SIMPLIFYING RADICAL EXPRESSIONS

Perfect Squares: 1, 4, 9, 16, 25, ____, ____, ____, ____, ____, ____, 144…

x^2, x^4, x^6, ____, ____… Exponents must be _____.

$\sqrt{25}$ is read "the square root of 25".

$\sqrt{25} = 5$ because $5^2 = 25$ $\sqrt{36} = 6$ because ____ = ____ $\sqrt{100} =$ ____ $\sqrt{49} =$ ____

$\sqrt{a^6} = a^3$ because $(a^3)^2 = a^6$ $\sqrt{m^{16}} = m^8$ because ____ = ____ $\sqrt{y^{10}} =$ ____ $\sqrt{a^2} =$ ____

Hint: Divide the exponent by _____.

In the expression $\sqrt{a}$, the $\sqrt{}$ is called the radical and a is called the radicand.

Simplify (Simplifying Perfect Squares):

1. $\sqrt{4}$ 2. $\sqrt{16}$ 3. $-\sqrt{100}$ 4. $\sqrt{a^8}$ 5. $\sqrt{w^{12}}$

6. $\sqrt{a^6 b^{10}}$ 7. $\sqrt{9a^2}$ 8. $-\sqrt{81m^{64}}$ 9. $\sqrt{49a^4 b^{12}}$ 10. $\sqrt{121x^{14} y^6}$

Simplify (Simplifying Radicals that are not Perfect Squares):

1. $\sqrt{20} = \sqrt{4} \cdot \sqrt{5} = 2\sqrt{5}$ 2. $\sqrt{27} = \sqrt{9}\sqrt{3} = 3\sqrt{3}$ 3. $\sqrt{48} = \sqrt{16}\sqrt{3} = 4\sqrt{3}$

4. $\sqrt{45} = \sqrt{}\sqrt{} = \_\sqrt{}$ 5. $\sqrt{12} = \sqrt{}\sqrt{} = _____$ 6. $\sqrt{50} =$

7. $\sqrt{a^5} = \sqrt{a^4}\sqrt{a} = a^2\sqrt{a}$ 8. $\sqrt{x^9} = \sqrt{}\sqrt{} = _____$ 9. $\sqrt{x^3} =$

Simplify:

1. $\sqrt{18}$ 2. $\sqrt{125}$ 3. $\sqrt{72}$ 4. $\sqrt{180}$ 5. $\sqrt{a^3}$

6. $\sqrt{b^7}$ 7. $\sqrt{m^{11}}$ 8. $\sqrt{75x^7 y^5}$ 9. $\sqrt{27a^{11} b^7}$ 10. $\sqrt{32a^7 b^4}$

11. $\sqrt{9a^8}$ 12. $\sqrt{45a^7}$ 13. $\sqrt{36x^2 y^6}$ 14. $\sqrt{12x^{20} y^8}$ 15. $-\sqrt{200}$

16. $\sqrt{196}$ 17. $\sqrt{63x^4 y}$ 18. $\sqrt{6x^3}$ 19. $\sqrt{100x^5 y}$ 20. $\sqrt{80x^{100} y^{49}}$

Homework Simplifying Radicals

Name _____

Class Time_____

Simplify each of the following expressions completely.

_____ 1. $\sqrt{64}$

_____ 2. $-\sqrt{18}$

_____ 3. $\sqrt{32}$

_____ 4. $\sqrt{50}$

_____ 5. $\sqrt{400}$

_____ 6. $\sqrt{x^6}$

_____ 7. $\sqrt{x^7}$

_____ 8. $\sqrt{16x^{16}}$

_____ 9. $\sqrt{9x^9}$

_____ 10. $\sqrt{40x^8}$

_____ 11. $\sqrt{25x^7}$

_____ 12. $\sqrt{12x^5}$

_____ 13. $\sqrt{a^2 b^4}$

_____ 14. $\sqrt{49a^8 x^{12}}$

_____ 15. $\sqrt{28x^9 y^6}$

_____ 16. $\sqrt{32m^7 n^{11}}$

_____ 17. $\sqrt{20x^{10} y^5}$

_____ 18. $\sqrt{100ab^4}$

_____ 19. $\sqrt{75x^8 y^3}$

_____ 20. $\sqrt{98x^7 y^5}$

_____ 21. $\dfrac{x^2+16x+63}{2x^2+19x+9}$

Homework: This worksheet
Answers to odd problems on worksheet:

1. 8

3. $4\sqrt{2}$

5. 20

7. $x^3\sqrt{x}$

9. $3x^4\sqrt{x}$

11. $5x^3\sqrt{x}$

13. ab^2

15. $2x^4 y^3\sqrt{7x}$

17. $2x^5 y^2\sqrt{5y}$

19. $5x^4 y\sqrt{3y}$

21. $\dfrac{x+7}{2x+1}$