

Review #1
 §6.1 – 6.3
 Ch 6
 Algebra 2

Name KEY 2015-16

Hour _____ Date _____

Please compute the review problems on this review without a GC.

For #1-2, rewrite each problem using rational exponent notation.

1. $(\sqrt[3]{9})^7 = 9^{7/3}$

2. $(\sqrt[2]{4})^3 = 4^{3/2}$

For #3-4, rewrite each problem using radical notation.

3. $3^{3/7} = (\sqrt[7]{3})^3$ or $\sqrt[7]{3^3} = \sqrt[7]{27}$

4. $5^{2/5} = (\sqrt[5]{5})^2$ or $\sqrt[5]{5^2} = \sqrt[5]{25}$

For #5-7, evaluate each expression.

5. $32^{-3/5} = \frac{1}{(\sqrt[5]{32})^3} = \frac{1}{2^3} = \frac{1}{8}$

6. $125^{2/3} = (\sqrt[3]{125})^2 = 5^2 = 25$

7. $81^{-3/4} = \frac{1}{(\sqrt[4]{81})^3} = \frac{1}{3^3} = \frac{1}{27}$

For #8-15, simplify each expression.

8. $\sqrt[3]{32x^6y^{10}z^5} = \sqrt[3]{2^5 \cdot 2^2 x^6 y^9 y^1 z^5} = 2x^2y^3\sqrt[3]{4yz^5}$

9. $(2^{3/2})^2 = 2^3 = 8$

10. $(2x^{1/4}y^2)^4 - (144x^2y^{16})^{1/2} = 2^4 x y^8 - 12xy^4 = 16xy^8 - 12xy^4 = 4xy^4$

11. $\sqrt[4]{5} \cdot \sqrt[4]{125} = \sqrt[4]{5 \cdot 125} = \sqrt[4]{5^4} = 5$

12. $\frac{\sqrt[5]{64x^6y}}{8x^{-5}y} = \frac{2x^6\sqrt[5]{2xy}}{8y} = \frac{x^6\sqrt[5]{2xy}}{4y}$

13. $\frac{5^{2/3}}{5} = 5^{2/3-1} = 5^{-1/3} = \frac{1}{5^{1/3}}$

$$14. 3x^{1/3} \cdot 2x^{3/2}$$

$$= 6x^{1/3 + 3/2}$$

$$= 6x^{10/6} = \boxed{6x^{5/3}}$$

$$16. 18\sqrt[4]{11} + 8\sqrt[4]{11}$$

$$= \boxed{26\sqrt[4]{11}}$$

For #18-19, solve each equation.

$$18. (x-1)^3 + 2 = 29$$

$$(x-1)^3 = 27$$

$$x-1 = 3$$

$$\boxed{x = 4}$$

For #20-23, factor each expression.

$$20. 4x^3 - 25x$$

$$= x(4x^2 - 25)$$

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

$$22. 2x^2 - x - 6$$

$$= (2x^2 - 4x) + (3x - 6)$$

$$= 2x(x-2) + 3(x-2)$$

$$= (x-2)(2x+3)$$

$$15. (3x^{5/2})^2 = \boxed{9x^5}$$

$$17. 2\sqrt{50} - 3\sqrt{72}$$

$$= 2\sqrt{25 \cdot 2} - 3\sqrt{36 \cdot 2}$$

$$= 10\sqrt{2} - 18\sqrt{2}$$

$$= \boxed{-8\sqrt{2}}$$

$$19. 2(x+3)^2 = 50$$

$$(x+3)^2 = 25$$

$$x+3 = \pm 5$$

$$\begin{array}{l} \swarrow \quad \searrow \\ x+3 = 5 \quad x+3 = -5 \end{array}$$

$$\boxed{x = 2}$$

$$\boxed{x = -8}$$

$$21. 12x^2y^5 - 16xy^3$$

$$= 4xy^3(3xy^2 - 4)$$

$$23. 3x^2 + 3x - 18$$

$$= 3(x^2 + x - 6)$$

$$= 3(x+3)(x-2)$$