2x-3)$